Fostering Social Connections Through Internet Use: Visually Impaired Older People's Use of Computer Mediated Communications

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Declaration

I declare that the work contained in this thesis has not been submitted for any other award and that it is all my own work. I also confirm that this work fully acknowledges opinions, ideas and contributions from the work of others. The work was done in collaboration with the Newcastle Society for Blind People, UK.

Any ethical clearance for the research presented in this thesis has been approved. Approval has been sought and granted by the School of Health Community and Education Studies (HCES) Research Ethics Sub Committee on 7th June, 2011.

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Patrick Emeka Okonji

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Date

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Thinking back over the entire years spent on this thesis, I cannot help but feel nostalgic when I remember the challenges and pleasant moments of my academic journey towards a PhD. Regardless of the stress and strain that I experienced throughout this period, I have enjoyed each daunting task since day one. I would like to express my heartfelt gratitude to a bunch of great companions whose support has been invaluable throughout this journey.

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Reflection on the research journey

I worked as an optometrist for more than five years before I embarked on my research journey for the current study. For most of my professional career as an optometrist, I had been aware of the challenges of vision impairment for many older people. In the field of vision care, I have developed a keen interest in ocular rehabilitation of blind and partially sighted older people, especially with use of Information Communication Technology (ICT). My interest in social networks and socialisation among visually impaired older people was borne out of my personal experience with patients during consultations. For example, while patients have the right to insist on any consultant of their choice, they often have difficulties recognising their consultant of choice when they walk into consultation rooms, even after several visits because they cannot see faces. I thought of the implications of such challenges in patients' wider social worlds. I thought how difficult it must be for many of them and the complexities of living without sight in a social world that is largely reliant on sighted culture. Again, although technology could come to the rescue, existing technologies that should facilitate communication and enhance social contacts are undergoing very rapid modifications that often demand normal vision to operate due to miniaturisation. It was after these thoughts that I decided to embark on exploring the current topic.

As I reflect over the months spent in developing and conducting this study, I would unequivocally say that every phase of the study came with distinct challenges and experiences. While the experiences were quite exciting, they were very tasking for me. The first challenge was finding courage to embark on a thorough sociological research whilst coming from a medical background. A qualitative approach was necessary because the study demanded in-depth exploration of participants' experiences. Taking this into perspective, I developed the Initial Project Approval (IPA) which was the foundation phase of the study – providing a blueprint for the rest of my research journey. The IPA phase was the most daunting but fascinating aspect because it compelled me to think conceptually about the study and to develop strategies that would ensure rigour.

Subsequent to the ethical approval of this study, I was confronted with another hurdle of developing early familiarity with the gatekeeper organisation. I approached this hurdle by scheduling a preliminary visit to the organisation. I was cautious about becoming a bore and therefore, I scheduled such visits periodically and with due respect to the regulations of

the organisation. It was a tiring experience due to much travelling to the centre. However, I found the fieldwork to be one of the most interesting experiences because I shared in the humour, jokes, laughter and friendships at the centre with many students – some of whom later became participants in this study. The fieldwork afforded me the much needed opportunity to establish initial contacts with potential participants. This rapport building process enabled me to recruit participants for the study.

As I wished to embark on an in-depth exploration of the topic, I employed the breadth of ethnography data collection methods. It is often acknowledged in qualitative research that a researcher's beliefs and assumptions will influence how data is collected and analysed. Many qualitative researchers emphasise the importance of being as clear as possible in what such beliefs and assumptions are and how they might have influenced the researcher or the research. In this context, I acknowledge the debate on the absence of visual cues in textual Computer Mediated Communication (CMC) and its interplay on the dynamics of developing social relationships online. I also recognise its centrality in theoretical perspectives of CMC. In essence, I acknowledge that the emphasis on visual and social cues can be summarised in at least two broad domains. Firstly, visual cues are largely known by physical cues that are inherent in bodies, such as facial expression, appearance and body language. Secondly, visual cues mediate in the formation of social relationships and are key components of daily social interaction. In this way, my personal opinion and values come from the acknowledgement that the significance of communication in face-to-face interaction depends on what individuals see and what they hear. In other words, both cues are composite because hearing what is said without vision of body language accompanying it may well obscure a deeper understanding of what is said, albeit not always. However, people who are visually impaired have diminished perception (and in some cases, not just diminished but no perception) of visual cues. To debate the dynamics of social ties that can be formed in CMC based on visual cues without including the perspective of visually impaired persons, seems not to be inclusive of all users. This is because it tends to assume that all users are sighted. Thus, I set out to explore the perceptions of visually impaired older people as a distinct group that remained understudied. All participants in the study were selected because they were already using the internet or wanted to explore internet use for building and maintaining social relationships.

Qualitative researchers often argue that the presence of the researcher in traditional ethnography can influence the cultural group they are studying. No traditional ethnographic fieldwork can claim to entirely eliminate the influence of the researcher's presence. In addressing the issue of the researcher's influence on the cultural group being studied, it is possible that by building familiarity and trust with the group they confide in the researcher and act naturally. This may not be as easy as it sounds because it is time consuming. It was difficult because participants could not see my facial expressions. For example, a smiling, friendly facial expression and subtle body language could facilitate the process of building trust. However, when I observed that it often went unnoticed by participants, I focused more on humour as a friendly approach. Humour became more or less my trump card and I often used it whenever I realised the atmosphere was tense. In a way I cannot fathom, I must have endeared myself to many of the participants.

Many participants at the centre were aware that my presence at the centre meant that they were being watched and I was often conscious of what influence my presence might be having on the participants. I understand from professional experience of working with visually impaired people that the sense of being watched may stimulate self-consciousness and a feeling of uneasiness because they cannot make eye contact. Although taking field notes in their presence was easy because they could not see me scribbling, I respected their privacy and often only wrote in the kitchen area. In the course of the field observations, some participants asked me questions about the progress of the study. In a way, I could not stop thinking, albeit occasionally that they had this clamour in their heads that I stood out amidst them like a sore thumb and that they could not just shy away from scrutinising me. On other occasions during the field observations, they seemed to be less bothered about whether I was watching them or not. Perhaps my role as a participant observer (a volunteer at the IT suite where participants used the internet) helped to relax them and feel that I was too absorbed to be watching them most of the time. Another method that I adopted to relax participants was by being open about the purpose of the study, explaining to them that confidentiality would be maintained, being open about my role as a researcher and a volunteer and my professional background.

My experience in the research field was different from my clinical experience of working with visually impaired people. For example, I became more conscious of my own actions as a researcher in their midst. In addition, I learnt how to make adjustments quickly and flexibly to accommodate my dual role (as an observer and as a volunteer). This was by no

means an easy multi-tasking role. I became more cautious of gestures to watch for, things to say and how to say them correctly rather than paying attention to my facial expression in-order to convey my intention at any time. However, I used normal facial expressions irrespective of being conscious that they could not see my expressions. At the beginning of the field study, I was a little worried about how I would fit into a group of older adults who were very inquisitive about my mission. Perhaps, this was because I worried about conveying the wrong impression initially. I was also cautious about saying something insensitive that would jeopardise the nascent relationship of trust and rapport which I was trying to build. However, in all these situations, my consolation was that it is human nature for people to worry about themselves and to be careful, especially when they are in a distinct group that they are meeting for the first time. Each day in the field brought a lot of progress for the research and for the friendships.

In summary, I feel so much respect for all participants in showing resilience to live their lives to the full by manoeuvring through the social world in order to meet their need for social contacts through internet use, despite the challenges mitigating their internet access.

Abstract

In today's ICT dynamic society, questions continue on how internet use affects social relationships and well-being. By building upon past work and conceptualising visually impaired older adults as a distinct user group, this research explored the perceptions of visually impaired older people concerning how they build and maintain social ties via Computer Mediated Communication (CMC). The research attempts to create an understanding of how internet use could be of benefit to visually impaired older adults and what implications it has for their social well-being. The study employed tools of ethnography [observations in an internet café specifically for visually impaired people and semi-structured interviews]. One-to-one and focus group interviews were conducted with 23 visually impaired older adults between the ages of 60-87 years. All participants were registered visually impaired members of a Voluntary organisation in Newcastle, UK. Findings show that participants mainly perceived the internet as a means to establish and maintain social relationships rather than a substitute for social contacts in the face of myriad challenges with socialisation offline. It also enabled them to challenge popular stereotypes about older people and use of new technologies. Many participants regarded internet use as a means to enhance social connectedness and overcome feeling isolated. Findings showed how internet use fits into the communication styles of visually impaired older people and enable them to cope with the challenges of vision loss. Some participants regarded the absence of visual cues in CMC as a communication advantage which afforded them a platform to socialise with others on an equal footing. The implication of findings for existing theoretical concepts of CMC and the need for a more inclusive theoretical stance which integrates the position of visually impaired users were discussed. The study concludes that the internet is a vital tool for social integration of visually impaired groups. It has potential for positive impact on their well-being if accessibility is further enhanced.

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Chapter One - Introduction

1.1 Background to research problem

Having meaningful social interaction and relationships are cornerstones of well-being (Antonucci, Birditt, & Webster, 2010; Reichstadt *et al.,* 2010). The foundation of our social lives is often rooted in the relationships that we keep with other people. This covers various aspects which broadly include maintaining contacts with loved ones, sharing our interests and participating in society. For many older people, keeping in touch with family and friends, and places that they have known over time are part of their social needs (Shaw *et al.,* 2007; Litwin, 2010; Umberson & Montez, 2010). It is not surprising that a growing number of studies have emphasised the importance of socialisation in later life, and debated how meaningful networks can contribute to the well-being of older people (Litwin, 2010; Bowling, 2011). However, physiological changes and increased frailty that are often associated with ageing can sometimes constrain the ability of older people to build and maintain social contacts and socialise. One of such age-related physiological change is vision impairment.

Research suggests that vision impairment may impact negatively on the ability to perform activities of daily life and participation in activities. Apart from vision impairment, ageing is often characterised by losses such as bereavement, retirement, children leaving home, which can adversely affect the social networks of older adults or their ability to maintain existing social networks. Due to the loss of ability to engage in previous joint activities, there may be a tendency for social network members to sever ties with visually impaired older adults (Wang & Boener, 2008). This often leads to challenges in re-establishing social contacts following vision loss (Wang & Boener, 2008). These events can cause a reduction in social networks. The importance of maintaining relationships has been stressed in many studies. Emphasis has been placed on its importance for the well-being of older adults particularly within the context of coping with chronic impairment and developing support functions to enhance adaptation (Litwin, 2010).

In line with these issues, interventions that can enhance the ability of older adults to maintain contacts with others and prevent isolation are becoming an on-going public health

concern particularly in today's ageing societies (Dickenson *et al.*, 2011; Cattan, 2013) There are indications that Computer Mediated Communication (CMC) tools, such as the internet, may have the potential to enable users to build new relationships and maintain existing ones (Xie, 2008; Huang, 2010; Toma, 2010). Many internet communication systems present users with opportunities to socialise without regular face-to-face meetings. The internet can, therefore, change the way we interact with others and our social lives, but how these processes occur remains unclear (Zhao, 2006; Baym, 2010).

The rapid development of social media has fuelled research debates on its impact on relationships. For example, there are hopes that the internet can facilitate socialisation, alleviate the burden of social isolation among older users and contribute meaningfully to their well-being (Leist, 2013). However, the older adult population group is diverse and the ways in which it uses the internet varies greatly (Wagner, Hassanein, & Head, 2010). In the light of the varying patterns of use and the claims that visually impaired older adults are more at risk of reduced social network (Lind *et al.*, 2003; Rowe, Maclean, & Shekelle, 2004; Rossenberg & Sperazza, 2008), there is a need to understand how they can specifically use the internet to stay connected and enhance their well-being. The current study explored how visually impaired older people use the internet to overcome relational challenges posed by vision impairment, and how internet use fits into their communication style and daily lives. This study aims to contribute to existing body of knowledge in Computer Mediated Communication (CMC) by this understudied group of older people. The findings of the research identify some implications for CMC theories. The study seeks to benefit technical and non-technical specialists by advancing their understanding of the challenges and advantages of internet use for visually impaired older people.

1.2 Living in a sighted culture, and CMC technology

Effective communication is important for building and maintaining social relationships. A large amount of information is conveyed either visually or in printed forms. Facial expressions and body language are varieties of visual cues which facilitate our day-to-day communication. Visual information such as photographs, pictures, line drawings and painted objects can help us to understand and remember messages. Lack of access to visual cues can cause challenges and make social interaction difficult for many visually impaired persons in face-to-face situations. The loss of vision often demands adjustments – not only for the individual's adaptation, but also for communication with others because we live in a

sighted culture. However, technological advancements have improved the way people communicate. But such improvements are not without some disadvantages for some user groups. The miniaturisation of many communication appliances such as smartphones and touch-screen computers makes it difficult for visually impaired people to use them (Kane, 2011). In addition, societies are built on a culture that conditions people to rely heavily on sight. Eye contact plays a vital role in routine face-to-face interaction. It is through eye contact that verbal communication is supplemented, emotional cues are decoded and people are assessed.

Observing eye contact has great significance when socialising offline and also has cultural interpretations. Such cultural interpretations tend to demonstrate the "social construct" of communicating in face-to-face environments. For example, in some cultures, looking at people straight in the eye is assumed to indicate honesty and sincerity. In others, it may be regarded as being rude. Most people in Arab cultures share a great deal of eye contact and may regard too little as disrespectful. Thus, different cultures vary in the extent to which eye contact is regarded as acceptable. Some authors refer to these as "High-look" and "Low-look" cultures (Collet, 1993). British culture is described by Collet (1993) as a "Low-look" culture because looking at other people, especially strangers, could be regarded as intrusive. The person who is caught looking at another will usually look away immediately, feeling embarrassed, whilst the person who is being watched may feel threatened or insulted. In contrast, in "High-look" cultures, looking or gazing at other people is perfectly acceptable. This is common in Southern Europe. In many other cultures such as Eastern Asia and Nigeria, it is a sign of disrespect if a younger person looks an older person in the eye. Conversely, in Western cultures, looking away can be interpreted as "shifty". A shifty-eyed person could be judged adversely because he does not look at the person he is communicating with in the eye. This may lead to suspicions being raised regarding the person's thoughts or intentions. Thus, eye contact is an important dimension in interpersonal communication. It can ascertain the desire to communicate attentiveness and concern. It can also be used to indicate interpersonal interest, to offer support, or to evaluate response approaches. However, lack of eye contact may be interpreted as lack of interest, or preoccupation with some other matter or lack of concern (Davidhizar, 1992)

Vision loss impairs one's ability to communicate effectively through eye contact. This may prompt changes in communication with members of one's social network and even strangers (Lylas & Mogk, 2004). In some cases, it may involve confronting social

prejudices and expectations of sighted people. For example, many visually impaired older adults have led fully sighted lives until the point where age-related degenerative changes in vision caused vision impairment. As they experience vision impairment, they may carry many of the prejudices, assumptions and expectations of sighted people (Lylas & Mogk, 2004). As a result, they may still hold on to their belief in the stigmatised status of blindness, or live in denial of vision loss, avoid organisations associated with blind people or even stay at home to avoid social engagements. This adds to the phenomenon of isolation, loneliness or reduced social networks. Although the internet has enhanced how people make social connections in the 21st century, it remains unclear how the pattern of social life and relationships with others become influenced by communication made in text-only media, which is without the nuances of visual cues that are afforded in face-to-face contexts. The current study explored the opinions held by visually impaired older people about how internet use fits into their lives, the benefits of usage and its implications for their social relationships.

1.3 The digital revolution and the disability divide as policy drivers

In the last 30 years, there have been major changes in the Information Communication and Technology (ICT) world. These changes were heralded by the transformation of the analogue mechanical and electronic technologies of the late 20th century to the digital technologies of the 21st century. The changes in communication brought about by digital and communication technology are often described as the "Digital revolution" (Miller, Vandome, & McBrewster, 2010). Many barriers are preventing people with vision impairments from accessing the internet and embracing its potential benefits. The widening gap between people who are able to access the internet in comparison to those who are unable to access it due to disabilities such as vision impairment constitutes what is referred to as the "Disability divide" (Dobransky & Hargittai, 2006; Hollier, 2007). The digital revolution and inequality in internet accessibility have driven many policies for the inclusion of visually impaired users in online service provision (Hollier, 2007), and the need for equitable internet access has dominated political thinking (Simpson, 2009; Wentz, Jaeger, Lazar, 2011). Another important driver for policies to enhance internet accessibility for visually impaired people and other internet users with disability is the inequity confronting their access to usable websites.

- *Inequalities, Inequities and the Disability divide*

Within the context of ICTs, inequality often refers to the disparity between the ability of different people to access ICTs (Pippa, 2001). However, in recent years, there has been an emphasis on the need to shift from the dichotomous split between "haves" and "have nots" to exploring more nuanced use and disparities in access to ICTs (DiMaggio *et al*., 2004; VanDijk, 2006; Livingstone & Helsper, 2007; Wittie & Mannon, 2010). It has been suggested that it is important to understand the quality of access that people have in order to be able to give a systematic account of how people use technologies (Selwyn, 2004).

According to Selwyn (2004) there is a hierarchy of access to different forms of technology, and how people use it determines how it impacts on them. The levels of connectivity to the internet and the individual's capability to use it depend on a combination of factors such as skills, literacy, disability and attitude to ICT (Selwyn, 2004). In terms of disabilities, visually impaired users are a group that frequently have difficulties in accessing the internet and other forms of digital technology (Hollier, 2007). Web designs and lay-outs are often not user friendly for people with vision impairment. However, "access to ICTs" is often conceptualised as availability of infrastructures and its usability. This stance has been described by some critics as the "technological determinist" approach to the definition of access because it often suggests that the availability of assistive technologies and infrastructures will guarantee access for people with disabilities (Chaudhry & Shipp, 2005; Hollier, 2007). As Floridi (2010, p.161) comments:

> *"There have been attempts to regulate the web and to produce standards adopting something similar to the medical model of disability, by assuming that they know best how to design accessible websites without involving disabled users. In itself, this is a form of technological determinism, as it assumes that technology is neutral and can be fixed by technological means to suit a group of users without acknowledging how disability is defined and made through the use of technology"*

In many policies, the concept of "disability'' is unclear because it is used in such a way as to denote a homogenous group of people. In reality, as some studies suggest (Hollier, 2007; Berry, 2011; Tsatsou, Higgs, & Stafford, 2011), the picture is complicated by factors which define the exact nature of the disability and ageing because such factors mediate how

people interact with ICT. For example, ageing may present with different disabilities which can affect how older adults use the computer in different ways depending on the functional limitation associated with such disabilities (Arch, 2008). Such age related functional limitation includes vision decline, hearing loss, diminished motor skill or cognitive decline (Arch, 2008; Wagner, Hassanein, & Head, 2010). In essence, these factors also contribute to the uptake of the internet and ultimately to the digital divide. Berry (2011) contends that policy designs should adopt a "systematic map", that is a structured set of factors that influence internet access among older adults. Similarly, Dobransky and Hargittai (2006) argue that a more nuanced categorisation of disability status is needed to get an in-depth understanding of related issues affecting internet uptake by people with disabilities. Thus, it is important for policies on internet access for this group to be conceptualised beyond providing networked internet access and physical resources (infrastructure and equipment) to understanding how people with different disabilities use the internet (Sourbati, 2009).

1.4 Gaps in knowledge

Computers are increasingly becoming integral to modern living. Thus, it is important that older people learn how to adapt to new computer-based technologies if they want to be part of the current information society (European Commission, 2007). These days many technologies are operated through computer systems as seen in smart phones, Automatic Teller Machines (ATMs), ticket machines, hospital check-in services, etc. Operating these technologies require an understanding of their underlying systems of operation, that of networked digital devices, the internet and the World Wide Web.

Research suggests that many older people have never used the internet (Niehaves & Plattfault, 2014; ONS, 2013). According to a recent report by Age UK (2013), older people aged 60 and over in the North of England are less likely to be online compared to those in the South. The report suggests that only 28% of older people in Tyne and Wear use the internet. This contrasted sharply with their peers in Surrey, where 63% of older adults reported using the internet. In other Southern parts of the country (such as Bedfordshire, Suffolk, Oxfordshire, Buckinghamshire), not less than 50% of older people aged 65 and over use the internet. The Age UK (2013) report raised concerns over the North-South divide and highlighted the need for the government, local authorities and private organisations to help older adults get online.

Many studies have investigated the reasons for the low internet adoption among older people. Specific factors which have been identified as affecting adoption decisions for older people include socio-economic barriers such as income, cost of computers and educational level (Mattila, Karjaluoto, & Pento, 2003; Eastman & Iyer, 2004; Juznic *et al.*, 2006), the impact of prior experience with similar technologies (Agarwal & Prasad, 1999; Docampo Rama, 2001; Lu, Yu, & Liu, 2003) and lack of specific knowledge about computers (Compeau & Higgins, 1995; Venkatesh & Davis, 1996; Rogers *et al.*,1998). Umemuro (2004) argues that the attitude of potential users towards the technology also determines its adoption.

Some attitudes among older people have been identified as indicators of a decision to adopt computer use. For example, within the Technology Acceptance Model (Bagozzi *et al.*, 1992), *perceived usefulness* (a measure of the subjectively defined benefits of technology use) and *perceived ease-of-use* (a measure of the user's degree of satisfaction with accessibility) have been argued to be strong determinants of older people's rational intention to use ICTs (Ryu, Kim, & Lee, 2009). Davis (1989, p.320) defined "*perceived usefulness*" as "the degree to which a person believes that using a particular technology would enhance his or her job performance" and "*perceived ease-of-use*" as "the degree to which a person believes that using a particular system would be free from effort". In essence, the perceived relevance and benefits of computer use is an important decisional factor among many older people (Selwyn *et al.*, 2003; Sharit *et al.*, 2004; Melenhorst *et al.*, 2006). However, older adults may also have strong emotional reactions, such as fear and "computer anxiety" to using computers (Ellis & Allaire, 1999; Czaja *et al.*, 2006). Such reactions could influence their decision making process when they are inexperienced, and negatively affect initial use and adoption (Ellis & Allaire, 1999; Czaja *et al.*, 2006).

Furthermore, older people's computer and internet literacy levels are diverse. As older people are a very heterogeneous group (Wagner, Hassanein, & Head, 2010; Neves & Amaro, 2012), the challenges that they experience through computer learning processes are diverse (Wagner, Hassanein, & Head, 2010) and there is a need to understand the scope of such diversity and how it may affect the adoption of ICTs. For example, many visually impaired older adults are in the position of having to learn how to use adaptive technological devices from scratch before they can explore their potential. The absence of

prerequisite technical literacy can exclude them from the benefits of computers and the internet.

Research addressing the digital inclusion of older people has highlighted the importance of understanding the process by which older users establish the benefits (Melenhorst *et al.*, 2001; Sharit *et al.*, 2004; Melenhorst *et al.*, 2006) and relevance (Selwyn *et al.*, 2003; Richardson *et al.*, 2005; Dickinson & Hill, 2007) of Information Communication Technologies (ICTs) for their day-to-day lives. This thesis investigates these largely ignored aspects of the usefulness of computer use among visually impaired older people in order to reveal how they can accommodate positive and adaptive responses to ageing and vision impairment.

Little is known about how difficulties in interacting offline and accessing communication technology impact on socialisation among visually impaired users (Simpson, 2009; Tsatsou, Higgs, & Stafford, 2011). Understanding how they use computers and the internet could provide insight into the relevance of CMC in their social lives. Furthermore, the majority of CMC studies tend to focus on sighted older people and are conducted using quantitative methods. Although a few of these studies focused on older adults with disability (Tilley *et al.*, 2006; Jaeger & Xie, 2009; O'Brien, 2011), they seem to present "disability" as homogenous concepts (Dickenson & Gregor, 2006; Tsatsou, Higgs, & Stafford, 2011). For critical methodological reasons and non-differential analyses of internet use within the context of disability (Zhao, 2006; Tsatsou, Higgs, & Stafford, 2011), scholars have an incomplete understanding of how internet use fits distinctively into the lives of older people with disabilities (Tsatsou, Higgs, & Stafford, 2011).

While we can make suggestions from studies involving exclusively sighted users, the extent to which findings from such studies can be applied to visually impaired users is not known because usage pattern between the two groups vary markedly. Despite the extensive body of research on impact of internet use on older people, visually impaired people have been an understudied group and literature on how the use of CMC fits into their lives is limited (Kane, 2011). This gap in knowledge further complicates the digital and disability divide, thereby hindering a functional approach to bridging the divide (Hollier, 2007). The current thesis explores how older people with vision impairment use elements of CMC in compensating for vision disability and how this impacts on their well-being.

Research suggests that older people can harness social support online (Wright, 2000; Pfiel, Zaphiris, & Wilson, 2009). Studies on social uses of the internet among older people and how they can harness social support online have mostly been conducted on groups that typically suffer from extreme forms of chronic diseases or social isolation (Malhotra & Stockdale, 2008; Stockdale, 2008; Fox & Purcell, 2010). Such studies investigating the benefits of internet use for people with chronic health issues have recently grown in popularity. Some studies suggest that internet use can serve as outlet of support by connecting people who are having similar experiences and help those with disabilities receive practical help in adjusting to life with disability (Eysenbach, 2008). Little is known on how engagement in online activities with others can create a means for visually impaired older people to develop a better understanding of their disability and to adapt behaviours to promote their well-being.

- *Purpose of study*

The current study aims to contribute to the understanding of the meaning of internet use among visually impaired older people, and how it supports their daily lives. The study seeks to contribute to on-going theoretical debates on impacts of CMC by highlighting the need for a more inclusive theoretical stance. By focusing on visually impaired older people, the study aims to contribute to an understanding of the distinctiveness of visually impaired older people as a computer user group. The following research questions will be explored in the current study:

1. How do older adults with vision impairment use the internet to build or maintain social ties?
2. What role does internet use have in redefining their social networks?
3. What is the impact of internet use on the social well-being of visually impaired older adults?

1.5 Definition of terms

- *Vision Impairment*

The term "sight loss" (or vision loss) and "vision impairment" are used interchangeably in many studies. However, in order to clarify which term fits the purposes of the current thesis, it is important to provide a discussion of both conditions. The term "Vision impairment" broadly refers to poor clarity of vision and complete loss of vision. It is defined as a severe deficit in vision that cannot be treated by glasses, contact lenses or medication (WHO, 2004). Severe vision impairment is defined by self-report as the inability to recognise a friend at arm's length, even when wearing glasses, or being blind in both eyes (Arlene, 2002).

Vision impairment can be caused by refractive errors or diseases of ageing (WHO, 2004). Sight loss cannot be considered as vision impairment if it becomes possible to correct it via medical intervention, contact lenses or conventional eye wear. However, without clinical intervention, sight loss may become severe and vision might become extremely poor so that visual acuity may not be sufficiently good to do any work for which eyesight is essential. In such cases, an individual may qualify as visually impaired when their presenting visual acuity corresponds with the baseline measurement of visual impairment. In other words, sight loss that is not severe enough to reduce visual acuity to a level less than the standard baseline for diagnosis of vision impairment (i.e. 6/18) cannot be considered vision impairment.

- *Older people*

The term "older people" has been assigned different definitions in different studies. Many definitions are broadly determined by physiological, psychological and socio-cultural factors (Cohen, 2002). It is also sometimes defined by subjective perception of how old one feels (Barrett & Cantwell, 2007). Thus, the definition of "older adult" takes different forms depending on the context of the study. For example, within a workplace context, people above the age of 50 may be regarded as older adults (Kooij *et al.*, 2008). Similarly, many developed countries use the retirement age of 65 in reference to older adults (WHO, 2011a). However, although the United Nations has not adopted a standard criterion, 60^{+} years is used to refer to older adults (WHO, 2011a).

In a review of the literature, Bailey (2002) proposed a classification of the term "adult" based on four categories. These categories include: young adult (aged18-39), middle-aged adults (40-59 years), older adults (aged 60-74) and the old-old (aged over 75). However, studies focusing on older adults and their use of computers often adopt different definitions of older adult, ranging from 40 years to 75 years (Wagner, Hassanein, & Head, 2010). Hawthorn (2000) argues that the needs of older adults with computer use vary markedly from the needs of younger adults and such needs become very evident at approximately 45 years. Such needs are precipitated by physiological changes commonly associated with aging such as decline in vision, hearing and psychomotor co-ordination (Hawthorn, 2000). These inform the need for larger fonts, adjustable sound frequencies and web-layout designs with fewer distractions (Wagner, Hassanein, & Head, 2010). Although more than 90% of visually impaired people are 60 years and over (Livingstone, McCarthy, & Taylor, 1997; Klein *et al.*, 1999; Hinds *et al.*, 2003; Campbell, 2005; RNIB, 2010), there is no evidence in to suggest that the term "older adult" is defined by the prevalence of any impairment among the older adult population. This means that the higher prevalence of vision impairment among older people aged 60 and over may not be sufficient reason to label them as older adults. However, for the purposes of this research, the United Nations agreed standard of 60 years and over was adopted as the definition of an older adult.

1.6 General outline of study

The current literature on internet use and social relationships is presented in chapter two. The discussion focuses on the psychosocial impact of vision impairment in relation to daily lives of visually impaired people and how the challenges that they face may impact adversely with their ability to socialise. Chapter three presents the theoretical perspectives of computer mediated communication such as the Cues-Filtered-In and Cues-Filtered-Out perspectives. The relation and limitation of these theoretical perspectives to the current study is also discussed. Furthermore, the chapter articulates how the Selection Optimisation and Compensation (SOC) theory of ageing defines the theoretical framework of the study and guides the study in describing how visually impaired older adults adapt to the losses of vision impairment. The research approach is discussed in chapter four and the choice of ethnography is justified by explaining how its methodological strengths fit with the current study.

In chapter five, the research findings are presented in themes. The themes are underpinned by data collected from the research participants regarding how they built and maintained social ties, the perceived benefits of internet use and their concerns about their access to the internet. Chapter six present a detailed discussion of findings. The findings are discussed with relevance to research questions posed in chapter three. Finally, in chapter seven, the thesis draws conclusions regarding the research questions and discusses how the study contributes to existing body of scholarly knowledge. The implications of findings for theory and practice are also stated.

Chapter Two -Contextual background to the research

2.1 Introduction

Of the current total world population of over 6.8 billion people, there are more than 790 million people aged 60 years and over (WHS, 2011a). Among this population group, approximately 80% are visually impaired and predictions indicate that this number will increase by 20% over the next 10 years (WHO, 2011b). This is mainly because people are living longer and ageing is associated with an increased risk of diseases that cause vision impairment. The World Health Organisation (WHO) defines vision impairment as visual acuity of less than 6/18 or corresponding vision loss to less than 10degrees in the better eye with glasses (WHO, 2004).

Vision impairment continues to be a major health burden worldwide and often presents the individual with many challenges. While personal factors play an important part in the adjustment process, environmental and societal factors also play a crucial role. The purpose of this chapter is to present a critical discussion of the factors that can impact on the capacity of visually impaired persons to build and maintain social relationships. Societal attitude and psychosocial factors are among the many factors discussed. In addition, this chapter presents the on-going debate on the impact of internet use on social relationships and well-being. A discussion of the concept of social well-being is also provided.

2.2 Vision impairment and socialisation

The consequences of vision impairment among older adults is serious, but often the social needs of visually impaired people are inadvertently overlooked (TPT, 2003; Jones *et al.*, 2009). Two of the most commonly documented psychological impacts of vision impairment are anxiety and depression. Research suggests that a diagnosis of vision impairment often triggers grief, which manifests in anxiety and depression (Sharpe, 2002; Percival & Hanson, 2005). Furthermore, anxiety about the potential of vision impairment to progress gradually into total blindness often leads to emotional reactions such as denial, anger and fear of decreased independence (Evans, Fletcher, & Wormald, 2007; Miller, 2009; Bernabei *et al.*, 2011); and these negative reactions may lead to social withdrawal and poor socialisation (Fenwick *et al.*, 2012). The prevalence of depression, emotional

distress and reports of depressive symptoms have been shown to be higher among visually impaired older adults when compared to their sighted peers (Tsai *et al.*, 2002; Capella-McDonnall, 2005). Depressive symptoms appear worse with severity of vision impairment (Rovner & Casten, 2001; Owsley & McGwin, 2004; Iliffe *et al.*, 2005). In a study investigating the impact of vision impairment on older adults, Nyman *et al*.(2010) argue that visually impaired older adults reporting signs of depression were less likely to socialize than those without signs of depression. The feeling of anxiety and worry negatively affect socialisation (Burmedi *et al.*, 2002). Rovner and Casten (2002) also report that the relationship between the degree of vision impairment and levels of depression is mediated by anxiety and lack of participation in activities of interest.

In many studies involving visually impaired older adults, the presence of a supportive social network and social contact with friends and family have been reported to act as a buffer against anxiety and depression (Horowitz *et al.*, 2003; Boerner, Reinhardt, & Horowitz, 2006; Reinhardt, Boerner, & Horowitz, 2006). This suggests that interventions to enhance social contact and social integration among visually impaired older adults and members of their social networks who provide social support can play a role in reducing the risk of depression (Brown & Berrett, 2011). In considering how Information and Communication Technology (ICT) interventions may be useful for addressing depression among older adults, Shapira *et al*.(2007) found that internet use reduces depression among older adults by promoting social interaction and cognitive function. These findings suggest that there is a link between lack of socialisation and the psychological impacts of vision impairment, such as depression.

In this way, vision impairment can potentially lead to reduced social contacts (Lind *et al.*, 2003), and a reduction in social network size (Lyons, Sullivan, & Ritvo, 1995; Kef, Hox, & Habekotte, 2000; Wallhagen *et al.*, 2001; Kef, 2005). Others argue that it can affect social relationships by impacting negatively on participation in community activities (Alma *et al*., 2012) and reduce participation in community and leisure activities (Whal *et al.*, 2003). The authors argue that visually impaired adults are at high risks of social withdrawal and social isolation (Rowe, Maclean, & Shekelle, 2004; Rosenberg & Sperazza, 2008). However, it is important to note that these negative impacts of vision impairment are mediated by personal and situational factors (Seybold, 2005; Titleman & Copolillo, 2005).

Many studies on how vision impairment affects activities of daily living suggest that visually impaired older people do not only have challenges with carrying out their daily activities, but they are also faced with significant challenges in outdoor mobility (Brouwer & Sadlo, 2008). Mobility restrictions associated with vision impairment were identified in an earlier study by Lamourex, Hassel, & Keefe (2003) as a hindrance to participation in social activities and social engagements. Swatski (2010) contend that the prevalence of loneliness and social isolation among visually impaired older adults is much higher than their sighted peers due to reduced mobility. In another related study, Lang (2001) found that maintaining social circles could be difficult for visually impaired older adults due to several challenges, which include mobility difficulties posed by vision loss. Gusi *et al*.(2008) argued that the social circle of visually impaired people is often reduced and limited to mostly relatives and neighbours because poor mobility hinders them from leaving the house and travelling locally to visit or meet other people.

Visually impaired older adults often encounter difficulty with moving around independently (Seybold, 2005) and are often unable to use public transport or travel without a guide (Vale & Smyth, 2002). This may account for their fewer face-to-face social contacts outdoors and fewer social engagements (Fletcher & Hirdes, 2004; Brouwer & Sadlo, 2008). In a study involving 2,304 older adults, Gridhar *et al*.(2002) found that visually impaired older adults were less likely to leave their homes and engage in social activities with other people due to the difficulty of moving about in unfamiliar places. Although many older adults are prone to mobility problems and falls due to frailty associated with ageing (Fried *et al.*, 2001; Rubenstein, 2006), visually impaired older adults stand a higher risk of falling because the reduced physical activity associated with vision impairment can cause loss of strength in the limbs (Steinman, Pynoos, & Nguyen, 2009). Lord *et al*. (2010) suggest that loss of sight may lead to poor co-ordination of balance and gait, thereby increasing the risk of falls. Poor mobility can affect the ability to maintain face-to-face social contacts and social outings for visually impaired people (Lang, 2001; Tolman *et al.,* 2005). These limiting factors highlight the need to explore alternative means of keeping social contacts for visually impaired people irrespective of geographic distance - hence, the possible choice of online communication for this group.

Lang (2001) contends that the many difficulties affecting the ability of visually impaired people to socialise may lead to selective prioritisation of social networks, for example choosing only relationships considered meaningful, such as those with immediate family. A

study by O'Donnell (2005) suggests that visually impaired older adults are less likely to socialize with friends and neighbours than their sighted peers due to the challenges posed by loss of vision. Shaw *et al.*(2007) argue that while contact with family stayed fairly constant with ageing and vision loss, social ties with friends gradually declined. To this end, vision impairment has been identified as a risk factor for loneliness (Burmedi *et al.*, 2002; Verstraten *et al.*, 2005; Goswami *et al.*, 2010; TPT, 2010; Alma *et al.*, 2011). This is because reduced contact with family members and friends, the inability to replace valued lost social contacts or engage in social activities can result in loneliness (Sorenson, 2001). In a study conducted in Finland (Huurre & Hillevi, 2000), blind participants reported feeling lonely more frequently than their sighted peers. Older adults are prone to loneliness because ageing is often accompanied by progressive loss of supportive ties of family members, relatives, friends or other relationships due to death of peers, retirement or children leaving home (Sluzki, 2001). While many older adults are at risk of reduced social contacts, visually impaired older adults are more at risk due to feeling of vulnerability caused by the inability to recognise faces (Tolman *et al.*, 2005).

The issue of social stigma is another problem that is worth considering in detail. Visually impaired people are sometimes faced with adverse social reactions which may lead to the feeling of stigmatisation (Nettleton, 2006). Griffin-Shirle & Nes (2005) argue that an obviously visually impaired person may trigger discrimination (or sympathy) by sighted people, and this may lead to the visually impaired person trying to "keep up appearances" or socially isolating himself (Emerson, 1981). One major factor which accounts for the association between stigmatisation and social withdrawal is the societal attitude of paying more attention to functional incapacity of the visually impaired person than the physical challenges posed by vision impairment (Dovidio, Pagotto, & Michelle, 2011). Other factors are primarily associated with the negative self-reactions that may arise with the individual being labelled as blind (Seybold, 2005). Social stigma may cause low self-esteem which eventually limits the enthusiasm to socialize. Thus, the issue of social stigma can be classified as a societal attitude that can impair the capacity of the visually impaired person to socialise.

2.2.1 Vision impairment, social isolation and loneliness

Loneliness and social isolation among older adults is a public health issue (Sloan *et al.*, 2005; Verstraten *et al.*, 2005; Cattan, 2013; Wahl, 2013). Evidence suggests that the

consequences of loneliness and isolation on mortality are almost the same as behavioural risks, such as alcohol consumption and smoking (Ollonqvist *et al.,* 2008). The feeling of loneliness is subjective, resulting from a perceived loss or absence of companionship (Cattan *et al.,* 2005; Dickens *et al.,* 2011). It is important to distinguish between social and emotional loneliness (Weiss, 1973). While the first refers to a negative feeling which results from perceived lack of meaningful relationships and social integration, the second describes the perceived lack of a close friend (Weiss, 1973). However, despite this distinction, physical isolation or inadequate face-to-face contacts are strongly associated with feeling lonely (Douglas, Corcoran, & Pavey, 2006). Although it is possible to alleviate social loneliness by gaining new acquaintances, emotional loneliness can only be resolved through the formation of intimate social ties, which may take longer.

In many studies, one reason often cited as the cause of social isolation and/or loneliness among visually impaired older people is that lack of understanding and/or loss of ability to perceive visual cues often make social relationships become exhausting (Lang, 2001; Wang & Boener, 2008). The inability to perceive visual cues often leads to passivity in communication (Ryan, 2002; Wang & Boener, 2008). Due to these difficulties, some visually impaired older adults might become selective in social relationships that they invest in, thereby shrinking their social networks and increasing the risk of being socially isolated (Wang & Boener, 2008). However, while many studies suggest that vision impairment is associated with loneliness (Verstraten *et al.*, 2005), they also acknowledge that the prevalence of loneliness among visually impaired older people varies considerably.

A UK based study among people aged 65 years and over suggests that over a third report that they often feel lonely (Age UK, 2012). In a similar study to compare the prevalence of loneliness among visually impaired and sighted older adults, Alma *et al.* (2011) found that while half of visually impaired older participants report that they often feel lonely, only a quarter of sighted older adults report the same experience. Some studies suggest that, although using the internet for social purposes may not be associated with perceived social isolation, it might decrease loneliness and promote the ability to make social contacts among older adults that are prone to isolation (Leikas *et al.,* 2012; Cotten, Anderson, & McCullough, 2013).

In a report by Age UK (2012), over a quarter of people aged 65 years and over said that, although they often felt lonely, keeping in touch with family and friends through the

internet helped to relieve feelings of loneliness. This suggests that socialising with friends, and maintaining social contacts, could be an important way to prevent loneliness among older adults. The use of the internet to alleviate loneliness and social isolation among older people has increasingly been investigated and evaluated despite ambiguity of findings in previous studies (Choi, Kong, & Jung, 2012). There are also some indications that internet support groups and social media may reduce problems of loneliness among older people in assisted and independent living communities (Cotten, Anderson, & McCullough, 2013), older adults with chronic diseases (Fokkema & Knipscheer, 2007), and homebound and disabled older adults (Bradley & Poppen, 2003).

As the use of social media becomes commonplace, concerns have been raised about Computer Mediated Communication replacing face-to-face social relationships (Madden, 2010). This might possibly occur in situations where older people already face challenges with making face-to-face social contacts. There are instances when such arguments have influenced the delivery of social and health care services. For example, some aspects of patient healthcare in which the recipient is geographically remote from the clinician are currently being significantly changed through "telemedicine". However, this has raised many questions about the impact of telemedicine on relationships between patients and their healthcare providers. Such questions include questions of acceptability by different groups of older people and accessibility of such CMC (Toledo *et al.*, 2012).

There are also indications that internet use can bridge a generational gap. Vetere *et al.* (2008) found that grandparents used broadband enabled touch-screen devices to connect and share photos with their grandchildren. The study provides evidence showing that older people utilize the internet to bridge the generational gap. De Jong Gierveld & Dykstra (2012) found that older people who engaged in such exchanges were least likely to be lonely. While such applications remain inaccessible to visually impaired users, the extent to which they appropriate accessible applications on social media to build and maintain social relationships remain under-researched.

2.3 Adjustment to vision impairment and societal attitudes

The idea of a visually impaired older adult that easily comes to the mind of many people is that of a helpless, debilitated person whose life is a black void of isolation (Mogk & Mogk, 2004). The fear of loss of independence due to vision impairment is one of the major

reasons why it is regarded as the most feared sensory impairment (Mogk & Mogk, 2004). Being able to see the surrounding world is undoubtedly a wonderful experience and many sighted people cannot imagine life being meaningful if due to vision impairment, they cannot drive, visit new places unaided or participate in activities they enjoy doing with others. The popular stereotype is that blind people are limited in their capacity to lead independent lives, even though blind people can achieve many things that sighted people routinely do not achieve (Mogk & Mogk, 2004). Wagner-Lampi & Oliver (1994) argue that social and cultural beliefs or superstitions also have a significant impact on adjustment to vision loss. In this context, societal attitudes and socio-environmental factors can either aid or hinder adjustment to vision impairment and social functioning (Hudson, 1994; Wahl, 2013).

Studies investigating these factors suggest that the attitudes of significant others such as family and friends can impact on the blind individual's self-concept. For example, misconception about being blind could affect social attitudes to blindness. Social attitudes about blindness are pervasive. Not only do they affect the sighted but they also affect the blind. One of the greatest challenges confronting blind people is their ability to make adjustments and their willingness to socialise. Public attitudes to the blind often become the attitudes of the blind to themselves because the blind person might begin to see him/her self as others see him/her (Jernigan, 1983). The implication is that visually impaired persons may accept the negative public view of their limitations and this can negatively affect their adjustment process. Chen and Persoson (2002) also argued that the attitude of others to people with disabilities is a factor that can influence the extent to which people with disabilities may want to socialise in the society.

Research suggests that one of the mechanisms by which social contacts between people under "ideal" circumstances changes attitude and reduces prejudice is by developing social ties (Pettigrew & Tropp, 2000; Hewstone, 2003). People with disabilities constantly identify societal attitude as the most potent and negative stressor in their social lives (Voh, 1993). For instance, it is documented that a negative stereotype can impede the participation in social and vocational contexts, which has implications for social networks (White, Jackson, & Gordon, 2006) and can restrict social integration (Smart, 2002). It is the societal attitudes that often provide a framework for how people with disabilities are perceived by society (Lang, 2001, Hannon, 2006). In broad terms, there are two dominant

categories also regarded as “models” within which disability is constructed in this way. These are the medical and the social model of disability.

2.3.1 The medical model of disability

According to the medical model, people with a disability are defined by their individual medical condition. It asserts that a person with disabilities can be restored or rehabilitated to live a normal life only through medical intervention (Swain, French, & Cameron, 2003). This concept of disability is based on biomedical thinking and posits that the difficulties experienced by people with disabilities are entirely caused by their medical conditions. The disabled person is, thus, seen as the problem and not the environment within which they live. The advocacy of the medical model is that the disabled person must adapt to the way the society is constructed or organised.

Within a medical model, ageing is typically associated with degenerative changes in anatomical and physiological structures which can cause age-related vision impairment. The ability to function and carry out day-to-day activities may be severely affected. In this instance, the medical model assumes vision impairment as a chronic disease or disability and defines the visually impaired individual as a disabled person. Thus, “the disabled” have an individual identity and must make necessary adjustments to cope with disability. The loss of sight is regarded in this context as the cause of disadvantage to the visually impaired person. The medical model advocates for investment of resources into health care as an imperative to providing clinical health care and improve functioning. Critics of the medical model hold that it forms the basis for social degradation of people with disabilities albeit unintended (Swain, French, & Cameron, 2003). Furthermore, critics of this model believe that resources that are excessively channelled into almost exclusively medical interventions could be used for social interventions, such as universal design and to encourage inclusive programmes that could enhance the social integration of people with disabilities (Scully, 2004).

2.3.2 The social model of disability

The social model of disability was developed following criticisms raised against the medical model. Under the social model, it is argued that disability should not be tied to physiological or anatomical dysfunction that prevents the fulfilment of a role for an

individual, but that it should be defined within the context of social structures which restrict the individual (Lang, 2001). This, for instance, means that a visually impaired person should not be viewed as a disabled person because the affected individual does not have a particular level of vision considered normal, rather, he/she actually becomes disabled in an environment that prevents him/her from doing what sighted people can do.

Thus, according to the social model, disadvantage only results when persisting social inequities and inequalities preclude or restrain people with impairments from accessing the same structures as people without impairment. It states that disabled people are part of society. The barriers that restrict people with disabilities from participating in society are the problem, not the individual. Many barriers within the context of education, Information and Communication Technologies (ICTs), working environments, social support services, transport, public buildings and amenities continue to hinder social integration and opportunities for people with disabilities to interact with others. The difficulties which hinder visually impaired people from having access to ICT preclude opportunities for social integration of this group and thus, define disability within this concept. The social model has been developed with the aim of removing such barriers in order to enable disabled people to have the same opportunities as everyone else, to participate fully in society by interacting with others and also to determine their own social lives. Thus, the social model of disability contends that disabled people have a collective identity, and regards disability as an individual and collective responsibility.

2.4 Pattern and structure of social network

Social networks are identified as social relationships that surround a person and the individual's perception of such relationships (Bowling, 1994). In other words, it is the web of social relationships around an individual. The structural aspect of a social network refers to its size and composition while the functional aspect refers to the quality of relationships, how much the individual values such relationships and is satisfied with their social networks (Hagelson, 2003). The positive impact of meaningful social networks in the lives of older people is well documented, and the support received from such relationships contributes positively to how visually impaired older adults cope with the challenges associated with vision impairment (Reinhardt, 1996; McIlvane & Reinhardt, 2001; Horowitz *et al.*, 2003). Effective communication, adequate social contacts and social

interaction is important to sustain social networks of older adults (Tillema, Dijst, & Schwanen, 2010; Yorkston, Bourgeois, & Baylor, 2010).

As discussed earlier, the loss of visual cues (such as gestures, body language and facial expressions) partly contributes to the diminished ability of visually impaired people to socialise. In a study by Wang & Boener (2008), more than two thirds of visually impaired older adult participants reported that they experienced negative changes in their social network and that they were unable to re-establish means of communicating with people in their social network. These communication difficulties experienced may compel visually impaired people to be more selective with whom they interact, thereby changing their social network structure (Wang & Boener, 2008). Consequently, the structural and functional composition of their social network may be limited to family members, a few friends and only meaningful relationships (Lang, 2001; O'Donnell, 2005; Pettigrew & Roberts, 2008).

Lind *et al*. (2003) found that although people with vision impairment may have more intense social networks, they make fewer social contacts outside their social circle, thereby limiting the breadth of their social circle. The reduction in size of social networks may not only be applicable to visually impaired older adults. In a study involving visually impaired children, Kef, Hox, & Habekotte (2000) found that visually impaired children had fewer members in their personal network than their peers. Similarly, Deborah (2010) revealed that visually impaired adolescents were less socially active than their sighted peers and had challenges either in initiating or maintaining social relationships.

In a study to assess the determinants of social participation among visually impaired older adults, Alma *et al.* (2011), found that participation in major life areas was determined by social network size. The study showed the importance of social network size in determining how much visually impaired older adults socialized. Reasons many visually impaired people have reduced social network is partly because they are less engaged in activities that can enhance socialization and they rely more on other people to initiate social contact since they cannot see them (Kef, Hox, & Habekotte, 2000).

Although the importance of social contacts and social networks as a rich source of social support for older adults is stressed in many studies (Wellman *et al.*, 2001; Katz & Rice, 2002; Mann *et al.*, 2005; Boase *et al.*, 2006; Thayer & Ray, 2006; Smeadema & McKenzie, 2010), it is important to identify avenues employed by visually impaired older adults to maintain social contacts because such avenues may be useful in promoting adaptation to

vision loss, provide a rich source of social support and help address public health problems of social isolation. In recent years, many studies emphasize the role of the internet as one of such useful avenues to keep contact with family and friends, expand social networks and facilitate communication with other people (Bargh & McKenna, 2004; Ellison, Steinfield, & Lampe, 2007; Xie, 2007a; Godfrey & Johnson, 2009; Pfeil, Zaphiris, & Wilson, 2009; Sayago & Blat, 2010). A critical discussion about their findings is presented in the next section.

2.5 Internet use and social relationships

In recent years, the impact of internet use on social relationships offline has been the focus of many studies and has generated much debate (DiMaggio *et al.*, 2001; Katz & Rice, 2002; Zhao, 2006). Kraut *et al*.(1998) found that internet use was cutting people off from face-to-face social relationships. However, a follow-up study by the same authors (Kraut *et al.*, 2002) conflicted with this finding, stating that internet use fosters socialisation. Weiser (2001) proposed that internet use was associated with reduced face-to-face contacts and higher levels of loneliness. Robinson *et al*. (2002) contrastingly argued that internet users were more likely to spend time offline with family and friends. Participants in their study who used the internet more often also spent more time over the phone than non-users. A similar finding was reported by Haythorntwaite & Wellman (2002). Their research revealed that increased internet use led to a corresponding increase in the frequency of face-to-face social contact with family and friends.

Nie & Erbring (2002) suggest that a plausible explanation for internet use being associated with less time being spent with family and friends was that people cannot spend time offline when they are devoted to using the internet. However, other studies have suggested that internet use provides increased opportunities for social interaction (Bargh & McKenna, 2004; Harman *et al.*, 2005), enhances the formation of self-identity (Valkenburgh & Peter, 2005; Long & Chen, 2007) and promotes close relationships (Bargh, McKenna, & Fitzsimons, 2002; Anolli, Villani, & Riva, 2005). With respect to these arguments, Zhao (2006) argues that the reason for these conflicting findings is multi-faceted. He argues that the impact of internet use on social relationships, to a large extent, dependent on the nature of activities people engage in online. His argument is that the use of internet for social purposes (such as social network sites, e-mail, instant messaging and online chatting) yields social benefits. This is supported by Bessiere *et al*.(2008) through a study on the effect of

internet use and social resources on depression, showing that the way in which people use the internet will account for how it affects them. However, the transferability of these conclusions to visually impaired older people is questionable because they access the internet differently. Zhao (2006) and Bessiere *et al*. (2008) also argue for the need to consider how people use the internet when investigating its impact(s) on users. In considering these points, the current study regards visually impaired older adults as a distinct user group because they rely on assistive devices to gain internet access. This study seeks to explore how internet use for social purposes affects social aspects of their lives.

2.5.1 Forming social relationships, reducing uncertainties

In online platforms, the lack of physical context cues not only makes it difficult to assess trustworthiness of others, it is also difficult to ascertain whether investing effort into building relationships with them will be worthwhile (Gibbs, Ellison, & Lai, 2011). This is commonly referred to in CMC literature as "uncertainty" (Gibbs, Ellison, & Lai, 2011; Griffin, 2012). During early stages of interpersonal relationships, initial interactions often focus on finding out more about communication partners and exploring their attitudes, morals, values and beliefs in order to address uncertainty (Berger & Calabrese, 1975). This process is referred to as "uncertainty reduction strategy" (Antheunis *et al.,* 2011; Gibbs, Ellison, & Lai, 2011). Tidwell & Walther (2002) divided this strategy into two categories, namely: passive and active strategies. In the first phase, physical characteristics such as facial expressions, behaviours, gestures, tone of voice and appearance are assessed. The second phase involves interactive strategies which includes "direct and obtrusive exchanges" with communication partners (Tidwell & Walther, 2002, p.322). It involves asking them questions and trying to clarify their answers.

The Uncertainty Reduction Theory (URT) describes the interrelationship between these verbal and non-verbal exchanges, and how information gained from these processes could determine the development of social relationships (Berger & Calabrese, 1975; Berger & Bradae, 1982). The URT is based on the physical presence of individuals when they meet each other in face-to-face contexts and is not formulated based on CMC (Griffin, 2012). However, because many computer users now make initial contact with one another via CMC, questions about how they make use of passive uncertainty reduction strategies continue to emerge in research (Antheunis *et al.,* 2012). Many concepts have been proposed

to explain the connection between uncertainty reduction and formation of social relationships online. Such concepts include; self-disclosure, social identity, self-expression and trust (Gibbs, Ellison, & Lai, 2011; Griffin, 2012). Tidwell & Walther (2002) compared how people develop knowledge of each other in face-to-face settings versus online setting. The study found that participants in face-to-face settings asked peripheral questions while paying attention to non-verbal cues. Conversely, participants in online settings asked more relevant and direct questions, and disclosed more personal information. Thus, visual cues facilitate formation of an impression about others and when people lack opportunities to communicate face-to-face, they often find alternative means (Walther, 1996; Walther & Parks, 2002).

Although there are many ways in which CMC offers opportunities for social contacts and enhances communication for people with disabilities (Simpson, 2009), advantages and disadvantages vary depending on users' abilities and personalities (Kuss & Griffiths, 2011). Bishop *et al.* (2000) investigated the potential of CMC to relieve social isolation among a sample of participants with hearing impairment. The study found that it was easier for participants to communicate by text rather than face-to-face contexts. Many of the participants said that they preferred CMC in all circumstances. In another study, Todis *et al.* (2005) identified several advantages of email for participants. The benefits that were observed included a greater degree of control over participants' communication and relief from pressure because they took as long as they needed to read and compose messages. The use of email interviewing among survivors of traumatic brain injury was investigated by Egan *et al.* (2006). Their findings suggest that email enabled participants to compensate for challenges posed by impairments that affected information processing, response formulation, concentration and recall. Many of the participants said that they preferred email interviewing to face-to-face because it enabled them to express themselves more effectively in writing and textual cues than by spoken words. Textual cues are literary devices (such as phrases, sentence syntax, smileys, etc.) in written text (Toma, 2010; Pariera, 2012; Picornell, 2013). Textual cues also include metaphors, anecdotes and signals within the language of a speech (Farahani & Sarkhosh, 2012). The participants in the study by Egan *et al.* (2006) also reported that they were able to focus better on their answers than they would have been able to in a face-to-face situation. In many of the cases observed by the researchers, participants' responses were rich, insightful and conveyed humour, which compelled the researchers to challenge stereotypes associated with survivors of traumatic

brain injury.

While CMC may facilitate communication for people with disabilities in different ways, it is not without its drawbacks. Some respondents in the studies conducted by Bishop *et al.* (2000) and Todis *et al*. (2005) noted that the absence of visual cues in CMC made communication difficult for them. Participants with acquired cognitive impairments reported that they missed hearing the human voice (Todis *et al.*, 2005). In the study by Bishop *et al.*(2000), all of the participants with hearing impairments said that email was better only in conveying factual information, and only about a quarter of them supported the idea of using email for conversational information. The authors discussed these findings with particular emphasis on the importance of visual cues to these groups. These studies also suggest that CMC might reduce barriers of communication affecting different groups of people with disabilities in different ways.

2.5.2 Self-presentation and identity development

Current theories conceptualise identity as a socially constructed phenomenon that is dynamic, multidimensional and varies in different contexts (Dovidio *et al.,* 2005; Thurlow, 2004). Like any other context, the internet allows users to express facets of their identity (Hummert & Harwood, 2004; Lin, Code, & Zap, 2009; Pearson, 2009). It offers opportunities to express both personal and social aspects of identity (Bargh, 2004; Zhang, Jiang, & Caroll, 2010). Personal identity refers to one's self presentation to others and how an individual defines his own self-concept, while social identity involves an individual's perception of himself in relation to a group and how others perceive him (Luckmann, 2008; Haslem *et al.,* 2010). For people who utilise the internet as a comfortable place to express themselves, research suggests that it may enrich others' perception of their image and afford them opportunities to build social ties (Mckenna, Green, & Gleason, 2002; Suler, 2004; Brunet & Schmidt, 2007; Zhang, Jiang, & Caroll, 2010). This can be achieved via regulating and controlling information about one's self in social interaction in-order to consciously (or unconsciously) maintain a desired impression (Walther, 1996; Zhang, Jiang, & Caroll, 2010; Chambers, 2013). The social identities of people with disabilities may be affected online because the absence of visual cues in CMC makes them less constrained by stereotypes associated with disabilities (Bowker & Tufffin, 2002). There are also

implications for constructing social identities and building relationships online due to greater potentials to meet like-minded others (Jenkins, 2004; Pfeil, Zaphiris, & Wilson, 2009). Group identities are often formed on the internet, based on shared values and beliefs (Chattopadhyay, George, & Lawrence, 2004; Amio *et al.,* 2007; Code & Zap, 2009).

The context in which social identity is defined in existing literature supports the adoption of various roles (Korte, 2007). For example, a teacher can identify him/herself as a parent, friend, administrator and advocate based on social contexts. Some scholars argue that being "role rich" is associated with greater life satisfaction and well-being because it equips people with more skills to overcome the challenges of life (Mckenna & Bargh, 2000). Bargh *et al.* (2002) investigate how CMC is used to form and present identities and their findings suggest that CMC is more effective than face-to-face communication for individuals to convey their true qualities to others. Similarly, Weidman *et al*. (2012) find that people who have difficulties with face-to-face communication due to social anxiety were more likely to regard the expression of "real identities" occurring through CMC than through traditional forms of communication. Based on this finding, Weidman *et al.* (2012) argued that, since these groups of internet users presented their "real self" online, to criticise the internet as a poor substitute for the physical world is unjustified.

Although Amichai-Hamburger (2005) acknowledges that the internet has benefits for people with disabilities to express their identity, he argues that the concept of "true self" is abstract and questioned how online behaviour can be interpreted in this context. His critique showed that expressing "true self" is synonymous with engaging in online self-disclosure. Some other scholars have also argued that although the internet cannot be used to create an identity that is completely different from the offline world, it nevertheless provides a context of the self that is more evident than offline (Suler, 2004; Amichai-Hamburger, 2005). According to Barack (2008), people with stigmatised identities are more likely to be motivated to join online groups dedicated to that disability because it offers them opportunities to participate with others in ways that would otherwise be difficult and enables them to become friendly in adversity. Bargh & Mckenna (2004) argue that such groups accord loyalty to their members because the dynamics of online behaviour in such groups often reflects opportunities for expression of stigmatised identities. In a study conducted in Newcastle, Oostveen (2011) showed that stigmatised groups had significantly greater number of posts online (based on marginalised interests and political views) per

person compared to non-stigmatised groups. Furthermore, the study found that members of negatively stigmatised groups who participated actively online reported higher levels of self-esteem and reduced levels of loneliness.

Post-modern identities are undergoing constant changes (Baron, 2005; Bielewska, 2012) and emphasis is put on how the individual constructs his identity, especially in relation to others (Hughes, Russell, & Paterson, 2005; Bielewska, 2012). As identity can be viewed as a concept that is undergoing constant change and revision, people with disabilities have opportunities to construct it based on their choices in social and cultural structures and in relationships (Murugumi, 2009). Goffman (1963) argued that identification that is ascribed by social and cultural discourses often seems to over-ride individually chosen identities. However, many people with disabilities protest against socially constructed identities and attempt to change them via the ways they relate with others (Baron, 2005). Current debates on the use of ICT for fostering social relationships are influenced by metaphors of CMC as a tool in identity negotiations, especially for groups with disabilities (Soderstrom, 2013). There is paucity of research on how older people with vision impairment navigate such identity experiments despite having the same aspirations, desires and needs for companionship, recognition and belonging as others online. The current study makes further progress in filling this gap by exploring how visually impaired older people express themselves online and disclose aspects of themselves in ways which contribute to defining their identities when forming social connections.

2.5.3 Self-disclosure

Early researchers defined self-disclosure as "the process of making the self known to others" (Jourard & Lasakow, 1958, p.91). The decision to conceal or reveal information about self is central to development of social relationships (Flett, 2012). In recent years, many studies have explored patterns of self-disclosure in CMC and how sharing personal information facilitates the processes involved in developing relationships online (Mesch & Baker, 2010; Jiang, Bazarova, & Hancock, 2011; Ledbetter *et al.*, 2011). Gibbs, Ellison & Lai (2011) stated that, as people are increasingly staying socially connected with others via the internet, mutual trust is facilitated via shared information. Revealing personal information in CMC is deliberate and involves a more direct effort aimed at communication (Mesch & Beker, 2010). Some researchers argue that, because a face-to-face environment is

rich in visual cues, deception is easier to detect offline than through CMC (Carlsonet *et al.*, 2004; Giordano *et al.,* 2007).

For people with disabilities that are invisible to a casual observer, such as vision impairment, psychological issues may arise prior to social interactions (Clair, Beaty, & Maclean, 2005). Such issues typically occur within the individual as they consider whether and how to disclose their disabilities (Frable, Blackstone, & Sherbaum, 1990). Research suggests that individuals with stigmatised invisible social identities have different interaction experiences than those with visible differences (Matthews & Harrignton, 2000 Reimann, 2001; Vickers, 2001). The decision on how they can reveal such personal information is often hampered by threats of social shunning (Hebl & Dovidio, 2005). According to Hebl & Dovidio (2005), this snubbing behaviour includes lack of communication and socialisation, reduced eye contact and reduced interaction with disabled people. Conversely, avoiding self-disclosure in order to prevent stigmatisation could interfere with one's capacity to present himself in authentic ways (Reimann, 2001). These challenges prompt the need for people with invisible disabilities to seek strategic ways to reveal it.

Clair, Beaty, & Maclean (2005, p.80) identified three major strategies often used in this context. They identified three strategies namely: “signaling”, “normalising” and “differentiating”. Signalling involves disclosing invisible social identities by dropping hints or providing clues. Signals that are employed may involve non-verbal cues or specific conversational topics (King, Reilly, & Hebl, 2008). The clues invite speculation and encourage observers to make inferences. An example is a white cane, which is not only a mobility aid but could also be a means of identifying a visually impaired person. Apart from reducing the risks of disclosing an invisible stigmatising identity, signalling provides an indication as to whether it may be safe to reveal more (Clair, Beaty, & Maclean, 2005). Normalising involves engaging in self-disclosure in ways that attempt to present the difference as ordinary (Clair, Beaty, & Maclean, 2005). In other words, effort is directed at assimilating into conventional behaviour. A typical example is when a visually impaired person is told to sing along using a songbook and pretends to read from it. However, it may also involve denying disability or the stigmatised identity. In such instances, the individual pretends to be living a “normal” existence. Millen & Walker (2002) argue that normalising enables people with stigmatised identities to make adjustments in order to compensate for

the limitations of that spoiled identity.

Lastly, “differentiating” occurs when a person engages in self-disclosure by highlighting how their invisible social identity is in contrast to others' (Clair, Beaty, & Maclean, 2005). During differentiating process, identity is often presented as equally valid and efforts are directed towards changing misconceptions. People with stigmatised identities employ this process in order to be assertive when they are being treated unfairly (Creed & Scully, 2000). Many online communities have not only fostered social ties among people with disabilities, but have also been a useful means for challenging wrong public values and perceptions (Stephanidis, 2010). Just as there are different ways of disclosing disability, there are different reasons for revealing invisible and potentially stigmatising identities. While some people may choose to disclose invisible disabilities during the process of developing social relationships in order to gain social support (Chaudoir & Fisher, 2010), others may feel compelled to do so in order to minimise social awkwardness or gain social closeness (Dill, 2013). However, the ways in which the means of self-disclosure influences the dynamics of building social interactions online among visually impaired older people remain under-researched.

2.6 Internet use and well-being

Another subject for debate is the impact of internet use on well-being. Studies focusing on the impact of internet use on well-being have produced contradictory findings. While some studies contend that internet use has no impact on well-being (McKenna & Seidman, 2005; Dickenson & Gregor, 2006; Slegers, Van Boxtel, & Jolles, 2008), others argue that the internet has positive psychosocial effects (Gordon, Juang, & Syed, 2007; Shapira, Barak, & Gal, 2007; Xie, 2007b; Ando & Sakamoto, 2008; Xu *et al.*, 2011) or negative effect on well-being (Waestlund, Norlander, & Archer, 2001; Van Den Eijinden *et al.*, 2008). Studies in support of the internet having a positive effect on older adults’ well-being argue that those effects are mediated by the ease of access to social support from family, friends and caregiver (Nahm, Resnick, & Mills, 2003; Eastin & LaRose, 2004; Leung & Lee, 2004). Social and emotional support from family and friends were linked to lower stress, better adaptation and having a sense of belonging (Russell, Campbell, & Hughes, 2008; Sum *et al.*, 2009; Hageboom *et al.*, 2010) and reduced feelings of loneliness (La-Rose, Eastin, & Gregg, 2001; Gross, Juvonen, & Gable, 2002; Bond *et al.*, 2010).

Bessiere *et al*.(2010) found that using the internet for communication with family members and friends three to five days per week led to a decrease in depression among participants. However, using the internet for only health related purposes was associated with increase in depression. The finding emphasized the importance of keeping in touch with one's potential sources of emotional and social support such as family and friends. Several other studies have demonstrated the role the internet plays in maintaining older adults' well-being by improving their self-esteem (Xie, 2007b), enhancing self-discovery (Nimrod, 2010), facilitating online socialisation (Smeadema & McKenzie, 2010) and reducing loneliness (Litwin & Shiovitz-Ezra, 2010; Stephens *et al.*, 2011).

In a review Dickenson & Gregor (2006) criticized many studies which stated that computer use has a positive impact on older adults' well-being (Including: Straka & Clark, 2000; Powell *et al.*, 2003; Namazi & McClinic, 2003; Leung & Lee, 2004; Saunders, 2004; Lin, Hummert, & Harwood, 2004; Chaffin & Harlow, 2005), arguing that their conclusions are misleading for many reasons. Firstly, Dickenson & Gregor (2006, p.745) point out that these studies failed to explain how internet use fitted into the lives of participants in claiming that it improved their well-being. Secondly, they argued that the term "older adult" "*represents an extremely diverse group ranging from independently living older people to frail older people in nursing homes*". In other words, findings from research conducted with one group might not be applicable to others.

Huang (2010) reviewed 40 studies investigating the impact of internet use on social relationships and considered reasons for their contradicting findings. These included: type of internet use, indicator of well-being, quality of internet use, participant age and gender. However, the choice of study population was not considered in the review and it failed to identify a common reason for variation. In addition, Shapiro (1999) criticised Kraut *et al*. (1998) regarding their choice of study population. She noted that the life stage of participants could influence their social contacts offline. These criticisms highlight the potential of study population choice to influence final findings in studies focusing on internet use and social relationships and the need to critically differentiate user groups.

- *Distinctiveness of the visually impaired user*

Computer users are not homogenous, and older adult population of users is one of the most heterogeneous group (Dickenson & Gregor, 2006). This is because there are different types of disabilities associated with ageing which affect people's ability to use computers. In addition, the needs and aspirations, physical effort, and potential differences in factors affecting computer use vary significantly, based on the challenges posed by disability (Vincente & Lopez, 2010). With respect to these arguments, Dobransky & Hargittai (2006, p.331) suggest that "*it is ideal to analyse trends by the type of disability condition to reflect the divergent situations faced by people living with different disabilities"* when investigating computer use. Exploratory research shows that, although computer use offers myriad opportunities for older people, there are special and specific challenges for people with disabilities (Pfiel, Panayiotis, & Zaphiris, 2009). Seeing that disabilities differ and the older adult user population is not a homogenous one, such differences call for differential analyses of internet use (Zhao, 2006).

Another important factor which highlights the heterogeneity of users is usability of computers and internet accessibility. Although the aim of accessibility and inclusive design is to produce applications that work for everybody, such aspirations may be unrealistic today because different groups of people may have conflicting needs and preferences. In terms of usage pattern of the internet, visually impaired users are different from sighted users because technological modifications to enhance internet use by this group are specific to them. They require assistive devices. Other modifications include changes in user interface characteristics such as text formatting and use of sharply contrasting colours. Also, if information is presented using only one attribute (such as contrast, size, font or depth), a visually impaired user may not detect the difference (Anderson, 2011). This may have implications for how visually impaired people use computer applications that are developed for socialisation, e.g. photo-sharing. Visually impaired users cannot socialize online with such facilities because they are none-standard interface components with three-dimensional animations which cannot be recognised by assistive devices. It therefore follows that opportunities for socialization online are limited for visually impaired people. In addition, the touch-screen technology that is fast becoming widely used is not useful for visually impaired people (Kane, Bigham, & Wobbrock, 2012) because it require users to visually locate objects on the screen. These illustrations stress the socio-cultural emphasis

on normal vision, not only in daily social interactions, but also in modifications introduced by technology.

The current study considers visually impaired older adults as a distinct user group in relation to website accessibility, and limited opportunities for offline socialisation, and seeks to explore how use of the internet for social purposes may influence their social well-being.

2.7 The concept of social well-being

There is no single definition of social well-being. Definitions used often depend on the structure and scope of the study or research discipline. Some researchers focus on the concepts of socio-economic indicators such as Gross National Product (GNP) while others define it based on interpersonal relationships (Larson, 1993; England, 1998). However, social well-being is often broadly described as an aspect of overall well-being (Bowling *et. al*, 2003) relating to one's ability to participate in society, to fulfil roles as a family member, friend or citizen or in other ways, and to engage in interaction with others (Callaghan, 2008; NIDCR, 2010).

According to Callaghan (2008), social well-being is composed of two elements. The first is social adjustment which refers to satisfaction with relationships, performance in social roles (including social participation and social behaviour) and adjustment to one's environment. Secondly, it comprises social support, which is a social network that yields benefits based on subjective evaluation and satisfaction with help gained from those networks (Schwarzer, Knoll & Rieckmann, 2003). Social well-being can be subjectively defined (Manderson, 2005). King (2007), argues in favour of subjective means of assessing social well-being, stating that it is an abstract phenomenon experienced by individuals and defined based on their different needs and abilities. His argument suggests that there are potential differences associated with many subjective factors such as ageing, life experiences, socio-cultural background, belief-systems, gender, and ethnicity, disability and so on. In modifying the work of McDowell & Newell (1987) on the concept of social well-being, Larson (1993) states that social well-being also includes social adjustment. He defines adjustment as coping with one's environment, being able to participate in social activities with other people and having a sense of satisfaction with the number of contacts within one's social network.

Keyes (1998) defined social well-being as a subjective evaluation of social circumstances and proposed that it comprises five units, namely: social integration, social acceptance, social contribution and social coherence. In his view, social integration is an individual's assessment of the quality of social networks while social acceptance is an individual's sense of belonging in society with respect to ability to freely socialise with others. Keyes's constructs of social contribution encompasses the subjective evaluation of personal worth and self-esteem while social coherence refers to the individual's perception of the quality and understanding of the world they live in. The concept of Keyes's last element of social well-being termed "social actualisation" relates to social support because it emphasises an individual conviction that society and social institutions can provide help when needed. It is evident that Larson's and Keyes's concepts of social well-being are in agreement regarding the dimensions of social well-being as broadly encompassing social support and social integration while emphasising the subjective evaluation of the quality of social relationships, social networks, social connectedness and friendships (Callaghan, 2008). The current study focuses on the subjective constructs and perceptions of visually impaired older adults regarding their social well-being, rather than taking a rigid, single stance to the definition and context of social well-being.

2.7.1 Social integration

Social integration refers to the existence and quality of social ties (Ader, 2007). It is the active participation in a range of social relationships and having a sense of identification with social roles (Cohen, 2002). It develops through formation and maintenance of social networks (Schwarzer & Rieckmann, 2002) and it is theoretically linked with the extent to which people make social contacts with members of their social network (Pillemer *et al.*, 2000). In addition, integration embraces participation in associations and member-based activities, employment, involvement in civic organisations or groups such as religious organisations, neighbourhood groups, and the overall satisfaction with such groups based on how much the individual has trusting relationships with them. Thus, it is defined by the quality of social ties within a person's network. While social integration and social support (which is explored in the next section) are inter-related concepts within the context of social well-being (Callaghan, 2008), social integration relates more to population and institutions while social support is an individual concept. Its lack may lead to social isolation (Goswami *et al.*,2010).

Adjustment to vision impairment may affect social integration due to declines in social functioning, reduced social activity and negative changes in social support (Burmedi *et al.*, 2002). A study investigating the integration of visually impaired people in their workplace in Canada (Naraine & Linsay, 2011) found that people with vision impairment did not enjoy full integration in their workplace and also lacked social support from colleagues because difficulties with interpersonal communication were often not recognised. Milner (2002) found that teleconferencing had a positive impact on the social well-being of visually impaired older people who had been trained as peer workers to support others who were newly diagnosed with vision impairment. Improvements included reduced depression, enhanced self-esteem and increased access to emotional and informational support.

The two studies highlight the importance of effective communication in enhancing social integration and overcoming barriers that preclude access to social support among visually impaired people in organisations. However, the role of the internet as a tool to enhance social integration by facilitating connectedness and promoting social contacts between visually impaired older adults and members of their social networks (such as friends, family and neighbours) has not been given much attention. Within the context of this study, exploring social integration will investigate the participation of older people with vision impairment in supportive social activities with other people and their sense of belonging through those activities.

2.7.2 Social support

Social support is the received help and assistance that assures the recipient that he/she is cared for by members in their social network. While social integration and social networks refer to the structure of individuals' social relationships, the concept of social support refers to the possible functions of social relationships because it reflects the number of possible support providers (Goldsmith, 2004; Turner &Turner, 2013). Furthermore, social support captures the extent of an individual's social network and the satisfaction gained from help received from such networks. Thus, social support focuses on the benefits from social interaction and relationships (Umberson & Montez, 2010).

Social support is differentiated into received and perceived support (Haber *et al.*, 2007). Perceived support refers to an individual's assurance that there will always be support when needed, whereas received support is the actual benefit obtained (Haber *et al.*, 2007).

Perceived support is usually assessed by asking older people if they have anyone they can confide in, assist them or provide needed care. Both perceived and received support from social relationships are considered to be vital for well-being (Cadzow & Servoss, 2009; Ibarra-Rovillard & Kuiper, 2011). For example, although vision impairment is a significant risk factor for depression and visually impaired older adults are more likely to suffer depression than their sighted peers (Wilson *et al.*, 2002; Bramley *et al.*, 2008), many studies reveal that social support facilitates adaptation to vision loss and acts as a buffer against depressive symptoms (McIlvane & Reinhardt, 2001; Horowitz *et al.*, 2003; Reinhardt, Boerner, & Horowitz, 2006). However, Reinhardt *et al*. (2006) suggest that depression associated with vision impairment only affects people with poor access to social support from family and friends. His framework categorizes social support into instrumental support, emotional support and appraisal support.

According to Brenan *et al.* (2011), instrumental support refers to tangible and intangible aid such as financial assistance, obtaining favours or assistance with activities of daily living. Instrumental support has been identified as being important for adaptation to vision impairment (Reinhardt, 1996; Reinhardt, 2001; Horowitz *et al.*, 2003; Brennan *et al.*, 2011). However, a few studies caution that excessive instrumental support for visually impaired older adults may hinder successful rehabilitation (Cimarolli, 2002; Cimarolli, Reinhardt, & Horowitz, 2006). Emotional support include showing positive feelings such as love, kindness and empathy while the "appraisal" dimension of social support refers to giving useful information that is necessary for self-evaluation. Visually impaired people may report difficulties in vision-related activities such as reading and mobility, which may be useful in appraising their adjustment to vision loss (Tobrett & Latham, 2011). Informational support includes helpful suggestions or advice that provides assistance to the person and helps the individual to accomplish personal goals.

Findings from research on the impact of support from family and friends are mixed. While some studies suggest that support from family and friends is essential for adaptation to vision impairment (Matt & Dean, 1993; McIlvane & Reinhardt, 2001; Pins, Spini, & Salive, 2005), others suggest that these sources of social support decline over time for visually impaired older adults (Reinhardt & Blieszner, 2000; Reinhardt, Boener, & Benn, 2003) due to low levels of friendship involvement (Johnson & Troll, 1994) and loneliness (Wallhagen *et al.*, 2001). Nevertheless, the internet provides a useful medium for older

adults to access informational support on medical care (Capenter, 2000; Gervey & Lin, 2000), keep contact with family and friends, maintain social ties (Nahm, Resnick, & Mills, 2003), decrease levels of depression and enhance cognitive abilities (Chen & Persoson, 2002).

2.8 Chapter summary

This chapter has explained the way in which vision impairment hinders the ability of older adults to socialise. Visually impaired older adults are less able to engage in social activities of interest and face more difficulties with maintaining social contacts than sighted people due to loss of visual cues (Wang & Boener, 2008). Other challenges of vision impairment such as socio-cultural beliefs and stereotypes about vision impairment can cause social withdrawal. The social model of disability and medical model of disability offer mutually exclusive explanation of how individual and social factors may have implications for adjustment to disability. Although the internet can enhance social contacts, findings from research on impact of internet use on social relationships and well-being are mixed. Although the internet offers opportunities to express personal and social aspects of identity through self-disclosure, there is scarcity of research on how internet use may be beneficial or not for older people with vision impairment.

The next chapter presents critical discussion of theories in CMC and how they apply to the formation of social relationships, and the theoretical framework guiding the current study.

Chapter Three - Theoretical perspectives

3.1 Introduction

This chapter aims to discuss important elements of internet use that are central to developing social relationships as evidenced in existing literature. Computer Mediated Communication and Face-to-face communication will be discussed critically from practical and theoretical perspectives. Earlier dominant theories conceptualised from technological determinist perspectives, such as Cues-Filtered-Out (CFO) theories are discussed first followed by Cues-Filtered-In (CFI) theoretical perspectives. The chapter will discuss Selection, Optimization and Compensation (SOC) theory – a theory of ageing based on the idea that that older people invest resources into adaptive behaviours in order to cope with age-related deficits. SOC theory forms the theoretical framework upon which this study is based. The chapter concludes with a discussion on how SOC theory fits favourably with the current research and presents the research questions.

3.2 Computer mediated communication

The term "Computer Mediated Communication" (CMC) is often loosely used in the literature without much recourse to a clear definition (Mshvidobadze, 2012). The different definitions assigned to it by different authors make it difficult to compare findings from different studies (Mshvidobadze, 2012). The term is further made less comprehensive by literature which interchangeably use the term ICT (Information Communication Technology) with CMC (Hacker & Mason, 2003). The documented history of CMC in the literature suggests that Kerr & Hiltz (1982) first described CMC as text based systems that structure, store, and process communication. Herring (1996) provided a central definition by describing CMC as the use of computers to mediate communication between humans. This means that while CMC refers to communications via possible network mediated formats (such as emails, online forums, instant messaging), it also captures other forms of communication that are based on electronic devices. In this way, some authors define CMC as the use of two or more electronic devices for communication (McQuail, 2005).

Although Hiltz & Kerr (1982) argued that CMC was mainly textual, by the mid-1990s many scholars began to contend that CMC also included other non-textual computer

applications. For example, Hesketh *et al.* (1996) argued that CMC encompasses the use of different kinds of digital applications, such as internet resources, email, online bulletin boards or forums, video conferencing, and multi-media applications. While the majority of research on CMC focuses on textual based applications, Soukup (2000) contends that such research and many CMC theoretical perspectives have been limited by "textual bias". He argued on the need for CMC researchers and theorists to integrate features of multimedia in conceptualising CMC in-order to provide a more comprehensive explanation for contemporary communication with computers.

Computer mediated communication does not focus on specific technologies, or electronically enhanced forms of communication such as vision aids, hearing aids, assistive devices or use of megaphones. Instead, it is often restricted to interpersonal communication processes which are often mediated through CMC (Spitzberg, 2006). Furthermore, CMC is not necessarily exclusive to interpersonal communication in cyber networks. This is because people can communicate in the absence of a cyber-network. For example, multi-user communication systems are not always connected to a cyber-network. Other scholars have analysed the internet as a form of CMC, based on the argument that it is a digital medium of communication. However, critics of such propositions contend that while the internet is a digitally-based technology, it mainly hosts websites, which makes it an interface system (Mshvidobadze, 2012).

- *The internet and computer mediated communication*

Although the internet and CMC are not the same, they are often intertwined in literature (Dietz-Uhler & Bishop-Clark, 2002; Liccope & Smoreda, 2005; Boyd & Ellison, 2007). The internet is a global system of computer networks that are interconnected by series of technical protocol suites. Extensive range of information resources are carried on the internet. These include documents of the World Wide Web and inter-linked hypertext documents which support email. The World Wide Web is not the internet; rather it is a composite service on the internet. Millions of computers and other traditional communications media, such as telephones are connected by the internet. Thus, the internet provides a platform for human interaction via communication services (such as email, text based chats, internet forums, and social media). These communication services that are available on the internet are described as CMC.

It might be important to note that the internet is not the only platform for CMC because there are diverse ranges of computer based communication tools that provide alternative communication platforms. For example, telex, fax, and intercoms are text based communication systems that facilitates interpersonal communication between operators. In essence, the interpersonal communications that are conducted via the internet are considered as CMC. Scholars have used other terms to describe the internet. Some of such widely used terms in literature include "Cyberspace" (Kabay, 1998), "Internet communication" (December, 1996) and "Internet mediated communication" (Rouse & Haas, 2003). However, within the context and scope of this study, emphasis on the internet is on its CMC aspects.

3.3 Theoretical perspectives of Computer Mediated Communication (CMC)

Many studies investigating the social impact of internet use seek to explain the process of such impacts and establish the direction of causality – that is, whether internet use affects social behaviour or whether the social context of use determines what effects human factors will have on technology. This forms the basis of "technological determinism" or "social constructionism'' respectively. The theoretical concept of technological determinism argues that technology shapes social behaviour (Wood, 2004). It proposes that communication technology media, such as the internet, shape social interaction and social relationships by influencing how CMC users interact with one another when they are online (Chandler, 2000). This theoretical stance has been criticised by many academics as being false and naive (Jones, 1997; Wajeman, 2002). Critics of the technological determinist perspective later developed "social determinism" also known as social constructivist perspective (Spears *et.al*, 2002).

Social constructivists argue that users of technology are social actors who determine the features and characteristics of technology and how it is used (Winner, 1993). Those who embrace the theory of social determinism also argue that what matters is not technology, but the social system in which it is embedded (Winner, 1993). Another criticism against technological determinism by social constructivists is that although communication technology is undoubtedly an important factor facilitating social change, it remains only a single factor amidst others because social change is too complex to be determined solely by advances in media communication. Hence, this criticism advocates a consideration of other related factors such as economic, social, health, legal and political factors (Winner, 1993).

A blend of both theoretical perspectives of technological determinism and social determinism later developed. This view holds that the relationship between the impact of technology and users of technology is bidirectional because they both exert mutual impact (Vrooman, 2002; Markus, 1996). In other words, although humans have impact on technology and seek constantly to advance it, technology in turn influences human behaviour and relationships through its use. Many theories of CMC have been developed on the foundation of these perspectives. Factions of theoretical models describing social behaviour and the strength of social relationships in CMC have evolved from the dichotomous perspectives of the "Cues-filtered-in" and the "Cues-filtered-out" approaches. Within these perspectives, the dynamics in CMC social interaction and how social relationships are influenced often focus on the unique difference between interaction in face-to-face and in CMC environments. This difference largely implicates the loss of visual cues in CMC (Soukup, 2000).

3.3.1. Cues-Filtered-Out approach (CFO)

The Cues-filtered-out theoretical approach (hereafter referred to as CFO theory) is one of the most dominant technological determinist perspectives in CMC. Its theoretical stance holds that the lack of visual cues in CMC renders it ill-suited to build intimate social ties and maintain strong social bonds. It regards face-to-face communication as a superior means of social interaction for strong social ties to be formed (Walther & Parks, 2002). The basic and fundamental argument of the CFO theory is that the absence of visual cues in CMC is a hindrance to communication (Sproull & Kiesler, 1986). In essence, the theory claims that text-based CMC is less suited to fostering or developing strong personal relationships because the lack of visual cues makes it less emotional or less personal. According to Lea & Spears (1995, p.233), CMC is devoid of the "*essential process of relating*" between humans because it lacks visual cues. There have been many studies in support of the CFO theoretical perspective. For example, Byron (2008) argues that the absence of visual cues in email communication makes it difficult for receivers to decipher the emotional content within a message, and might predispose the receiver to misinterpreting a message. Friedman and Currall (2003) also contend that the lack of social cues in email is one of the factors that contribute to stress in work environments. Their model details how senders and receivers of emails often create lengthy messages for excessive attention, which in turn leads to misunderstandings, frustration and escalation of

conflicts. However, other studies have pointed out that the relative absence of visual cues affords anonymity, which in itself is an advantage where social hierarchy exists (Flanagin *et al.*, 2002; Todd & Chandler, 2011; Farall, 2012). Such studies argue that anonymity due to a relative lack of social cues in CMC leads to depersonalisation, which often transforms group dynamics because individuals who are constrained by rigid hierarchical systems can be liberated in such faceless environments. In this way, the absence of visual cues affords a "voice for the voiceless" because identifiable social factors such as gender, race, and social class are precluded online. Examples of CMC theories that are built on the foundation of CFO arguments are detailed below: *Media Richness theory, Social Presence theory* and *Social Identity Deindividuation theory*.

3.3.1.1 The Media Richness Theory (MRT)

Media Richness theory (MRT) proposes that different media of communication are better suited to achieve certain tasks than others, and that the richness of each medium will determine its adoption by users (Daft & Lengel, 1984). The criteria for the evaluation of media richness stipulated by MRT are based on how instantaneous feedbacks are received, the possibility of conveying visual cues and the use of natural language through the media. According to MRT, face-to-face communication is rated as the richest medium of communication, followed by telephone, email and letter or reports. However, there is little evidence to support MRT (Kock, 2005). Critics of MRT believe that the choice of any media is based on factors which motivate its use rather than simply the ability of the media to convey visual cues. In this way, critics argue that factors such as convenience, social pressures and the intent of the user are central to the desire to interact or communicate with a medium (Markus, 1994; Williams *et. al.*, 2007).

3.3.1.2 The Social Presence theory

Social Presence theory (SPT) is another CFO theory which argues that the lack of social presence and the lack of visual cues in CMC reduces its ability to influence communication partners and also limits the potential to develop strong social ties online (Short, Williams, & Christie, 1976; Hwang & Sungbok, 2007). It is formulated on the notion that the absence of social cues in CMC leads to a reduced sense of awareness of an interaction partner. According to this theoretical approach, the absence of visual cues in CMC makes users less able to pay full attention when they are conversing online, thus leading to less personal

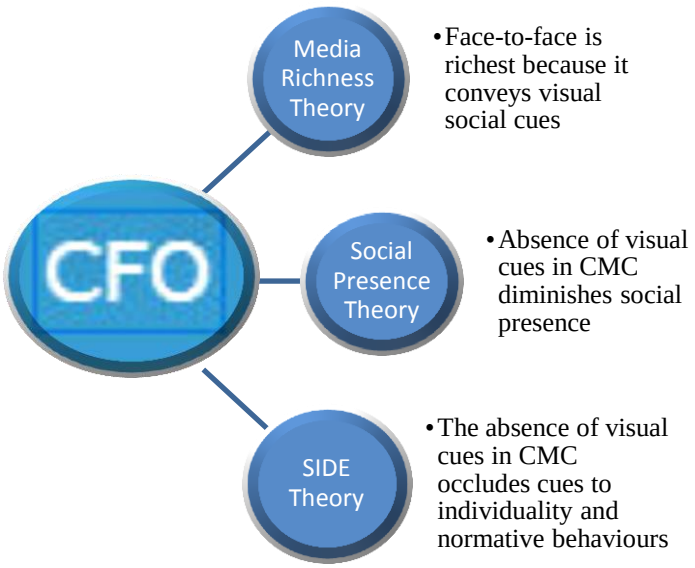
conversation and less likelihood of building strong social ties (Postoaca, 2006). According to the SPT, "relationship-oriented activities" which requires "high personal involvement" (Dennis & Kinney, 1998, p.268) such as making an acquaintance with someone, is less efficiently supported in CMC due to absence of social cues. In support of this perspective are the Cluelessness model (Rutter, 1984) and the Reduced Social Cues approach (Kiesler, 1986) which contend that the absence of visual cues in CMC causes deindividuation - a state in which people lose their individuality or social markers such as age, gender and social status.

3.3.1.3 Social Identity Deindividuation (SIDE) theory

The Social Identity Deindividuation theory (SIDE) of CMC adopts the CFO perspective (Spears & Lee, 1991). It was formulated following dissatisfaction with the explanations provided by the "Cluelessness theory" and the "Reduced Social Cues" approach about deindividuation effects. SIDE provides an alternative explanation for the effect of anonymity afforded by CMC and deindividuation. The theory holds that the absence of visual cues in CMC group setting leads to depersonalisation, obscures individual features, and enhances the individual's perception of shared group identity (Spears & Lee, 1991). This means that de-individuation in CMC can lead to a hindrance of self-awareness in a group and can change individual identity to a group identity. Although the SIDE theory suggests that individual action depends on group social norms, it acknowledges that awareness of self-identity may alter such individual actions (Yao & Flanagin, 2006).

These CFO theories underline the major distinction between CMC and face-to-face communication as the absence of visual cues in CMC (Walther & Parks, 2002). It conceptualises and predicts not only online social behaviour, but also determines the strength of socio-emotional bonds that can be formed in online social interaction. The SIDE perspectives further argue that de-individuation (or anonymity) consequently encourages online aggressive and anti-social behaviour, also known as "*flaming"* (Tanis, 2003). However, there is a lack of evidence from empirical studies regarding the prediction of anti-social behaviours being associated with deindividuation and the facelessness of CMC (Li, 2010). In summary, CFO theorists contend that the lack of visual cues in CMC makes it less suited to building or maintaining strong social bonds on online platforms. The diagram in figure 3.1 (page 44) illustrates the arguments of three major theories of CFO based on the lack of visual cues in CMC as presented in this section.

Figure 3.1: *The three dominant theories of the CFO*



3.3.2 Cues-Filtered-In approach (CFI)

The Cues-Filtered-In (CFI) approach was developed by Walther (1996) in opposition to the CFO perspectives. Walther first developed the CFI approach within the context of his "Social Information Processing Perspective" (SIPP) in 1992. Although Walther's CFI perspective argues against CFO models, it has a major common ground with the CFO perspective because it agrees that the lack of visual cues in CMC can determine how social relationships are developed online. The two main theoretical models of CFI are the *Social information processing model* and the *Hyperpersonal model.*

3.3.2.1 Social Information Processing model (SIP)

The Social Information Processing model (hereafter referred to as the SIP model) is in contrast with the prediction of CFO that strong social bonds cannot be formed in CMC due to the absence of visual cues. The SIP model states that understanding the true pattern of human interaction in CMC demands long-term research periods because the time-limited nature of CFO experimental studies are not conducive to the formation of strong social

bonds (Walther, 1992). The reason stated by the SIP model is that the formation of strong social bonds in CMC will require more time than conventional face-to-face social relationships because the absence of visual cues in CMC slows down the rate of communication exchange. The SIP model contends that, given sufficient time, social ties in CMC will attain the same level of intimacy as face-to-face. Furthermore, it would enhance social relationships that would otherwise be impossible in face-to-face situations because partners develop trust in each other over time (Walther & Parks, 2002; Hunderson & Gilding, 2004; Young & Nabuco de Abreu, 2010).

In addition, SIP model regards the lack of visual cues inherent in CMC as a disadvantage that can be overcome with time because communication partners soon learn how to idealise each other's textual cues or, alternatively, develop ways to convey and interpret cues via use of emoticons, abbreviations or other necessary means (Mabry, 2001). This suggests that in CMC users are capable of developing ways to adapt to the absence of visual cues in CMC.

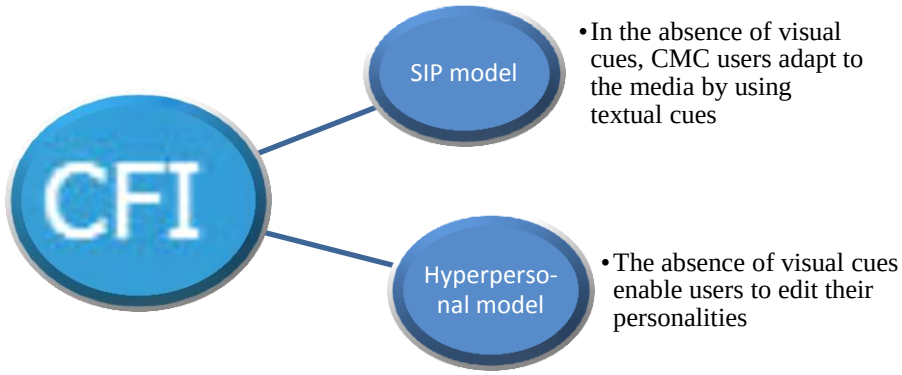
3.3.2.2 The Hyperpersonal model

The Hyperpersonal model asserts that the absence of visual cues in CMC allows for selective self-identity presentation. In essence, online communicators can develop favourable and desired impressions of themselves in ways that are almost impossible in face-to-face communication. To this end, Walther (1996) affirms that online interaction can be more socially desirable than face-to-face communication. Empirical evidence for this claim was provided by Walther (1995) in a study involving a group using CMC-based interaction and a control group with face-to-face communication. The study showed that, despite the time scale, the CMC group socialised better than the face-to-face group. This view was supported by Wysocki (1998) who suggested that relationships formed online develop faster than face-to-face relationships and also attain a higher level of trust and intimacy because the anonymity afforded by online interaction enhances a higher degree of self-disclosure.

While several factors may explain how online social interaction develops into offline social contact, the time it may take for online socialisation to make a meaningful impact on offline ties, or how quickly these processes occur, such factors cannot be explained by these theories because they tend to focus more on the dynamics of visual cues in online

interaction (Hardie & Buzzwell, 2006). Many studies show that online social relationships can last for reasonably long periods ranging from weeks to months or years (Hardie & Buzzwell, 2006). Other studies describe processes of online socialisation among older adults in terms of romantic relationships (Wysocki, 1998; Whitty, 2003; Whitty & Curr, 2006; Whitty, 2008), but how these relationships impact on the participants' social lives and how the impacts are mediated remains unclear (Spitzberg, 2006; Roseth, Saltarelli, & Glass, 2011) . In addition, computer users are not homogenous and to what extent these theories are applicable across the diversity of groups remains unanswered. The current study aims to create an understanding of how older adults with vision impairment appropriate internet use to the benefit of their social lives. However, the theoretical perspectives of CMC described above are only partially relevant to this study due to their limitations in relation to the study population of this research. The Figure (3.2) below illustrates the CFI models and their major arguments as discussed in this section.

Figure 3.2: *Theories of the CFI Perspective*



3.4 Application of CMC theories in social relationships

CMC theories have been applied in studies seeking to explain the development of social relationships online. Two major aspects that are often considered include the development of trust in CMC and forming an impression of others.

3.4.1 Building trust

One important element central for the formation of social relationships and which has drawn much attention in research and in theory is the issue of trust. It is the cohesive and adhesive force that enables people to form social bonds (Uslander, 2002). Studies on how the absence of visual cues in CMC impacts on the processes involved in building trust among communication partners have mixed findings. For example, CFO theories argue that the absence of visual cues in textual CMC could hinder the development of trust because social cues that convey natural expressions are often filtered out. In this context, many studies have supported the CFO position by arguing that the perception of trust that can foster the development of social relationships can only be enhanced by perceived social presence because visual cues that exist in physical presence facilitate the formation of impressions about others (Gefen & Straub, 2004; Hassanein & Head, 2005; Wang *et al.*, 2007). In other words, these studies argue that non-verbal cues are important for the formation of an impression about others, which is necessary for the formation of trustworthy relationships.

Berry & Brownlow (1989) found that adults with a "baby face" were rated trustworthy, warm and friendly. However, a different perspective is provided by the SIP theoretical model which suggests that, due to the absence of visual cues in CMC, communicators make conjectures about the trustworthiness of their partners based on available textual cues (Walther, 1992). The Hyperpersonal model further contends that the absence of visual cues in CMC enables online communicators to construct exaggerated and carefully thought-out personalities of themselves (*selective self-presentation*) in order to make others think highly of them (*over-attribution*) and facilitate the development of social relationships (Walther, 1992). In order to substantiate this argument, Walther *et al.*, (2001) conducted a study with two different groups – a control group which socialised online with photographs and an experimental group which socialised online anonymously. Their study showed that despite the absence of visual information, the experimental group formed stronger social bonds than the control group.

In the same vein, Toma (2010) investigated the role of visual and textual information on the development of trust in social networking sites. Her study showed that participants relied less on visual information to ascertain the trustworthiness of others, but more on textual information to build an impression of others before developing trustworthy relationships

with them. A study by Henderson & Gilding (2004) suggests that there are four main sources for the development of trust in CMC: the respect held either online or offline for pseudonymous identities; how people comport themselves online during the entire process of building trust; mutual self-disclosure; and lastly, the value placed on taking the communication to higher levels of interpersonal relationship. Henderson & Gilding (2004) explained that emphasis is often attached to physical attractiveness when people estimate trust.

The issue of physical attractiveness and its importance in developing social relationships has been ascribed to the central role it plays in forming impression of others (Back, 2010; Mierke *et al.*, 2012). In other words, visual or non-verbal information is often sufficient for us as humans to form an impression of others quickly. According to Ash (1946, p.258):

> "*We look at a person and immediately, a certain impression of his character forms itself in us. A glance, a few spoken words are sufficient to tell us a story about a highly complex manner"*.

Visually impaired people often find it difficult to form an impression of others based on such non-verbal cues. The constraints of vision impairment impede the ability to access and exchange rich social information, which is often essential for interaction and for the development of relationships (Cramton, 2001). As discussed in the earlier section of this chapter, CMC theorists continue to emphasise the difference between CMC and face-to-face interactions, rather than considering the aspects in which both contexts contain similarities. Some researchers have argued against such dichotomy. Leander & McKim (2003) argue that to portray online and face-to-face interactions as dichotomous is false and unrealistic because they are both integral parts of human communication. In other words, irrespective of the absence of visual cues in CMC, it remains another way of communicating. Holding unrealistic expectations of CMC in order to measure it against face-to-face communication is baseless. In essence, the internet is part of our social world and the search for "real" social relationships can be fostered by the internet (Powell, 2003; Carter, 2004; Young, 2004). While the CFO perspectives define CMC as disparate from face-to-face, the CFI perspectives contend that, although the absence of visual cues in CMC differentiates both media, communicators have the potential to adapt to the absence of visual cues in CMC. In the case of visually impaired users, one may begin to ask "to what

extent do they share this notion of similarity or distinctiveness between online and offline media if the major difference between both media is the absence of visual cues in CMC?"

Unarguably, the impact of direct personal contact in face-to-face cannot be substituted by any communication technology because affective cues (e.g. emotions, facial expressions, tone of voice) are readily transmitted in face-to-face situations. For example, it might be possible to detect if others are happy, worried, upset or complaining from the tone of their voice. As a result, emotional and moral support may be offered sympathetically. Such behaviour that shows care and concern can herald friendship or strengthen social ties where they exist. Although users cannot deduce mood and the tone of messages in textual CMC, adaptive strategies such as use of emoticons are employed (Sharifian & Jamarani, 2013; Derks, Fisher, & Boss, 2008). However, many visually impaired users cannot access graphic emoticons in CMC because assistive devices cannot interpret them. This suggests that irrespective of the medium (whether online or face-to-face) it is often difficult for visually impaired persons to perceive visual expressions. The extent to which these difficulties may have implications for how they appropriate CMC in socialising with others online, how they draw inferences or interpret messages of others, and how they construct their social context of use remain under-researched.

3.4.2 Forming impressions

In a study conducted by Simon (2006) to assess levels of performance and satisfaction perceived by participants across three different communication environments, namely instant messaging, face-to-face and video conferencing, findings suggest that performance was not affected in any of the media. However, participants reported that they had least satisfaction with CMC because it lacked visual cues. Similarly, Krueger *et al.* (2005) evaluated how confidently participants were able to interpret messages across CMC, voice only and face-to-face environments. Participants were asked to rate their levels of confidence in delivered scripted messages which conveyed different characteristics such as sarcasm, seriousness, aggression, sadness. Their findings concluded that participants communicated accurately in face-to-face and voice-only media. These studies suggest that without visual information, the ability to make meaningful interpretation and draw accurate inferences from messages will be impaired. At the centre of these arguments is that visual information enables communicators to make sense of communication beyond words that

can be uttered or written and miscommunication may occur in the absence of visual information.

In a study aimed at obtaining information about the communication strategies of people with vision impairments in face-to-face situations, Beumer, Haan, & Vanderven (2000) compared how sighted and visually impaired participants completed visualisation tasks of varying complexities. The study found that sighted participants who paired with visually impaired participants talked more than sighted participants who paired with other sighted participants. The sighted participants who paired with visually impaired participants talked more because their visually impaired partners asked more questions. In discussing the implication of findings for multimedia CMC, the authors argue that since visually impaired people depended more on verbal cues, the audio connection of CMC is of greater importance to them.

3.5 Limitations of social theories of CMC in relation to study

The previous section described theories of CMC and how they are generally argued from two opposing perspectives on the basis of visual cues. Many communication technologies operate without visual cues. The two polarised and competing themes that characterise CMC theories discussed above holds that online social facilitation can be predicted by the extent to which visual cues can be conveyed. This forms the basis for the underlying differentiation in much CMC research that online and offline interactions are contrasting (Leander & McKim, 2003). Findings from empirical studies of CMC testing these theories have been conflicting (Spitzberg, 2006; Berger *et al.,* 2010) and the theoretical perspectives of CFO and CFI may not be generalisable beyond laboratory experiments because they are based on short-termed experimental studies (Kim, 2000). Less attention has been accorded to other factors beyond the absence of visual cues in CMC (Soukup, 2000; Shim *et al.*, 2008). The high variability of empirical CMC research reflects a shortcoming bearing in mind that the fact that computer users are not a homogenous group and wide variations occur among users ranging from skills, experience, tasks and accessibility. Thus, it is difficult to generalise the different findings from different empirical studies investigating CMC theories, particularly to the visually impaired older adult population, given that most of the empirical studies forming the basis for CMC theories are not only based on sighted users but also conducted with younger age groups (Dickenson, Arnott, & Prior, 2007).

The predominant focus on textual applications such as emails, instant messaging and chat in CMC research reveals that less focus has been apportioned to multimedia applications such as video conferencing, audio calls and video calls (Sarre, 2011). Despite recent advances in interactive CMC contexts towards these multi-media and 3-dimensional communications that enhance the mutual exchange of visual cues, many studies adopting CMC social theories continue to depict online interaction unfairly as inferior to offline interaction due to the absence of visual cues in CMC (Leander & McKim, 2003). Such notions overlook the fact that the loss of visual cues assumed to be exclusive to CMC can occur in other situations. For example, this can be found in the case of two blind people sitting at opposite sides of a table and having a conversation. Yet, while the theoretical perspectives of CFO and CFI focus on CMC's lack of visual cues and visual anonymity, and the effect they have on socialisation, there are other aspects that demand consideration.

It is in view of this fact that Spitzberg (2006) argues that many aspects deserve attention particularly in the face of advancing social trends in new media and communication technology. Spitzberg argues for a theoretical model of CMC that gives special attention to the social context of use in exploring its social impacts. However, considering the challenges associated with socialisation due to vision impairment (Heine & Browning, 2004; Swatski, 2010; Papadopoulous *et al.*, 2011), internet use might be one of the means for this group to build social relationships and/or maintain social contacts (McKenna, Green, & Gleason, 2002). Some scholars contend that there is no specific impact of internet use because the impact of internet use depends largely on the individual and how it is used (Tyler, 2002; Riva, 2002; Matzat, 2004; Bessiere *et al.*, 2004). In line with such arguments, one may question to what extent its use for social purposes might impact on the social relationships of blind or visually impaired users who have lost visual cues. The complexity of examining such a topic among older adults - a heterogeneous user group - suggests the need for a theoretical approach that will cover the social context of use and how its use fit into their lives.

To understand the theoretical context of internet use among this group, the "Selection Optimisation and Compensation" theory of ageing will be used as the framework for this study. A particular advantage of responding to the research questions in this study based on existing theory rather than developing a new one is that an existing social theory is often mature and widely applicable. Using a theory of ageing is also deemed appropriate given the focus of the study on older adults.

3.6 Selection Optimisation and Compensation theory: The theoretical framework for this study

The Selection Optimisation and Compensation theory (SOC) of ageing proposes that older adults develop adaptive processes to deal with the losses and gains of ageing (Baltes, 1987; Baltes & Baltes, 1990). According to the SOC theory, compensatory efforts such as developing alternative ways of maintaining social functioning are seen as adaptive responses to sensory or physical losses of ageing that may impair social functioning. Selection means that people set goals or select activities they value most to maximise derived benefits from their limited resources (Lerner & Oveton, 2010). Resources are broadly defined as personal or environmental factors that facilitate a person's interaction with their environment (Freund, 2008). There are a number of basic assumptions underpinning the SOC theoretical model. One such is the "life-span psychology" which holds that development comprises trajectories of growth and age-related decline (Freund, 2008). This suggests that resources are needed at each point in life to support a person's interaction with their environment and to help achieve goals but that these resources are finite. With increasing age, resources are drawn upon more exhaustively than they are replenished. Older adults are, for example, more likely to have fewer social networks because ageing is often characterised by loss of spouse or divorce, children leaving home, retirement or death of friends (Wyke & Gueldner, 2010), while older adults may be less eager to make new friends. Thus, the ratio of gains to losses in social relationships becomes less positive with ageing because more resources (in terms of social relationships) are replenished less often and drawn upon more exhaustively with advancing age.

Socialisation, staying connected, being loved and cared for are important social needs (Maslow, 1943) which also facilitate access to social support and provide resilience against sensory losses such as vision impairment (Bambara *et. al*., 2009). Visually impaired older adults may have a need to selectively allocate more of their resources to the maintenance of social functioning as a goal. Within the context of this study, selection refers to being committed to personal goals of choosing to build or maintain social relationships through internet use as an option out of several possible alternatives of doing so, such as telephone calls or visits.

The SOC model distinguishes between two kinds of selection: elective selection and loss-based selection. The mapping of goals to match a person's needs with available resources is

an elective selection while loss-based selection refers to substituting unachievable goals due to functional loss with more attainable ones (Freund, 2008). The process of loss-based selection is reflected when a visually impaired older adult who experiences difficulty with driving or using public transport, chooses to keep social contact with family or friends online.

Optimisation refers to focusing on the means of achieving desired outcomes in selected domains through resource allocation. An example of optimisation within the context of the current study can be seen as visually impaired older adults investing time and energy into acquiring skills through training to be able to use assistive devices for internet access. In old age, when losses such as vision impairment and shrinkage of social network size are prevalent (Lang, 2001; Dreary *et. al.*, 2009; Bishop, Lu, & Yankner, 2010), it might be a healthier practice to sustain related goals for promoting social relationships and social well-being through optimisation rather than by focusing on losses. Urry & Gross (2010) propose that older adults who engage in optimisation processes regulate their emotions better and achieve well-being in spite of age related sensory losses.

Compensation draws on how older adults cope with health-related constraints and losses in their attempts to continue with the activities they enjoy doing, particularly when such activities are being hindered by health-related constraints. The loss-based selection perspective of SOC suggests that in such instances, older adults may relinquish the considered activity and develop new ones. However, when such activities are central to well-being, a more adaptive approach will focus on compensation by acquiring personal resources as an alternative means for continuity (Freund, 2008). For example, a screen reader or magnifier could be used to overcome the loss of visual acuity and form the basis for compensation.

The SOC theory has been criticised for its theoretical basis that compensatory responses are direct consequences of age-related losses and decline (Uttal & Perlmutter, 1989). Uttal and Perlmutter argued that it is possible the so called “responses” are related to something else other than the loss. In other words, not all compensatory reactions are necessarily triggered by losses, and some losses could lead to gains. Although these criticisms were based on earlier writings of Baltes (1987) on the SOC theory, the arguments against it remain valid because Baltes did not change his interpretation of the SOC theory in subsequent years.

Despite these criticisms, the SOC theory fits favourably with the current research because it is useful in dealing with chronic age-related disabilities. In addition, its use is not limited by the severity of the disability, rather it involves all levels of disabilities causing decline in the activities of daily life (Bengtson *et. al.*, 2009). One such disability is age-related vision impairment. This study does not only seek to understand internet use as a compensatory tool for social contacts, but also explores how visually impaired older adults use the SOC approach in overcoming the challenges in socialisation posed by vision impairment and how internet use could influence their social well-being.

3.7 Chapter summary

This chapter discussed theoretical perspectives on internet access for visually impaired people and has also critically discussed theoretical perspectives of CMC. The chapter reviewed dominant theories often used to explain social behaviour and formation of social relationships in CMC environments. These broadly include the theoretical perspectives of "cues-filtered-out" and "cues-filtered-out" approaches. The CMC theories of CFO and CFI have their analytical bases hinged on the capacity to convey visual cues and associate online behaviour as related to the lack of visual cues in CMC. The chapter considered the foundation of CMC ideologies on the lack of visual cues as a limitation relative to the visually impaired user.

The Selective Optimisation and Compensation theory is adopted in lieu of a CMC theory as a framework for understanding how internet use can be instrumental in maintaining social relationships and the social well-being of visually impaired older adults. The next chapter will discuss the paradigm guiding this study and justify the chosen methodology.

Chapter Four - Research Methodology

4.1 Introduction

The previous chapter discussed the theoretical perspectives relevant to the current study. This chapter will detail the methodology and methods employed for data collection and analysis. The methods of data collection employed were: participant observations (field notes), one-to-one interviews and focus group interviews. The chapter begins by describing the philosophical underpinning of this study and the research design. In line with this, the justification for the chosen methodology is articulated and a detailed description of the research setting is also presented.

4.2 Research paradigm

A research paradigm is the theoretical assumption guiding the researcher's perspective of the world in relation to how it should be conceptualised (Guba, 1990; Crotty, 1998). The current study adopts an interpretivist paradigm (Schwandt, 1994; Angen, 2000) to explore the experiences of visually impaired older adults with internet use and how they perceive that its use affects their social relationships and social well-being. The practical orientation of interpretivist research focuses on how people construct meaning in their daily activities and their experiences. The study acknowledges the importance of adopting a research approach that unveils people's subjective perception of reality, particularly as it is central to the research aims. An interpretivist framework was considered appropriate because exploring participants' experiences using a positivist approach could pose methodological problems (Tuli, 2010).

Although many studies on internet use and how it affects the well-being of younger people have been conducted from a positivist stance (Gross, 2002; Valkenburg, Jochen, & Schouten, 2006; Subrahamanya & Lin, 2007; Ejiden *et al*., 2008; Caplan, Williams, & Yee, 2009), an interpretivist approach was deemed fit because older adults are a heterogeneous user group (Zajicek, 2004; Nichols, Rogers, & Fisk, 2006; Sayago & Blat, 2010). Such heterogeneity stems from a range of factors caused by ageing such as cognitive decline, decline in visual acuity, decline in psychomotor co-ordination, and changes in spatial abilities (Hawthorn, 2000; Wagner, Hussanein, & Head, 2010). There is an increasing emphasis on the need to understand how older adults use the internet in the face of these challenges by exploring their subjective experiences (Moggridge,

2007; Hill *et al.*, 2008; Wagner, Hussanein, & Head, 2010; Sayago & Blat, 2010). Ulmer and Wilson (2003) argue that in exploring experiences, qualitative research has more advantages over quantitative approaches because positivist methodologies cannot accurately quantify abstract concepts such as emotions, culture, experiences and social relationships with credibility.

The interpretivist paradigm was chosen for this study based on its tenets that people construct meanings and interpretations from their activities and their experiences. In this regard, held meanings are defined as culture, norms, beliefs, perspectives or social reality (Lofland & Lofland, 1996). The concept of social reality defines the ontological position, which refers to the claims about what truly exists (Blaikie, 2000). How such claims and assumptions about the nature of social reality are known is the main focus of epistemology (Crotty, 1998). Together, the methodological procedures, the ontological and epistemological assumptions make up a paradigm (Mack, 2010).

Interpretivists argue that only through the subjective interpretation of phenomena in one's natural environment can reality be fully understood. The role of the researcher in the interpretivist paradigm is to create an understanding of social reality by exploring the experiences of the research participants (Cohen, Manion, & Morrison, 2007). Thus, to achieve the goal of creating this understanding from the experiences of visually impaired older adults, the study utilises the interpretive paradigm to provide insightful interpretation from their personal and collective accounts of experiences.

4.2.1 Theoretical assumptions and philosophical underpinnings

It is important for social researchers to state clearly their views of social reality because understanding the researcher's perspective of the social world enables readers to evaluate the presentation of results better. Thus, researchers are often urged to address the ontological and epistemological positions (philosophical underpinnings) guiding their study. The core precepts of an interpretive research paradigm which define its ontology are that reality is subjective and socially constructed (Denzin & Lincoln, 2003; Creswell, 2007). The current research acknowledges and adopts this ontological position in assuming that only through interpretation of the impact of internet use on social relationships and well-being of visually impaired older adults can reality about how it truly affects them be understood.

The ontological position of the current study therefore holds that visually impaired older adults construct meanings and hold the truth about how internet use affects them based on their

experiences. The epistemology of the current study is rooted in participants' experiences of internet use and assumes that visually impaired people are experts on their own experiences with internet use, particularly with assistive devices. However, knowledge creation is not solely based on participants' individual experiences, but also on the researcher's interpretations of field experiences and dialogic interviews with participants. This emphasises that knowledge from the study is co-created with research participants.

There are, however, criticisms against this approach, particularly as the researcher is immersed in the social setting of participants. Such arguments hold that there is a tendency for the researcher to shift focus from participants' experiences to the researcher's viewpoint (Kanuha, 2000). Nevertheless, it is widely acknowledged that knowledge generated through this approach can prevent misrepresentation of participants' responses and add credibility to findings on the description of what constitutes social reality within the research context (Reeves, Kuper, & Hodges, 2008). This is mainly because findings are interpreted in the context of the situation in which they are observed. The next section continues with a discussion of the chosen methodology for the current study and also considers the limitations inherent in the choice of research approach

4.2.2 Social construction of internet use

The notion that internet use has certain fixed impacts on users has been increasingly criticised by researchers who argue that the impact of its use largely depends on the social context (DiMaggio, Hargittai, & Neuman, 2001). This means that the benefits of ICT are determined by collectively established (socially constructed) norms of usage and based on how users perceive its usefulness to their lives. For example, the telephone was originally designed for business purposes, but over the years users extended its application to traditional day-to-day personal conversation (Fischer, 1992). From a social psychological perspective, such processes whereby users of ICT collectively define patterns of use are often referred to as social constructivism (Sarrica, 2012). Its roots lie mainly in ethnomethodology, and constructivists explore how social practices define social reality (Gerfinkel, 1967; Berger & Lukman, 1967). The tenets are opposed to positivist approaches and would rather contextualise social behaviour as a phenomenon embedded in tradition or principles (Sarrica, 2012). In this way, social constructivism adopts a relativist stance rather than investigating issues from a realist point of view. In other words, it contends that reality is not objectively constructed, rather it is

subjectively defined. Only human interaction with a situation can give rise to human perception and enable users of ICT to give meaning to how they use ICT (Alam, 2009)

Social constructivists argue against exploring ICT use through a technologically determinist approach; rather they argue that ICT should be presented in the context of its social, political, cultural and economic applications (Macleod, 2005; Patel *et al.*, 2011). In addition, social constructivism has had an impact in studies that seek to create an understanding of ICT and social relationships. It is currently having a major influence on internet use for building social ties (Millard, 2010). In recent years, this is being witnessed by the popularity of social network sites (SNSs) and the introduction of other features to SNSs, such as multimedia tools. However, while such multimodal aspects have influential benefits for use in online platforms, many visually impaired people are shut out due to poor accessibility to SNS applications via assistive devices. This means that the structures provided by SNSs (and many social media) that influence ways of using it may differ due to variation in accessibility. As discussed earlier, older adult internet users are not a homogenous group and therefore it might be expected that they use the internet differently. With the nature of declining physical condition or co-existing medical conditions, it is possible that ageing and vision impairment could make certain computer devices less easy to use. Ryu, Kim, & Lee (2009) found that the intention to use an online video sharing website was negatively affected by perceived physical condition.

Another emerging problem with potential to foster variation in social construction of ICT use between visually impaired and sighted groups is the pace of technological innovation. For example, a typical characteristic of ICT use for visually impaired people is that the narrowing of one technological gap is often quickly followed by the emergence of another gap (Hilen *et al.*, 2012). This is due to the rapidity of the replacement of old technologies by new ones. Castells (2001) argues that computing advancements doubles every 18 months while cost hardly changes. However, this is not necessarily the same for assistive technology used by visually impaired people because such devices often struggle to keep pace with technology used by sighted people. In other words, the time lag between the emergence of new technology and the availability of assistive devices that make them accessible for the visually impaired user is often too slow. For instance, people do not only build and maintain social relationships with family and friends, they might also have attachment to things such as their (beloved) books and music. Unfortunately, slow advances in assistive technology make it difficult for them to maintain relations to such things that bring pleasure. Current devices, such as the popular “Kindle”, are not adapting to assistive technology. These inequalities may account for particular patterns of technology use

and a difference in social construction of technology between sighted and visually impaired users. However, despite the sophistication of CMC theories and the importance of acknowledging these factors in the use of technology, researchers seem to have overlooked how such inequalities influence the adoption of technology. Due to this limitation, ethnographers and ethnomethodologists allow participants to speak for themselves, rather than abstracting general principles or rules (Francis & Hester, 2004).

Some scholars advocate that more theoretical structures will integrate contemporary developments in CMC and help to provide a more comprehensive explanation to how it is appropriated by different users. For example, Soukup (2000) argues that CMC theories have been limited by textual bias and must begin to integrate the multi-media features of computers into theoretical perspectives in order to provide better explanations for the social context of CMC use and its impacts. Within the context of the current study, a constructivist philosophy is employed in arguing that there is no single version of reality about the impact of internet use on social relationships, rather a multitude of realities situated within participants' online experiences. The current study acknowledges that exploring how visually impaired older people synthesise and construct meaningful relationships online is key to understanding their experiences and how the use of CMC impacts on their lives. Because the varying subjective severity of vision impairment has the potential to impose varying degrees of constraints, this qualitative approach is deemed fit to capture how experiences of visually impaired older people determine their internet use.

Although social constructivism is often characterised by the absence of an analysis of the effects of technology (technological determinism), the current study acknowledges the effects of technology by seeking to capture how its characteristics and constraints affect its appropriation by visually impaired older adults and impact on their well-being. On one hand, this approach borrows from technological determinism because it explores how communicating in a CMC environment might influence the way in which visually impaired older people will construct meaning to the impact of internet use. On the other hand, the study adopts a relativist approach because it investigates participants' views from their experiences in order to uncover the impact of internet use. In this way, social constructivism allows interpretive flexibility. This means that visually impaired older people are allowed to describe the different meanings and interpretations for their use of internet. It is expected that this approach will help to explain how features of the internet interact with external factors and characteristics of visually impaired older people. In this context, "external factors" are the contextual events that may influence the "selection and

optimisation" of internet use by participants. For example, some studies argue that older adults' motivation to adopt a communication media is not affected by usability problems; rather their selectivity for ICT is driven by perceived benefit (Selwyn, Gorard,` & Furlong, 2003; Melenhorst, Rogers, & Bouwhuis, 2006; Sack, Pak, & Ziefle, 2011; see also section 1.4, p. 7).

A theoretical perspective of media choice based on perceived benefits (i.e. 'Uses and Gratification' theory by Blumer & Katz, (1974) also recognises that anticipated benefits with respect to fulfilment of needs can influence selection of communication needs. Thus, while the current study adopts a more constructionist framework (Selection, Optimisation and Compensation theory of ageing), it acknowledges that the study can be viewed through other theoretical lenses, and does not claim that SOC theory or the constructivist approach are the only useful frameworks. However, the philosophical and theoretical frameworks adopted are chosen with a view to providing broader insight into the scope of internet use by participants. The flexibility afforded by this approach will enhance the investigation into how and why the internet is valued by visually impaired older people in particular social contexts, from a range of possible alternatives.

4.3 Ethnography as methodology for the current study

Ethnography is an interpretivist research approach concerned with studying socio-cultural processes and meanings within a cultural system (Harris, 1976; Whitehead, 2004). These include the behaviour, values, and preferred practices of a group. It also encompasses the shared pattern of social relationships, interaction of individuals within their social setting, how they fulfil their needs and how their practices contribute to their definition of reality (Whitehead, 2005). How ethnography is employed depends on several factors, such as the philosophical stance of the researcher and the focus of the research (Atkinson *et al.,* 2007). The focus of ethnography is on creating an understanding of the social life of a group of people in their natural setting with a view to contextualising their social behaviour. This means that the researcher investigates the everyday activities and experiences of people in their setting. Creswell (2007) described this process as the researcher's attempt to understand the behaviour of the group being studied by "deep immersion" in the social setting of the participants. The concept of immersion also involves sharing in the activities of the people under study. Dewalt, Dewalt, & Wayland (2000) emphasise that it is the most appropriate approach to gain implicit knowledge about the behaviour of any group of people being studied. According to Dewalt *et al*. (2000), there is no substitute for gaining tacit and implicit knowledge of cultural behaviour than by living among the people and sharing their lives.

With respect to this concept, immersion within the social setting of visually impaired older adult internet users was considered capable of enhancing an understanding of the factors that may account for how they construct the impact of internet use on their lives. This is discussed later in this chapter.

The concept of socio-cultural group denotes any group of people with shared experiences and/or beliefs. Thus, a common sense of reality (also referred to as intersubjectivity) can be established among them (Berger & Luckman, 1967; Whitehead, 2004) and a common notion of reality can be discovered from them through what they say and what they do. Although people's notion of reality may sometime contradict behavioural patterns, nevertheless observing culture gives a clear view of their routines, which in turn aids better understanding of what constitutes ''reality'' to any group of people (Whitehead, 2004).

Ethnography focuses on rich descriptions and interpretation of a group's socio-cultural behaviour (Atkinson *et al*., 2007; Creswell, 2007; Bryman, 2008). The focus on behaviour includes formal and informal social networks with families, friends and relationships with the wider community (Whitehead, 2005; Atkinson *et al.*, 2007). Although the concept of culture is most frequently used when referring to the description of societies, ethnic groups, local communities or national groups, in the real sense of it, culture broadly captures the description and analysis of groups with disabilities or other social human groups (Whitehead, 2004, p.14). This is made possible particularly when such groups exist within a certain social domain while sharing some characteristics (Whitehead, 2004). It is also applicable when such groups have shared experiences by which they are tacitly influenced (Atkinson *et al*., 2007). These unique features of ethnography and context makes it adaptable for the current study because the researcher conceptualises participants in the current study as a group with vision impairment and distinct internet access because they rely on assistive devices.

4.3.1 Rationale for choosing ethnography

The strength of ethnography in computer mediated social interaction lies in being able to create an understanding of the context under study from users' experiences (Elaluf – Calderwood & Sorensen, 2006). It is also useful in reflecting the cultural pattern of use while providing comprehensive interpretation of how social relationships might be shaped (Dourish, 2006).The choice of ethnography as a suitable qualitative approach for this study is based on its usefulness in exploring the complex nature of human behaviour and the social context of computer use (Ronko,

2010; Sayago & Blat, 2010). Sayago & Blat (2010) pointed out that not all qualitative methodologies are sufficient and adequate to understand the relationship between software technology or computer systems and social behaviour because factors that shape people's behaviour are multifaceted. Such factors include subjectively defined meanings which people attach to their social actions and behaviour (Poldma, 2010).

This study aims to create an understanding of the subjective meaning of internet use among visually impaired older adults and how they perceive its impact on their well-being and social ties. This requires a comprehensive method that can capture their experiences and create an understanding of CMC use from the viewpoint of participants. The desired method needs to be intensive to help probe deeply into how visually impaired older adults build and maintain social ties online. It needs to be flexible to allow varied use of methods for collecting data and in-order to help understand what internet use means to them. This emphasises the need for a comprehensive and inductive method (Creswell, 2007) that will ensure a high degree of credibility when interpreting findings on how visually impaired older adults make use of the internet as a distinct group.

Ethnography designed under the interpretivist framework has been employed in many studies to generate understanding of the impact of computer use on socio-cultural behaviour (Rosetta, Williamson, & McKemmish, 2002; Leung, 2005; Al-Saggaf & Williamson, 2006; Xie, 2007b; Garcia *et al.*, 2009) because it allows for presentation of user-defined interpretations of how usage affects them. The suitability of ethnography within the context of the study was justified by matching the aims and objectives of the study against four circumstances given by Wilkinson & Birmingham (2003) for using the method: when the ways in which people socialise with one another in a social setting is an important subject to be explored in the research; when researching a social setting and what happens in them is of interest; when the best way to research the unknown is to experience it for oneself; and when a flexible approach is needed. These circumstances matched the focus of the current study. The lengthy immersion in the field via observation enhanced the researcher's ability to capture and understand the cultural context and value of internet use among this group.

4.3.2 Theoretical limitations of ethnography

Ethnography has several limitations. Due to the diversity of subjective experiences in social lives, it is usually preferable to engage in deep and lengthy involvement in the natural setting of participants in order to discover the "many layers" of deep meanings (Goulding, 2005; Atkinson *et al.,* 2007). Gaining access to deeper levels of participants' social lives requires that the researcher develops a good rapport with research participants in order to win their trust – which can be time consuming (Button, 2008).

Another weakness of ethnography is that findings are difficult to replicate (Burns, 1994; Nurani, 2008) because events in natural settings cannot be reproduced. Consequently, other researchers may not reach the same findings using the same procedure (Burns, 1994). In addition, as pointed out in section 4.2.1, although observing events in natural settings allows researchers access to participants and affords opportunity for a first-hand experience, it could foster the risk of going native - that is, an over-familiarisation with participants' views that may eventually submerge the researcher's views (Stake, 1995; O'Toole, 2002). This may lead to misunderstanding and misrepresentation of collected data (Stake 1995). Lastly, conducting participant observation during ethnographic research demands careful ethical considerations. This is because concerns about participants' privacy present a risk due to the descriptive nature of data presentation. All these limitations present several challenges for the researcher using ethnography. The next section discusses the approach used to tackle these problems in this study.

4.3.3 Qualitative validity

Qualitative validity refers to qualitative research that is trustworthy, plausible and therefore defensible (Burke, 1997; Thompson, 2011). Trustworthiness in this context relates to frameworks to ensure rigour (Shenton, 2004). The constructs of trustworthiness conceptualised by Lincoln & Guba (1985) include credibility, transferability, dependability and confirmability. Credibility refers to provisions made by the researcher to promote confidence that the phenomenon under study is properly recorded (Shenton, 2004). Transferability relates to whether findings are limited to a study or applicable to other groups, whilst dependability refers to employing techniques to show that if the same study is repeated, similar results will be obtained. The concept of confirmability involves steps taken to reduce investigator bias. It is the audit and confirmation of procedures by external review.

The three tiers of qualitative validity are: descriptive validity, interpretive validity and theoretical validity (Burke, 1997; Thompson, 2011). This section discusses the strategies employed to address the limitations of ethnography, enhance trustworthiness and promote qualitative validity in the current study.

- *Descriptive validity:*

Descriptive validity refers to the credibility of the account of events reported by the researcher (Burke, 1997). It is the accuracy in description of the settings and behaviour of the group being studied. Descriptive validity is often enhanced by not allowing one's personal views to affect how events are observed and recorded (Allen, 2004a). Bryman (2008) argued that reflexivity gives researchers the opportunity to reflect on their individual views and social position, and the way in which such factors influence the reporting of events. In this way, reflexivity functions as a mechanism for informing the researcher and the research process. In the current study, descriptive validity was promoted via critical self-reflection about my predispositions. My approach to reflexivity in this context involved three parts, namely:

- Being aware of the notions by which I judged my opinion and behaviour of participants (see pages 91-94)
- Describing and analysing my observations (of how visually impaired older adults use CMC) with respect to evidence based norms of CMC (in studies conducted with other groups).
- Exploring the views of the staff of NSBP (e.g. interviews with the Manager and IT tutor) about observed behaviour of participants and cross-checking their description with mine (see page 95)

Furthermore, to address limitations on transferability and dependability, a comprehensive description of the methodology adopted in this study and the details of procedures involved in gathering data are provided. It is believed that this process will make the study transparent and build a transferable paper trail so that other studies can conduct a similar investigation while recognising the uniqueness in each social world (Firestone, 1993).

- *Interpretive validity*

Interpretive validity is the degree to which the viewpoints, experiences, intentions and feelings of participants are correctly presented. More specifically, it focuses on portraying the meanings that participants attach to what is being studied. Lincoln & Guba (1985) suggest one of the strategies for achieving interpretive validity is *member checking*. Member checking involves asking research participants to review interpreted findings where actions and meanings of the participants are represented (Shenton, 2004). This ensures that participants' views have not been misconstrued or misrepresented.

Participant phrasing and vocabulary were used in analysing the interviews in order to increase the chances of tapping into participant views and decrease chances of misinterpretation by the participants. However, during the iterative process of the interviews, analysed preliminary paraphrased data was read to the participants. They were asked to make critical commentary on the report to confirm that the interpretation represented their views.

- *Triangulation*

Triangulation refers to the use of more than one approach to ratify research findings (Bryman, 2008). It facilitates the opening up of interpretation to the scrutiny of other plausible interpretations (Skate, 1995). In conducting ethnography, triangulating data sources is a way to ensure that interpretations of what things mean across more than one data source are compared (Winter, 2000). Skate described four forms of triangulation that could serve as useful means to enhancing accuracy when interpreting meanings from qualitative data: theory triangulation, methodological triangulation, investigator triangulation and member checking.

According to Skate (1995), theory triangulation refers to employing researchers from alternative theoretical perspectives to review interpreted data. To use this method of triangulation, interpreted findings were confirmed with research supervisors who provided different methodological perspectives. Investigator triangulation focuses on consulting other researchers to examine the findings and critique interpretations. While it is a useful method, it is important to understand that an outside researcher may not be as able to conceptualise the context of the interpretations as the principal investigator who has been immersed all along in the field of study. Thus, the onus is on the principal investigator to consider critically the interpretation of consulted researchers and make final interpretive decisions (Whitehead, 2005; Mavatera & Kroeze, 2009).

Observations and interviews with visually impaired older people in this study provided sources through which data interpretations were triangulated in iterative sequences. In other words, periods of participant observation were followed by some interviews (one-to-one and focus group) and some more observations. In this way, data interpretations were refined over time, which allowed them to benefit from insights gained in additional data collection.

- *Theoretical validity*

This refers to the degree that a theoretical explanation developed from a research study fits the data (Burke, 1997). Patton (2002) identified extended field work as a strategy for promoting theoretical validity. As sufficient amount of time is spent gathering relevant data, theoretical explanation for observed events may become more intricate and detailed (Burke, 1997). However, Johnson & Christensen (2012) suggest that a cogent explanation of the phenomenon being studied could be developed by using theory triangulation. This involves detailed examination of how the phenomenon being studied is explained by different theories.

Drawing on excerpts from field notes, I made links between literature on CMC and field observations. A retrospective examination of my own observations enabled me to make connections between the different theories of CMC and day-to-day use of CMC by participants. It also enabled me to cultivate an analytical approach to data interpretation by scrutinising and reforming ideas between what I observed at the centre, my assumptions, and the theoretical positions of CMC.

- *Ethics*

Silverman (2001) proposes that ethical issues involved in qualitative research require the researcher to examine how the study might affect individuals or groups. This includes the risk of problems associated with intrusion upon their privacy and with gaining informed consent from research participants (Denscombe, 2007). Verbal consent was obtained from all participants subsequent to formal ethical approval by the gatekeeper organisation (NSBP) and the School of Health, Community and Education Studies ethics panel at the University of Northumbria. Field observations were held after participants gave their consent and prior to the one-on-one interviews. Audio recorded consent was obtained from all participants. Although gaining

participants' trust takes a lot of time (Lecompte & Schensul, 2010), the process of gaining trust can be facilitated by developing an early familiarity with participants and the gatekeeper organisation (Shenton, 2004). To achieve this, several preliminary visits were conducted to gain adequate understanding of the setting and establish rapport with them.

4.4 Study overview

The study employed three ethnographic techniques of data collection. These were participant observations, focus group discussions and topic-guided interviews. The three methods were used concurrently. The use of the three techniques simultaneously rather than in sequence not only helped to confirm results from other tools as they emerged but also facilitated the data collection phase of the study. Interviews were iterative, particularly when additional information was required from participants. Seidman (1998) suggests that the researcher is helped to maintain clearly detailed and structured data from participants when interviews are iterative. He further states that the interval between interviews enables participants to reflect more on what they said, which provides potential for a more reflective interview in subsequent phases. Interviews commenced in November 2011, a month later than the field observations, which started in October 2011. This was intentional because it was deemed appropriate to come in as a volunteer within the setting, to observe and understand the organisational dynamics before recruiting participants for the study (Shenton, 2004).

It was deemed imperative to establish a good relationship with participants firstly, as a casual acquaintance and secondly to allow the relationship to progress gradually in order to build trust. As expected, establishing such rapport with potential participants turned out to be time consuming. Nevertheless, many of them were very receptive and enthusiastic about participating in the research. The field observations were intended to last ten months (November 2011 – August 2012). However, due to difficulties encountered in recruiting IT tutors by the gatekeeper organisation, field observations were delayed and eventually extended by three months in order to compensate for the delays. Thus, field observations lasted13 months. After the data from the field observations and interviews had been analysed, participants were presented with summaries of the findings. This was to seek feedback from them regarding the credibility of interpreted data and to ensure that their views had not been misinterpreted. Necessary corrections were made in a few cases where participants indicated areas needing correction.

4.4.1 The NSBP centre

The Newcastle Society for Blind People (NSBP) is a voluntary organisation based in Newcastle upon Tyne which accepts clients from across Tyne and Wear. It was established in 1867. The computer classes for visually impaired people commenced in 1994. It is a non-profit organisation and a social centre for people living with vision impairment. Although there is no formal record of the number of older people who visit the centre on daily basis, there are more than 800 registered visually impaired people who use the services at the NSBP. Apart from having an internet cafe for the blind and organising IT classes, social events are also occasionally organised at the NSBP to promote socialisation among members. The Manager of the centre describes her beliefs about the centre and the internet classes for the visually impaired members:

> "*The truth is we provide the internet classes through the local authority adult education services. And there's a bit of difficulty with that because...In a way, learning to use the computer is an essential tool for people who become visually impaired and really, when you go through sight loss, you have gone through traumatic situation and your confidence is at its lowest ebb...the last thing you want to do is to have to think is that you've got to learn something complicated …to what might appear to be difficult ...such as learning to use the computer, learning to touch type and then be assessed on it you know but that's the nature of the things and really, we run a rehabilitative centre...a service which is rehabilitative. We take people through the stages and till they get to a point where they are proficient…as well as learning the skills. You'll have noticed that people get a lot of social here. There's a social thing as well and people want to go and cook, leave the house, come out and they want to tell you something...well, they're making progress. It is a positive experience...it's not just a social group…but there's also a social side where they stop what they are doing and they come and have a cup of coffee" [Excerpts from an interview with the Manager of NSBP]*

Many service users at the NSBP live in different parts of the North East. However, the majority of those who visit the centre reside in Newcastle. In addition to computer and internet classes, the centre organises social events for the service users, arranges holidays for members in groups, and provide indoor and outdoor mobility training to enable them get around independently. A safe-guarding officer works in the centre to help attend to complaints on elder abuse and ensure that older adults with vision disabilities get the benefits they are entitled to. The NSBP has over 78

volunteers who have been trained in vision awareness and also over 60 visually impaired people are trained yearly on internet use with assistive devices.

The cyber cafe measures about 12 metres in length and 6 metres in breadth. It has five computers with assistive devices for the visually impaired on one side of the room and a separate computer at the end of the room (a total of six computers). In another room, which also serves as a library, three computers are fitted with separate assistive devices and other facilities similar to the main cafe. Close to the main entrance, the cafe has a table with some tea cups and beverages, and coffee pots, kettles and a small refrigerator for storing milk and juice for the participants. At the centre of the cafe is a long dining table measuring about 8 metres in length and 1.5 metres in breadth. It has six chairs on opposite sides and a space for an additional two at the ends should the need arise to have more people. On the side of the room with five computers is a large window, which spans the entire length of the room. Each computer has a printer, a scanner and two speakers with adjustable volume. Very close to the corridor is a shelf for books in audio version. Many visually impaired people borrow books and audio tapes.

The centre is usually open to visually impaired people, their families and friends on week days from 8 a.m. – 5 p.m. Computer classes on internet use are provided to interested members to assist them in pursuing their interest and also to bridge the "digital divide". Access to the internet cafe is granted to visually impaired older adults who may not have had the opportunity to learn how to use the computer or those who may not have the means to purchase a computer or assistive device of their own. The computer classes are conducted in small groups of six participants daily except weekends, when the centre is usually closed.

The NSBP computer curriculum includes courses on speed typing, internet use, creative writing, and touch typing. Participants learn to use emails to communicate, write their own autobiographies, do online shopping, book flights online, and so on. The computer classes are led by tutors and facilitated by volunteers. Since 2001 when it started, more than 300 visually impaired people have participated in the internet classes and accessed the internet at the cyber cafe. The centre has ten desktop computers, five CCTVS and eight scanners for the visually impaired. All computers have the "Dolphin Guide" software installed in them. The Guide software enhances internet access for people with vision impairment by magnifying texts and also converting text to speech. The centre also publishes quarterly newsletters and distributes them to members in different formats depending on their visual preference, such as audio tapes, Braille

and e-mail. A typical computer class is led by one instructor and two to four volunteers who also aid the tutor while teaching participants. A typical IT training class consists of six visually impaired older adults.

In terms of day-to-day activities at the centre, some participants needed only minimal assistance such as locating the power sockets which their computer was connected to whenever they wanted to turn on their computer, assistance reading out printed documents to be typed on computers or help getting on their seats. Others were complete novices to computer use and required assistance with virtually all computing related tasks. The centre had volunteers who came in to provide support on a part time basis. They were mainly younger adults. Sometimes, tutoring support was provided by volunteers with minimal input from the IT tutors. Only two to three volunteers were allowed at each session. I recall my first encounter with one of the volunteers, Abigail on my first day at the IT suite. Abigail, aged 61, walked in with a member of staff from NSBP who introduced her as a volunteer in the IT department. I would later work with Abigail in attending to the concerns of the participants. I wanted to know more about the job, so I asked her about her experience with helping visually impaired older people at the centre. Abigail told me she has been a computer user but was diagnosed with vision impairment caused by cornea dystrophy. She was well dressed with a blue dress and black straight trousers. At that point, I realised that the centre also allowed visually impaired people who could use the computer to come in and help others in similar situation. Working with Abigail provided me the much needed opportunity to build rapport with other participants.

Another woman, Doris walked in quietly and delicately trying to guide her steps with caution using her walking stick. From her movements, it was easy to tell she was visually impaired as she blinked rather frequently and held the hand-rails firmly with one hand and her walking stick in her other hand. I greeted her and introduced myself. Abigail also introduced herself as a volunteer. Doris dropped her bag on the table at the centre of the cafe and I helped her locate a seat. She smiled but insisted she would rather have the next chair. She talked about her preference for a lower chair with lumbar support. Doris often complained about arthritis. I would later learn that it was the reason why many participants were never allowed to sit for too long doing their computer tasks, but were asked to go on intermittent tea breaks.

Each participant usually came in once a week to use internet services. This schedule had been arranged by the NSBP to ensure that everyone had an opportunity to use internet services, due to

the limited number of computers. There were five groups and each group comprised six individuals. I observed that two groups had seven participants. Each group was only entitled to have IT sessions once in a week and this usually lasted for a term of 4 months. After this term, participants were allowed to re-enrol if they wished. I was told by Abigail that in most cases, many of the participants often re-enrolled. She said that the groups were often retained from term to term and that some groups had been together longer than two years. In this way, the centre functioned as a drop-in IT-centre for participants in their already formed groups of six (or seven). A breakdown of their attendance characteristics is shown below in table 4.1.

Table 4.1: *Participants' attendance at the centre*

Gender	Male	12
	Female	20
Age group	40-60	5
	61-70	7
	71-80	8
	81-90	12
Frequency of attendance	Daily attendance	6 - 7
	Weekly attendance	32

Emailing seemed to be the most common online activity among participants at the centre. Members of each group often exchanged emails and stories written from their childhood memoirs. This process of reminiscence and life review that participants engaged in is encouraged by the Centre. Such activity has been identified as a major developmental activity associated with ageing (Butler, 1963; Erikson, 1963; Erickson, Erickson, & Kivnic 1986). Some studies have recognised the positive effect of story-telling and reminiscence on the well-being of older people (Woods *et al.*, 2005).

I observed how they socialised and I listened to the topics of their conversation. It was often centred on the use of assistive devices and how they coped with internet user interfaces that were not user-friendly for them. Participants had different preferences for the computer devices that they used. For example, a blind participant, Harold, once beckoned me. "*Come*" he said. I came closer. He said "*Do you know I don't like these computer key boards? My personal keyboard at home is more professional".* I asked why he preferred his personal keyboards at home. He said "*Because*

the keys are larger, well-spaced apart and inscribed in black text on black keys rather than these ones with white text on black keys". In this way, they often shared their visual preferences and discussed how their vision impairment had influenced their interface preferences. Many of them shared how they converted their large TV screens to computer monitors and were always keen to hear how others coped with font sizes, perhaps to make comparisons of one-another's sight impairments. In one of the IT sessions, Kevin also chipped in: "*The pictures on the TV's are now fantastic but I can't recognise the faces on the TV particularly if they are females".* Then Harold acknowledged the recent developments in technology and said he could recognise the faces if they were very popular TV celebrities. For some reason that I could not understand, Harold always agreed with Kevin. They were the best of friends at the centre.

I realised from observing such discussions that participants were aware of the gaps in mainstream ICT applications and computer interfaces for older people. They talked about how such applications could be tailored to accommodate their visual and cognitive age-specific declines. This was often reflected when they discussed computer interface background and foreground colours, incorporating larger button and font sizes, and also advocating for simplified menu and navigation options. They often talked about how such limitations mitigated functionality to the bare essentials.

Some visually impaired older people at the centre often searched online for information about a hobby, surfed occasionally for fun and played games. They rarely talked about watching films online. I felt that such preferences showed relevance in terms of discrete activities that were acceptable to participants and how they derived benefits from computer use. I also felt the need to account for these preferences in writing my field notes, despite not understanding the process through which such activities would become relevant in the context of participants' daily lives. This informed my quest to probe such issues further during the interviews, particularly during the focus group interviews in order to gain insight into their commonly held beliefs about such issues.

There was also an enthusiasm with respect to learning more about internet use and a sense of personal investment in this process. Three of them (Sharon, Abigail and Vivian) said that they had been using the computer prior to vision impairment whilst the others had little or no prior experience with computers before diagnosis of vision impairment. Sharon and Abigail once told me that they believed it was more difficult for a previously sighted computer user to learn how to use the assistive device after vision impairment. Their reason was that, as a sighted user navigating

a web page was faster because you don't wait for all the commands. She described waiting for the commands and having to go through all the links as frustrating.

Wendy often talked about using Skype video conferencing for keeping in touch with her grandchildren. However, she said that she always pretended as if she could see them by waving at them, smiling and laughing. All participants were enthusiastic about using computers and the internet and were in a continual process of learning new things about them. However one particular participant, Oscar, stood out as being more enthusiastic and deeply engaged in internet use than the others. His computer and internet dexterity were highly developed and socialising online was his hobby. He lived alone and never missed any of the internet classes. He said that it was not always easy for him to get out and about because he was totally blind.

New users arriving at the NSBP IT suite were given a short induction session by the IT tutor before helping them to fill out a form with their personal details so that they could get a username and password in order to gain access to the NSBP network. The computers had the Dolphine Guide System (DGS) installed on them. It was an adaptive software to enable visually impaired people to access the internet and to get to grips with the basics of using a computer. The DGS operates via "text-to-speech" computer program. Its specialist interface is designed to simplify learning, emailing and surfing the web for visually impaired people. It also provided users with options to magnify the information on every screen and to control functions with keys because many visually impaired people experienced difficulties with using the mouse. Central to the design for emailing in DGS were straightforward screen instructions, with layout in list format, and an easy-to-use menu that facilitated every step, especially for those who were new to computers.

Participants found the DGS easy to understand and use, which made it popular amongst them. However, this was not only used during the first couple of sessions for novice visually impaired computer users, but also by users with some prior experience. Sometimes, the IT tutors introduced "core" skills such as word processing or using spreadsheets. The role of the volunteers was to assist participants in exploring aspects of computer and internet use that they believed would be of interest to them and to explain unfamiliar concepts in relation to those uses during the sessions.

This process usually started with a friendly conversation between the volunteer and the participant about their interests, their past experiences, future expectations for computer use, and their motivations for coming to the centre. These conversations would then continue in an ad-hoc manner throughout subsequent visits with volunteers or IT tutors suggesting alternative

applications and resources when appropriate. Many participants would also share their knowledge and suggestions with others. This made it the perfect setting for investigating how visually impaired older people used computers and the internet based on their personal interpretations of use rather than those acquired through formal training of basic skills.

The class usually started by 10:00 am. Participants hardly ever came in later than the starting time. Many of them used private taxis because using public transport was too difficult. As the students (participants) settled down for the class, a short time (about 5-7 minutes) was spent exchanging pleasantries, asking about each other's well-being and other social matters that might have occurred in the previous days. The IT tutor then recapped on what had been learnt the previous week, explained the ensuing lecture and described steps on how to accomplish tasks. As participants were visually impaired, taking notes was practically impossible. Hayden *et al.* (2011) argue that the inability to take down lecture notes can reduce retention for visually impaired students. Participants circumvented this difficulty by depending on their memory and relying more on the technical support of IT tutors and volunteers. This echoes Gerber's (2012) finding that visually impaired users can remember which steps they took to accomplish a particular computer task because they rely more heavily on memory than sighted users. Although the tutors printed lecture hand-outs in large font sizes tailored to students' preferences, participants struggled to read the notes.

Many participants were mainly interested in learning the social aspects of internet use such as email. Other aspects of internet use included gaining more skills for information searching, shopping and socialising on forums. Some participants were interested in creative writing to enable them to write short stories and their biographies. The IT sessions also included creative writing exercises in which participants wrote essays about their experiences. The IT tutors helped to read out each essay to the other participants. Participants who enjoyed creative writing often shared the talking books they had read. Some participants said that they perceived reading talking books as a solitary activity that could increase isolation. For example, Larry preferred to share his essays with peers, and welcomed critique from everyone. He believed it was a way for him to learn with others.

Each student had a preferred seat and they were usually aided by volunteers or the IT tutor until they got to their seat to prevent falls. Occasionally, different computers were used with different peers. However, participants believed that it presented a pleasurable challenge because they had to

customise computer settings to their visual preferences. Taking up the pleasurable challenge of learning to use a different computer was also perceived as a way of socialising with peers. Once the students turned on their computers, they followed the voiced commands from the software to perform required tasks.

None of the participants had difficulties using the keyboard, but all of them had difficulty using the mouse, especially in clicking where they wanted to click because the icons and menus were not legible. Visually impaired older people relied on screen magnifiers. Hand held magnifiers were also used by some participants to enhance their vision of the computer screen. Keyboard shortcuts (such as CTRL + N) and arrow buttons were used for navigation and to scroll up and down the screen. All of them reported that this use of the keyboard was a helpful alternative to the use of mouse. They did not consider this as unusual behaviour despite being aware that sighted people use keyboard for typing and not for navigation. Participants who used large font sizes due to severe vision impairment regarded the keyboard as a replacement for a mouse while those with mild to moderate vision impairment switched between use of mouse and keyboard for navigation. However, participants' comments did not suggest that this could have negative implications for digital inclusion. They believed that sighted users also sometimes used arrow keys for navigation.

4.5 Sampling strategy and methods of data collection

Although the procedure for sampling research participants in a qualitative study is less rigidly prescribed than in quantitative research, improper sampling can negatively affect the quality of research, particularly if factors that are worth considering are neglected (Coyne, 1997). In describing the problems and strengths of ethnography, Howard (2002) suggests that while it may be practical to select participants randomly in other research approaches, ethnographers have to identify specific actors that are most suitable for the study. The focus of ethnography on specific actors accounts for its strength in providing rich descriptions on the social processes within groups (Howard, 2002). Ethnography typically involves a purposive sampling. However, selecting participants can be further refined by recruiting key informants who have expert knowledge of the group communication patterns (Wimmer & Dominick, 2010, p. 146) and good ethnographic practice entails that the researcher justifies the choice of participants (Howard, 2002).

In recruiting participants for this study, it was acknowledged that older adults are a heterogeneous computer user group. Thus, in a study of this type which focuses on visually impaired older adults and aims to provide a comprehensive account of their experiences, it is important to seek some

diversity of skills and background among participants. Although all participants had age-related vision impairment, they reflected a diversity of age-related vision impairment. The reason for the exclusive focus on age-related vision impairment was because the study acknowledges that people who are born blind have different experiences with life compared to those with late-life sight loss (Skellington *et al.*, 2006). People who were born blind or visually impaired are more likely to have learnt to adapt and lead independent lives. It is possible that people who acquire late-life vision impairment have led a sighted existence for most of their lives and have developed sighted ways of socialising. Thus, the inclusion of older adults born blind could introduce sample bias.

Preliminary discussions were held with all potential participants as suggested by Barnes (1992). During the sessions, which were usually held during tea breaks at the internet training classes, information about the study was shared with potential participants, including what benefits the research might yield for people with vision impairment who use the internet. An invitation to a focus group discussion was given to participants who showed interest in the study and information sheets or audio taped discs were also given to them. In addition, the Manager of the NSBP sent email invitations. Focus group discussions were subsequently scheduled at agreed dates and times. Suitable participants for one-to-one individual interviews were recruited through observations and focus group discussions. As indicated in Table 4.2 (page 80), a few others were also recruited via personal contacts at the NSBP.

4.5.1 Participant observation

Participant observation is an invaluable method of data collection with roots in ethnography (Bryman, 2008). Silverman (2001) describes it as engaging in activities with others in a setting in order to understand things at "first hand" rather than observing people at a distance. Thus, it is a distinctive method of data collection because the researcher approaches the participants in location(s) believed to have some relevance to the research question (Atkinson *et al.,* 2007). Bryman (2008) argues that the researcher stands a better chance of retaining the "naturalness" of the setting and can gain rich insights into the social processes of the group. While taking part in their activities, careful attempt is made to take detailed notes about what is seen and interpretations are drawn from what is recorded. Notes are documented as "field notes" and reflections are documented as the researcher's dairy. Data gathered through participant observation are useful for comparing participants' subjective report between what they believe and do. Crabtree *et al.* (2009) agree that observing and taking part in the activities of participants is integral to understanding the breadth and diversity of the human experience. Similarly, Dewalt,

Dewalt & Wayland (2000) argue that the most appropriate approach to gain implicit knowledge of social behaviour of any group of people is by living among them.

Whitehead (2004) also agrees that the use of participant observation is the main feature that provides ethnography with its main strength of ecological validity. The purpose of employing this method in this study was to discover the reality of the social context of CMC use among visually impaired older adults. The intention was to gain a better understanding of how the intricacies and complexities of CMC might be contributing to the disability divide. Field observations were typically unstructured (Trochim, 2000) and conducted for 2-3 hours three times weekly. Field notes were written discretely, and the privacy of all participants was respected. As the participants were not sighted, they may not have noticed that I was periodically taking notes. Nevertheless, I respected their privacy and ensured that notes were taken unobtrusively. A chronicle of my reflections on observations conducted at the research site was also documented as a field diary. The field diaries were mainly my conceptualisation of how participants in this study perceive the value of the internet classes in their lives, what meaning it may possibly hold for them, how they construct social ties offline and how observed social interaction practices may possibly affect their motivation to use the internet.

Considering that this study concerned people whose internet access is fraught with challenges due to vision impairment (Williamson *et al*., 2001; Craven, 2003), the purpose of the field observations was to explore how their experiences of internet use may influence their perceptions. It was also conducted in order to get a sense of the setting and of potential participants before recruitment. In terms of socialisation, the observations focused on social behaviours offline during the internet classes in order to provide an insight into how people socialised with one another and the meanings they attached to such social interactions. The opportunity afforded by the unstructured design of observations was used to explore many other related salient issues such as body language, interaction, frustration with computer use and what they do once they are online. Other issues observed included participant IT skills, learning techniques, concerns, knowledge and perception of use of social network sites, and conversational exchanges.

This approach was adopted in order to gain an understanding of the physical and socio-cultural context of internet use among participants and processes leading to the formation of social relationships offline which may also extend online. In addition, field observations were particularly useful in identifying questions for follow up during interviews and invaluable in determining whom to recruit for the study and how best to recruit them. Focus group interviews

were not included in the original design of the current study. However, during the first weeks of participant observation, it was noticed that participants had daily informal group discussions lasting between 30 and 45 minutes during tea breaks. This provided an opportunity for the focus group discussions and enhanced the recruitment process.

Participant observation facilitated the development of rapport and trust with participants, IT tutors and the centre Manager. In addition, because observations were conducted at the same time as interviews and focus groups, they enhanced the progress of the research as an iterative process by helping to identify issues needing further probing and extending the exploration of such issues in the next phase. During field observations, interactions with the IT tutors played a significant role in pointing out key information about relevant social practices among participants in relation to the research focus. The position as IT tutors within the setting made them naturally inclined to interpret and communicate aspects of the participants' social culture, as one of the IT tutors clearly commented:

> "*They like chatting and talking about childhood days and I don't interrupt them whenever they do so because I know they enjoy doing so. Some of them share ideas on how to cope with vision loss. When they come here and share such knowledge, it helps them understand better ways to cope with vision impairment. They socialize here. People get very friendly in groups when they come here". [Excerpt from field note, 29/10/2012 11:15AM]*

4.5.2 The focus groups

The term "focus group" refers to discussions in qualitative research (Rabiee, 2004). It involves the use of in-depth interviews in which participants are selected specifically to "focus" on a given topic. The strength of group interviews lies in their potential to provide insight into forms of data that may not be easily accessed via field observations or one-on-one interviews. This is because interaction in a social gathering is largely suited to eliciting a multiplicity of views, beliefs, experiences and reactions on the same topic within a short period of time (Rabiee, 2004). Nevertheless, it is acknowledged that in as much as focus groups are unique in their explicit use of group interaction to provide data (Barbour & Kitzinger, 1998), one disadvantage is that respondents may feel influenced to give similar answers to questions (Rabiee, 2004). Some studies on internet use have conducted focus groups using forums and online chat facilities, thereby reducing the tendency for such influences. However, in this study it was not deemed fit to

employ such methods because it is usually difficult to encourage equal participation with that approach (Hughes & Lang 2004). In addition, there is a risk of having a widely heterogeneous group because there is no way of screening participants to determine their true identity (Sinickas, 2001; Hughes & Lang 2004).

There were three reasons why I conducted focus group interviews in addition to one-to-one interviews. Firstly, it was in order to draw on participants' attitudes, feelings and beliefs within group contexts. Secondly, it adopted as an approach to confirm findings from interviews and observations as suggested by Krueger (2009). Lastly, I thought that as ageing was associated with declines in memory abilities (Nilsson, 2003; Hedden & Gabriel, 2004), there might be tendencies for participants to forget some information (events and experiences) that could be relevant to the research. Through group discussion, participants could feed off one-another's comments, thereby making them aware of things that they might not have thought about in a one-to-one interview (Krueger, 2009).

Green *et al.* (2003) agree that the uniqueness of a focus group is in its ability to generate data based on the synergy of the group interaction. They argue in favour of recruiting a group with shared characteristics in order for the members of the group to feel comfortable with each other and engage in discussion. The focus groups in this study reflect this uniqueness. The fact that they were in groups before the start of this study helped them to familiarize with one another and made it easier for them to share personal experiences. The acquaintanceship developed within members of the same group thus enhanced more open responses and participants felt free to divulge personal information relevant to the study.

Participants being reluctant to speak have been a widely acknowledged shortcoming often encountered in focus group discussions by researchers (Rabiee, 2004). This may be due to some individuals being naturally more vocal and comfortable with self-disclosure while others require trust and effort (Krueger & Casey, 2000). Katzinger (1994) agrees that not everybody is comfortable speaking about their impairments and this may account for such reticence. All focus groups were conducted at the centre and consent was obtained from all participants, IT tutors and the management and staff of the organisation. The next section presents a discussion on the protocols and steps taken for the focus group discussions.

4.5.2.1 Using pre-existing groups for focus group

Pre-existing groups are clusters of people who already know each other through living or socialising together (Katzinger, 1994). Hennink (2007) posits that one of the benefits of utilising pre-existing groups for focus group discussion is that they have an existing social dynamics which can enable the researcher to identify "naturally occurring data" (Hennink, 2007). This is usually reflected in their existing familiarity, which naturally stimulates conversation and debate. Frequently members in such groups may challenge each other on contradictions between what they say and what they actually do (Katzinger, 1994). They could also remind a speaker about additional events or experiences relevant to the discussion which that person may have forgotten (Hennink, 2007).

With permission of the IT tutors, I was able to take advantage of already established groups. Before the commencement of the interview sessions, participants were briefed about the study. None of them was put under pressure to participate and those who voluntarily decided to take part were reminded that they could withdraw whenever they chose to do so without giving any reason. Participants were also informed that they were not under obligation to answer all questions particularly, if they were not comfortable with them. Audio recorded consent was obtained from the groups because it was difficult obtaining signed forms due to their vision impairment. There were three groups and each consisted of at least six participants. Group discussions lasted no longer than 45 minutes and on a few occasions the IT tutors assisted to moderate the sessions. Table 4.2 show the dates and the number of participants in the three focus groups conducted.

Table 4.2: *Focus groups and participants*

Focus Group	Date	Total of Participants	Number of Males	Number of Females
1	14/11/2011	7	1	6
2	22/11/2011	8	2	6
3	8/12/2011	8	7	1

Conventionally, focus group discussions are structured around a set of carefully predetermined questions and require significant facilitation from a moderator to keep the discussion on track (Denscombe, 2002). Patton (2002), however, suggests an alternative approach, which involves the

interviewer using unstructured questions and probes to facilitate interaction and to tease out different views during discussions. To allow more flexibility of response from participants, Waltz *et al.* (2010) believe that the latter approach is more suitable. This approach is also useful to generate rich and detailed conversation from participants (Williams, 2002; Corbin & Morse, 2003). Thus, an unstructured interview with low moderator involvement was adopted for this study. Discussions were led around the following main topic areas:

- Internet tools used to socialise with other people
- Advantages and reasons for preferences
- Barriers to internet use
- Perceived impact of use on well being
- Perceived impact of use on social networks
- General concerns on internet use for visually impaired

4.5.3 The individual interviews

Interviews typically involve a dialogic interaction between the researcher and the participant. The purpose is to explore and describe the central themes in the participant's day-to-day life, and to understand the meaning behind what they say (Knox & Burkard, 2009). Baumbusch (2010) suggests that qualitative interviews can be structured in an informal way and be allowed to take the format of a dialogue rather than a formal "question and answer" structure. This means that the researcher does not rigidly follow a set of predetermined questions but is guided by a list of topics with questions that remain as open as possible to the priorities of the research.

The interviews in this study were mainly dialogic. Many of the participants interviewed were accessed through contacts made during participant observation and, in some instances, through recommendations by the Manager of NSBP. All interviews were conducted in a separate, comfortable room. Although participants were encouraged to suggest an alternative location of their choice (if they were not pleased with the venue that was provided), they all expressed satisfaction with the privacy and comfort of the venue. The privacy of the interview room enabled participants to discuss their views with undivided attentions and without distractions. The table (4.3) on the next page provides details of participants who took part in the interviews.

Table 4.3: *Interview participants*

Date	Pseudonym	Age [Years]	Sex	Accessed Via	Computer use experience in years
11/11/2011	Harold	87	M	SR	3
11/11/2011	Kevin	84	M	SR	2
14/11/2011	Alfred	87	M	FG	6
17/11/2011	Oscar	82	M	PO	3
17/11/2011	Newton	60	M	SR	6
21/11/2011	Angela	71	F	PC	4
22/11/2011	Larry	65	M	PO	2
22/11/2011	Abigail	60	F	FG	3
24/11/2011	Vivian	65	F	PC	4
25/11/2011	Thelma	88	F	SR	3
25/11/2011	Sharon	66	F	SR	4
28/11/2011	Regina	87	F	FG	3
07/12/2011	Rosaline	78	F	PO	3
07/12/2011	Samantha	64	F	PC	3
25/06/2012	Alice	82	F	PO	2
25/06/2012	Jennifer	80	F	SR	2
26/06/2012	Amanda	78	F	SR	2
26/06/2012	Doris	88	F	PO	2
27/06/2012	Wendy	89	F	FG	2
18/07/2012	Fred	68	M	SR	4

FG: Focus Group. SR: Staff Recommendation. PO: Participant Observation. PC: Personal Contact.

All participants were experienced in the use of assistive devices to access the internet. The names represented in the table are pseudonyms. This is in accordance with participants' ethical rights of anonymity. The interview schedule concentrated on issues discussed in the focus groups but more in-depth and more specifically on internet use for socialisation. It allowed a detailed exploration of issues emerging from the field observations and of how participants perceived the impact of internet use on their well-being. While the interviews were being conducted, care was taken to observe participants' body language for signs of tiredness or weariness. For some participants, their attention span was short and weariness started to set in after 30 minutes, particularly amongst those aged 80 years and over. In such instances the interviews were stopped with their consent and rescheduled for a second interview, which continued on from the first interview. This strategy gave them an opportunity to come back refreshed for a more reflective interview and enabled me probe further from the first interviews. The questions were based on the following areas:

- Personal Details:

  Age, length of vision impairment, computer use experience before sight loss, type of vision impairment (registered blind/ partially sighted)

- Internet Use:

  Activities usually carried out on the internet and internet application of choice to keep social contacts (such as emails, Skype, social network sites, etc), reasons for preferences, comparison with other internet communication applications, barriers to use, assistive devices used to gain access, etc.

- Impact of use on social relationships:

  Perceived impact of use on social networks, social engagements with use, perceived value of use on social activities, social ties built online, perceived impact of use on social ties, reasons for use to keep social contacts, etc.

- Impact of use on well-being:

  Support gained from online contacts or through internet communication, personal derived benefits, and perceived impact of use on well-being.

- Other Concerns:

  Future hopes and fears, other needs and personal concerns with internet use, challenges and training, etc.

With sighted people, facial expressions and body language could reinforce or contradict intended point and we can insinuate the extent or ambivalence of our opinions. As Scharfstein (1993, p.2) contends:

> "*The meaning of spoken words is enhanced by facial expressions, gestures, shifts of the body, changes in gaze and the personal and emotional qualities of the words...often co-operation and conflict between these means of expression lends the words much of their often ambivalent subtlety"*

As I could not be seen, I reasoned that I needed to be direct in my questioning. I was particularly careful about my choice of language and tone of voice in order to convey the right meaning, as nuanced cues conveyed through body language could be lost in interactions with visually impaired people.

- *Description of Participants*

The table below (table 4.4) introduces the participants. The names presented here are pseudonyms in order to preserve anonymity (in accordance with research ethics).

Table 4.4: *Description of interview participants*

Pseudonym	**Age (years) / Gender**	**Description**
Harold	87/ M	Harold is totally blind due to glaucoma, and is a registered blind member of the RNIB. Harold enjoys writing short stories as a hobby. His family lives in Wales and he keeps contact via emails
Kevin	84/M	Kevin became visually impaired due to age-related macular degeneration (ARMD) and complicated cataract. He is a football fan and keeps in regular contact with his son and nephew through emails. He is registered visually impaired with the NHS.
Alfred	87M	Alfred has been blind for over 8 years due to a detached retina and ARMD. He lives alone and has over 16 relations including his daughters and granddaughters. Alfred sends emails to all of them.
Oscar	82/M	Oscar is retired military personnel. He became blind due to advanced glaucoma and moves around with a white cane and dark sun glasses. He enjoys car rallies. This interest leads Oscar to participate in online forums, where he makes friends.
Newton	60/M	Newton had poor vision as a child but his vision impairment became complicated with ageing due to ARMD and an inflammation of the retina. This led to Newton becoming totally blind. He works as a volunteer with the RNIB assisting younger people who are visually impaired to secure employment through the Job Centre Plus. Newton uses the emails frequently.
Angela	71/F	Angela's vision impairment was due to ARMD and glaucoma. She is registered visually impaired with the NHS and has been a member of the NSBP for over 8 years. Angela has a son and a daughter who live far away and they are both blind and deaf due to Usher's syndrome. Email remains the only means of contact as they cannot use the telephone.

Larry	65/M	Larry lost his vision to macular degeneration. His vision impairment was further compounded by a head injury after a car crash. His head injury affected the part of the brain that controls vision. His hobbies include writing and reading.
Abigail	61/F	Abigail became visually impaired after her cornea dystrophy worsened with age. She volunteers for the NSBP at both the IT section and the administrative sections of the voluntary organisation. She mainly uses the computer for emails.
Vivian	65/F	Vivian is blind from glaucoma. She has been using the computer as a visually impaired person for 4 years and lives with her husband in Newcastle. She's a member of the NSBP and a member of the Northumberland County Blind Association.
Thelma	88/F	Thelma is blind due to age-related macular degeneration and glaucoma. She has been using the internet for about 5 years. Thelma lives alone and communicates frequently with her son and daughter via emails. She's a member of the NSBP group and another voluntary group for blind people. She is also the chairperson of another voluntary group and she sends lots of emails to members of her social group.
Sharon	66/F	Sharon was diagnosed with vision impairment due to cornea dystrophy which got worse with ageing. She has been using assistive devices to access the internet for 4 years. She leads a social group and sends e-mails to members of the group periodically. She is also a member of the RNIB.
Regina	87/F	Regina is a totally blind participant. She was short sighted as a child but got advanced glaucoma with age. Regina used to live with her daughter and son-in-law but now lives alone. She maintains regular contact with her daughter and son-in-law using emails.
Rosaline	78/F	Rosaline is blind due to retinitis pigmentosa and macular degeneration. She lives alone and enjoys using emails. Rosaline is registered blind member of the NSBP. She used to enjoy gardening and knitting but said she can no longer do so due to vision impairment.
Samantha	64/F	Samantha is visually impaired due to cornea dystrophy. Samantha has been a member of the NSBP for 5 years and frequently visits the centre. She lives with her husband who sometimes helps her with difficulties associated with using the internet as a blind person.
Alice	82/F	Alice became totally blind due to glaucoma, complicated cataract and macular degeneration with huge scarring. She is a retired school teacher who likes reading and borrows talking books from library.
Jennifer	80/F	Jennifer is visually impaired due to complicated cataract in the right eye and age-related macular degeneration on the left eye. She likes travelling but because she can't see, her ability to travel independently has reduced. She likes to use emails to keep contact with her relations.

Amanda	78/F	Amanda is visually impaired due to macular degeneration. She makes use of the email to keep contact with her daughter and friends. Amanda likes reading.
Doris	88/F	Doris is a totally blind participant due to advanced glaucoma. She lived mostly abroad before relocating to the UK. Her family and friends live abroad and she contacts them though emails.
Wendy	89/F	Wendy is totally blind due to glaucoma and macular degeneration. She enjoys sending emails to her two daughters who live in Australia and Manchester.
Fred	65/M	Fred is a totally blind participant due to glaucoma. He works as volunteer recording information for blind people. He likes downloading and reading books from the internet. He has children and grandchildren whom he keeps in touch with using email.

4.6 Data analysis

Qualitative data analysis methods are diverse and the choice of which method to employ depends on the focus of the study. For example, conversation analysis (Hutchby & Woffitt, 1998) and interpretive phenomenology analysis (IPA) depend largely on the theoretical and epistemological positions of the researcher (Smith & Osborn, 2003). Other methods such as grounded theory (Glaser, 1992; Strauss & Corbin, 1998), discourse analysis (Burman & Parker, 1993; Willigi, 2003) or narrative analysis (Riessman, 1993; Murray, 2003) are essentially dependent on theory, the epistemological position of the research and the research paradigm. Braun & Clarke (2006) define thematic analysis as a method for identifying, analysing and reporting patterns within data. Thematic analysis was adopted because of its flexibility in being independent of theory and epistemological approach (Attride, 2001) and also because it is compatible with the interpretivist paradigm of this study. In addition, a thematic approach has potential to provide a detailed contextual account of the data collected. Attride (2001) argues that it is important to state clearly the processes undertaken in data analysis because research which does not communicate the assumptions informing its analysis of data can impede other researchers carrying out related studies in the future.

There is no single approach to thematic analysis (Attride, 2001), nevertheless, it is widely used in many other methods such as Narrative Analysis, Grounded Theory, or Interpretive Phenomenological Analysis (IPA) where themes are said to emerge from data (Smith & Osborn, 2003). However, it is important to acknowledge theoretical values and how themes emerge from

data. In this sense, a thematic analysis differs from other methods because, although other approaches also seek patterns in data, they do so while being theoretically bounded (Attride, 2001). For example, while IPA is tied to phenomenological epistemology (Smith & Osborn, 2003), which is about understanding the "lived experience" of participants, and Grounded theory seeks to generate a theory of the phenomena grounded in data (McLeod, 2001), thematic analysis is not necessarily tied to implicit theoretical commitments.

What counts as a "theme" is not just an array of patterned responses in collected data, but relevant patterns from the data in relation to the research questions. The process of thematic analysis in this study was inductive (Firth & Gleeson, 2004; Braun & Clarke, 2006) because identified themes were linked to the data and were not driven by theory (Patton, 1990). Data were coded without trying to fit them into any preconceptions about how visually impaired older adults use the internet. Thus, a thematic approach to the study is data driven and themes were mainly derived by search across data (interviews and field observations) to find repeated patterns and meanings.

Braun & Clarke (2006) outlined six stages of thematic analysis for reporting the content and meaning of constructs identified by a researcher, which were followed in this study. The first stage involved reading, re-reading and familiarisation with the data while noting down ideas. In the second stage, ideas were generated from initial codes and relevant data were collated from each code. The third stage involved collating codes into sub-themes and in the fourth stage; the sub-themes were reviewed to ensure that they were related to the coded extracts. In the fifth stage clear definitions and names for each theme were generated by analysing the specifics of each theme and the overall story within the analysis. The last stage involved producing the report. Convincing examples from data sets were selected and their analyses were articulated into research and literature. These stages will now be discussed in more detail, with an in-depth explanation of how they were applied to the data obtained in this study.

The process started three weeks after collecting the first set of data from face-to-face individual interviews. Analysis of subsequently collected data was conducted every fortnight to allow time for transcription and sorting the data (Markle, West, & Rich, 2011). This also gave some time just in case any participant wished to withdraw from the study and retract his/her comments. The process started by searching for patterns of meanings and issues of potential interest relevant to the study. Ryan and Bernard (2000, p.780) defined themes as "fuzzy constructs" that are identified by the investigator before, during and after analysis. The aim of this analytical approach was to identify and report the content and meaning of such constructs and their patterns which

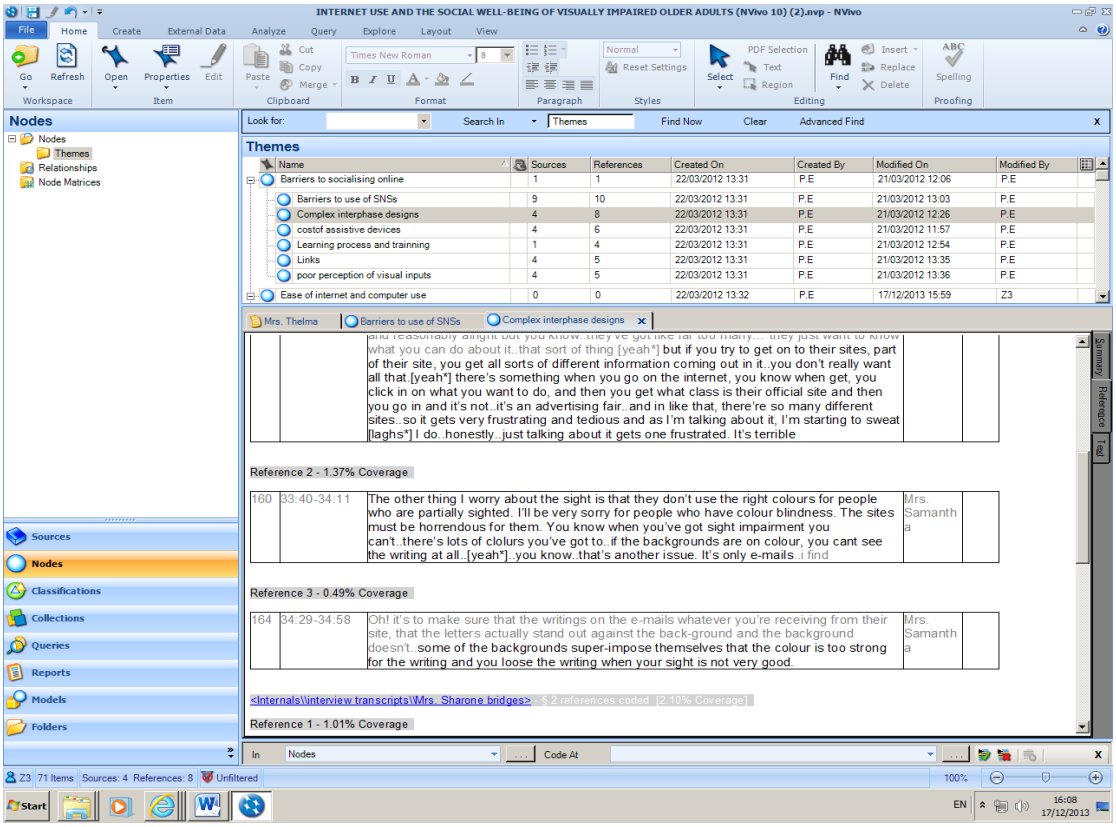
constituted the themes. The analysis of data in this study was not constructed in a linear fashion but in a recursive process involving a back and forth movement throughout these phases.

Firstly, audio recorded interviews with participants were uploaded into qualitative data analysis software, Nvivo version 9 (Nvivo, 2010). Familiarisation with the data was achieved by listening to them repeatedly (Attride, 2001). Braun & Clarke (2006) suggest that immersion in the data helps the researcher gain comprehension with the depth and breadth of its content. Listening to the audio-recorded interviews frequently, searching for meanings and patterns, enables the researcher to get immersed in the data (Attride, 2001). Although these processes were time consuming, they facilitated saturation and comprehension of the depth of collected data.

Data collected via audiotapes and imported into Nvivo were subsequently transcribed into textual format. Bird (2005) argues that this process should be recognised as a key phase of data analysis within the interpretive framework and also as a process that fosters the generation of meanings rather than a simple mechanical replication of spoken sounds on paper (Lapadat & Linsay, 1999). After repeated reading and getting familiarised with data, an initial list of ideas was generated from the transcripts, and codes were developed from data. This process is often termed "open coding" (Glaser & Strauss, 1967; Strauss & Corbin, 1990).

Extracts from the transcribed audio interviews were analytically categorised in the open coding stage, using the QSR NVivo9 software programme (NVivo, 2010). For example, during the open coding process, many initial codes were derived from data. Approximately 72 different codes emerged from data. These included 22 codes from analysis of field notes and 50 codes from analysis of one-to-one and focus group interviews. A hierarchical method of coding was adopted to allow for relationships between codes to be established and worked with (Kelle, 2000; Attride, 2001). The next phase focused on sorting identified codes into broader levels of sub-themes and collating them into themes by linking them, based on their relationship. Figure 4.1 is a screen shot showing the sub-themes under a broader theme: "Barriers to socialising online".

Figure 4.1: *A screen shot of the coding process*



The developed themes were reviewed by sorting out data to support them, and others that were too diverse were broken down into separate themes. Bruan & Clarke (2006) emphasised the importance of refining themes to reflect internal homogeneity and external heterogeneity. Internal homogeneity relates to making sure that data within themes are coherent whilst external heterogeneity refers to making sure that the distinctions between the themes are clear and identifiable (Patton, 1990). To achieve this, all collected extracts were examined for coherence. This entailed confirming individual themes in relation to the data that formed it.

At this final point, similarities between data were defined and further refined. "Define" and "refine" means analysing the data within themes and identifying the "essence" data (Attride, 2001). This was conducted by going back to collated data extracts and organising them into a coherent and consistent account. It goes beyond paraphrasing extracts from data to identifying interesting elements about them. Related codes were categorised into sub-themes and interrogated further in relation to the coded extracts in that category. Previous entries under existing codes were reviewed to compare analytically the similarities or differences. This allowed me to group

related sub-themes into themes further. This strategy reflects what Grounded Theorists term as "constant comparison" (Fram, 2013). According to Taylor and Gibbs (2010, p.62):

> *"Every time you select a passage of text (or its equivalent in video etc.) and code it, you should compare it with all those passages you have already coded that way, perhaps in other cases. This ensures that your coding is consistent and allows you to consider the possibility either that some of the passages coded that way don't fit as well (and might therefore be better codes as something else) or that there are dimensions or phenomena in the passages that might well be coded another way as well. But the potential for comparisons doesn't stop there. You can compare the passage with those codes in similar or related ways"*

Detailed analysis was carried out for each individual theme by demonstrating the meaning within its constituent data and a final report was developed. The final report of ethnographic data typically consists of detailed, comprehensive descriptions and interpretations of analysed data. According to Creswell (2007), it is the presentation of a detailed holistic perspective of context and cultural themes. Duke and Mallete (2011) suggest that, in writing up ethnographic reports, the researcher pulls together the meaningfully interpreted data into an organised framework and gives an extensive description of contexts. They also recommend providing details about issues that need further probing. Seven themes emerged from analyses of individual and focus group interviews. The themes are presented in sub-themes that summarise participants' views on how they used the internet to build and maintain social ties, and how it accommodates their vision impairment. The figure on the next page (Figure 4.2) is a list of themes and subthemes from the interview data. Examples of the coding processes that led to the development of some of the themes are presented in Tables 4.5 and 4.6.

Figure 4.2: *Diagrammatic list of themes and sub-themes from interviews*

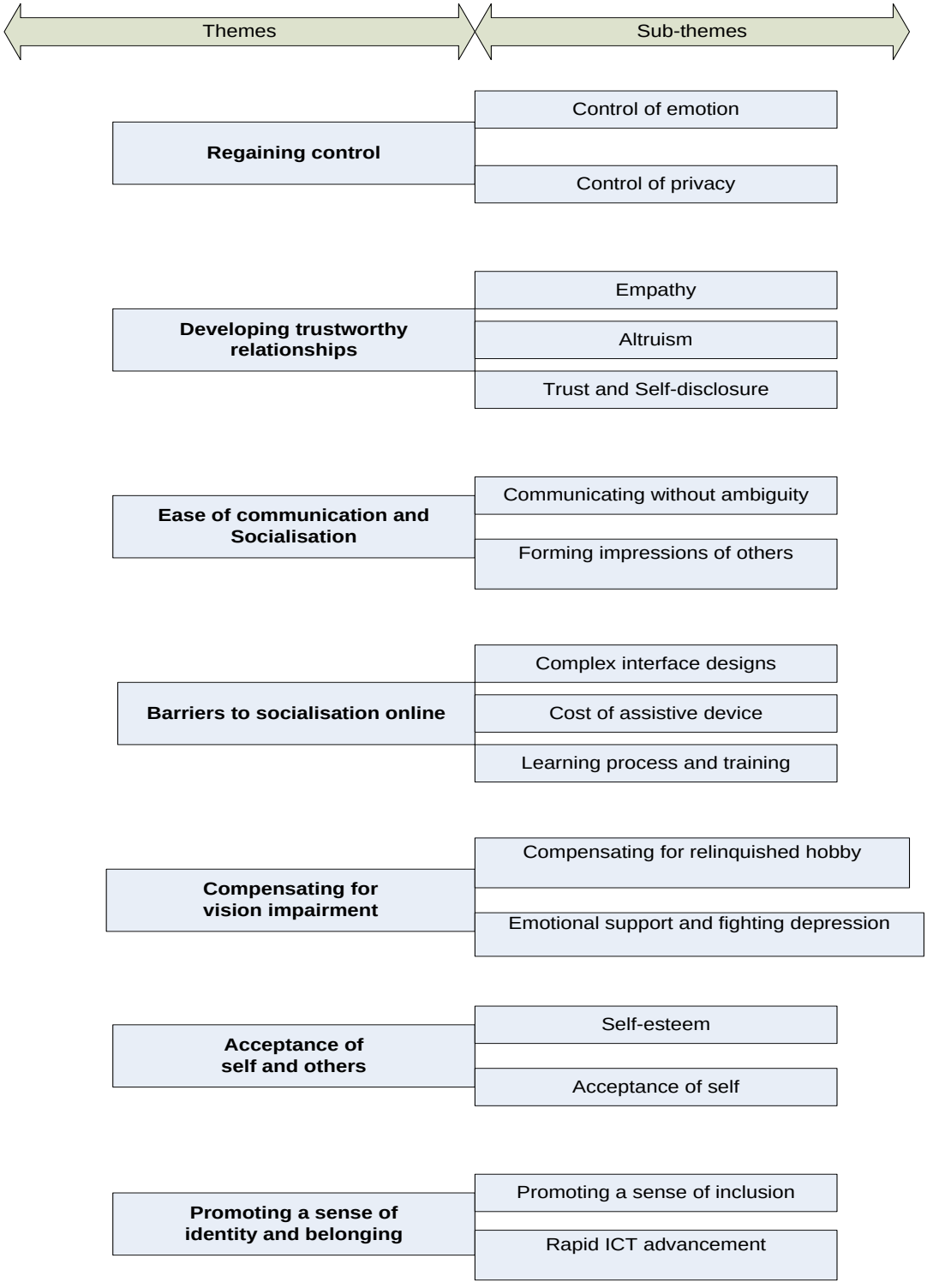


Table 4.5: *Example of coding process for theme: "Barriers to socialising online"*

Participant	Excerpt from transcript	Open coding	Axial coding	Theme
Alice	We can do that and we can in the last week, remind me because you have the option to decide what to do next. The internet course was a difficult one. It wasn't as good as we thought it was going to be because it wasn't easy for us learners to use at all, So we weren't able to do emailing, shopping and other things we wanted to do using the internet because of the design of the websites the websites are not easy to navigate when you don't have sight	Usability/ Ease of use, Satisfaction with use	Complex Interface designs	Barriers to socialising online
Jennifer	It's not just that …it's also the buttons, the number of times you have to press the buttons to get to the place you want to get to. So, it's the design of the web pages themselves. That..even though there is something called accessibility options, it still doesn't make life easy for the person without sight to navigate	Accessibility, Web pages lay-out, Design options		
Samantha	Not a lot I'm afraid because I find it difficult when you have to go through all these links and I can never find what I want. So, I find it difficult. The other thing I worry about the sight is that they don't use the right colours for people who are partially sighted. I'll be very sorry for people who have colour blindness. The sites must be horrendous for them. You know when you've got sight impairment you can't..there's lots of clolurs you've got to..if the backgrounds are on colour, you can't see the writing at all on facebook..you know. That's another issue. It's only e-mails.		Barriers to use of Social Network Sites Poor perception of visual inputs	
Kevin	Yeah! I mean…I have no computer, so I've never used the internet. I would love to , but I think I'm gonna wait till the end of the year and I would love to get the Dolphine system but it's too expensive.	Affordability	Cost of assistive device	
Newton	Well, I think I raised it with RNIB, I think there needs to be a very good look at where equipment can be purchased at a lot more affordable prices for visually impaired people and that's how I found out about my mobile telephone. It's a fair deal across the RNIB for their cheapest phone. I think a lot of organizations are not gearing up to the equality act. I raised something that I think would be a breach of the equality act from online offers.			
Kimberly	To be honest with you I mean…you know..I've had all kinds of hobbies that have taken a lot of patience but a computer and a computer, but I'm not sick but a computer I think is a struggle. I am, that's the truth because you've asked me my/your hones opinion in order for your research but I am desperate to learn and I leave here not really anybody's fault but I leave here on a Tuesday utterly exhausted	User learning experience, Ease of learning	Learning Process and Training	
Newton	People haven't got a lot of visually impaired people haven't got access to the internet and can't access online things because they can't see them and haven't got the technology..well..or are not being able to learn computer because it's not easy or they could have other physical problems along with vision impairment to use compute	Other impairments Knowledge of technology use		

Table 4.6: *Example of coding process for theme: "Developing trustworthy relationships"*

Participant	Excerpt from transcript	Open coding	Axial coding/ Sub-theme	Theme
Alfred	We do this back-chat passes; you know when you are doing emails and you are replying into something you don't just say "yes do this", there is usually a bit of friendliness. Some of them are friendlier than the others. Some of them say "good morning, I am back again" and some of them say say…''please will you tell me how to do this?'' it depends on the person and you help others' in same situation.	Group Friendliness online, Online assistance	Empathy	Developing trustworthy relationships
Regina	I do emails, and then if there is something more to explain about something, I can always make another attachment as well. We have common interest in one anothers' affairs and that sort of thing and email is more main thing then attachments and send it. My nephew also gives me all information that he knows online.. He gives more information about various people. We both are interested and so it is great to hear all those news first hand	Selfless concern, Caring for others		
Regina	Oh! it is good and even to see this group of people, and coming out of where you are is great. Because for me to come use internet here, there must be some safe people to take me where I have to go and these people are on the same level as suffering and so there is a sort of companionship and also you can sympathize with each one and also, you get that much satisfaction. They are learning internet all the time and improving. We email and do things together as well. It is good being in touch with people.	Understanding others' situation, Companionship	Altruism	
Doris	If I hear something about health online and then there are certain friends who are going through the same problem or they can't improve, I can all of a sudden give the information and talk about it.	Social support, Sharing instrumental support, Informational support		
Amanda	In fact, it's something I would never had thought of doing if it hadn't been suggested to me and I thought I'll never be able to use internet . I came to the classes and I think it's wonderful because just as I say, you are socializing it's one of those things, finding things out and doing something for others.			
Oscar	In a way. It's amazing really, because quite a few of them didn't realize that I was blind. They have often conversed with me on the forums and I trusted them, sent a little note, I send them back and the first thing they all said to me was "how do you use the forum well? how do you do that?" and then I tried to explain	Not masking disability, Trusting others	Self-disclosure, Trust	
Alfred	A lady once saw my name online on genes re-united, and e-mailed and said "did you take my father's photograph in 1958?'' and I said" Oh yes! I did! I emailed her back. She let me go into her family tree. We are friends now	Genealogy, Uniting with others online		

- *Reflection on the coding and analysis process.*

In order to analyse data from observations and interviews, I adopted some principles and methods that are compatible with thematic analysis techniques. These included:

1) Exploring the ontological meaning of each participant's accounts and activities,
2) Categorising those accounts and activities, particularly commonly held claims,
3) Drawing inferences from participants' accounts in order to construct interpretations.

I will present an overview of these procedures in this section. Carspecken (1996) argues that "truth" and "reality" are not pre-conceived, rather, they depend on how people collectively hold consensus or agreement on life issues, thereby forming shared knowledge in society. For instance, the statement "blind people cannot use computers because they are visually impaired" becomes "truth" among community members when they agree with and share the definitions of "blind people being digitally unfit". In essence, when a certain cultural group reaches a consensus, such opinion translates into "truth" in that group culture. Instead of investigating what constitutes "truth" or "reality" in ethnography, Carspecken (1996) contends that people's statements be investigated for validity claims (shared opinions). The data analysis in this research aimed to find shared claims of visually impaired older people's social activities online and explore their understandings of their daily experiences on the internet.

In order to reach a holistic understanding of people's experiences, Carspecken (1996) suggested that a thematic approach to ethnography data analysis needs to identify three ontological categories: subjective, objective, and normative-evaluative. A subjective category is the existing state of mind. It refers to feelings, desires, emotions, levels of awareness, and intentions, e.g. "I want to learn to use the computer because everything is going online", or "I don't think knowledge of computer is necessary for old people". An objective category refers to existing objects and events - for example: "I have been using computers for 10 years before sight loss" or "I email three times a week". A normative-evaluative category describes behaviours that could be regarded as proper, and appropriate. For example, "I do not want to be left behind in the digital age, so I'm learning to use the computer". During the analysis in this study, I focused mainly on subjective and normative-evaluative claims because both categories allow the researcher to identify the social context of the phenomenon under investigation and the meanings that people attach to their activities (Carspecken, 1996).

In the analysis of field observations, I first familiarised myself with the recurring patterns of events in the IT suite. I also re-read revealing events embedded in the field notes. Then, I compared their offline social interaction practices observed at the cafe to familiar norms of social interaction in face-to-face settings among sighted people. This comparison brought out differences and helped me to understand visually impaired older people's communication behaviour. For example, I identified their habit of choosing colours of text on a black background and compared this to familiar norms on most websites, which often use different colours for sighted computer users. The theme of "website designs" emerged from this process. This phase not only allowed me to uncover visually impaired older people's understandings of computer use and behaviours but also revealed the distinctions in usability of computers between them and computer use norms embraced by sighted people. I moved to interpretation in the second phase in order to insights into their daily experiences with computer use.

The previous phase gave me participants' own understandings of their situation that shaped and sustained their desire to adopt computer use. In this phase, I analysed their experiences of computer use within their social context, in order to obtain new insights about their goals to building and maintaining social ties online. As being sighted could facilitate computer use, I asked myself why visually impaired older people would be keen to learn how to use the internet despite vision impairment. I asked myself why they were not discouraged by the additional rigour of learning to use adaptive devices in order to gain internet access. To understand this quest, I took their position (position-taking), placing myself in the social context of their lives. For example, to understand the norms and values embedded in their reasons for desiring internet access, I placed myself within the social contexts of their families, friends and society. This process enabled me to gain an understanding of the influence of the rapidly advancing digital world that we live on the beliefs and values behind their desire to be part of the mainstream ICT world. A report by Hannon & Bradwell (2007) suggested that as the internet is becoming part of the fabric of everyday life, older people do not want to be left behind. Subsequently, I compared their communication experiences to what I considered as experiences that sighted people have in order to identify the constraints and limitations that their being visually impaired possibly induced and what advantages the internet perhaps offered them. For instance, I compared the ease of "taking turns" to speak during group sessions to that of sighted people in routine group conversations. In this phase, data from interviews with other visually impaired older people in

this study and field observations allowed me to understand how they articulated perceived advantages of online socialisation.

Through this process, themes on "absence of visual cues" emerged. Next, I questioned why participants had to adopt computer use in order to overcome the challenges of living with vision impairment. This led me to situate their experiences within a "compensatory context". The dynamic of socialisation processes within the centre also allowed me to identify the influence of such social environments on their experiences and development of coping skills. In the end, I asked further questions such as why the participants chose to learn computer use at the NSBP and not in their homes. These questions allowed me to situate their learning activities in the broader context of developing social ties with others in similar situation and to uncover how this processes enable them to cope with the emotional and social challenges of vision impairment. In this phase, theories of socialisation in Computer Mediated Communication (see chapter 3) provided the analytical framework for this process, which revealed the intricacies, dynamics of online versus offline socialisation, and the distinctiveness of visually impaired older computer user.

- *Reflexivity on data interpretation process*

Researchers need to recognize how their own values and beliefs influence the interpretation of data (Schwandt, 2007). To minimize such biases on the interpretation of data in the current study, I documented field diaries describing and reflecting on my observations at the cafe, participant accounts and responses, and unexpected occurrences in my fieldwork. Reading the journal, several reflections on my own values and norms were found. For example, I realized that the social norms and values that I had acquired in the course of my professional experience could affect my understanding and interpretation of visually impaired older people's accounts.

Because the dominant discourse about visually impaired older people is that they are far less likely to use computers than their sighted peers (RNIB, 2013), there is always a danger to presume that using computers is more challenging for visually impaired people because most ICTs are not accessible for this group. In fact, at the beginning of my fieldwork, I thought that participants would rely heavily on technical support as computer use with adaptive devices is often mediated by experts. However, despite the limited internet access that participants in this

study experienced, they seemed highly motivated to clear any hurdles to accessing computer information.

I paid much attention to contradictory thoughts during my field observations and challenged myself with questions like "why should I make such assumptions?" when I wrote the field diaries. During the interviews, I often felt uncomfortable when I heard participants' stories that contradicted my personal beliefs about them. For instance, when a participant said that during the process of online relationship formation, visually impaired older people could be cajoled into disclosing personal information online because they might not be dexterous computer users, it made sense to me and sounded reasonable. On the other hand, when another participant stated that he could not be tricked online because he regarded himself as a skilled user and could determine trustworthy people online, I sensed a contradiction, although I tried not to accept his comment at face value. Evaluating those two comments I questioned myself about the reason why I felt uncomfortable and I realized that I had the same values as the former participant did, which is undervaluing visually impaired older people's ability to predict potentially trusting relationships online. This self-consciousness enabled me to be more cautious about my interpretations of how participants built social ties online.

I also paid careful attention to participants' brief remarks during the interviews and sought to probe them further because such comments may not be "small talk" for them but could be an embodiment of their norms and values that were unfamiliar to me. My position of being a research student also facilitated my critical thinking. Talking to my supervisors during monthly meetings on my thesis provided me with different perspectives than my own values and understandings of the data. In addition, being a volunteer at the centre, I had more opportunities to obtain different perspectives from IT tutors, staff, the manager, etc. Those opportunities enabled me to realize the significance of corporate informants in meaningfully interpreting the values held by the participants and therefore, motivated me to question my own understandings of their socialisation behaviours and ways of using computers.

- *Verification of the analysis*

To verify results of the analysis, I adopted the following strategies:

First, I worked with the participants to enhance the credibility of my data interpretations. The iterative interviewing design made participants readily available for this process. However, some circumstances made it difficult to arrange to meet with participants for a second time. The primary reason was their mobility challenges which affected their regularity at the computer classes. In such instances, I sent emails and their replies came promptly. I was cautious about using emails to verify focus group interviews because I could not speculate on the consequences of this process. I was not sure that the process would ensure group interactivity as face-to-face focus group verification session would. For this reason, I decided that I would rather conduct a second meeting at a convenient time for respective focus group participants.

I also worked with some of the staff from NSBP in order to verify results. One day, we held a meeting with the Manager and some of the staff to discuss my results from the analysed data. The staff glanced over hard copies of my coding data. They seemed not to understand how they should respond to my data analysis because they did not say anything about it. I had the impression that they were not familiar with qualitative data analysis. Perhaps they had little or no understanding of the meanings of codes or they simply felt uncomfortable showing their disagreement with the volunteer worker who assisted them at the ICT department. It was at this point that I realized the need to give a detailed explanation of the analysis process. Thus, I provided more details before conducting the verification process. I also realized that more time would be required in this verification process than I could afford, which discouraged me from conducting this process with other staff. This was also because most of them were usually very busy due to staff shortages in the organisation.

The second approach to verifying my analysis was by exploring relevant information from other sources. For example, interviews with the IT tutors of the NSBP enabled me to access rich information regarding motivational factors for many visually impaired older people at the centre to go online. Such information was particularly useful to validate my data analysis because the IT tutors understood participants' socialisation processes and their interests in internet use. Third, prolonged engagement in the field promotes the researcher's capacity to assume the insider's perspective (Whitehead, 2004; Whitehead, 2005). I had worked as a volunteer at the

NSBP for 2 months (August and September, 2011) before starting my data collection, in order to gain an early familiarity with the culture of participants at organisation (Shenton, 2004). In November 2011, I started my data collection, which was initially scheduled to last 10 months, but eventually lasted 13 months due to the closure of the IT suite for three months. However, despite this closure, I continued working as a volunteer with the organisation. This long engagement enabled me to gain more understanding of participants' attitudes towards computer use. In fact, many participants complained about the closure and how they could not wait to resume computer classes. They also talked about things they could no longer do online. This helped me to understand their enthusiasm towards computer use and I was able to enhance my knowledge about what motivated their desires to engage in online activities.

I had three supervisors who were experienced in qualitative research, and they also worked as my advisors for the data analysis. I had several meetings with them and shared my coding with them independently so they could verify its validity. I also consulted with my principal supervisor through emails and personal meetings about my data analysis. In addition, I met with my peers to discuss my data analysis. Through these meetings, I was able to rethink and refine the data analysis process and revise my coding to produce more sound analysis. These processes enabled me to enhance the validity of my data analysis.

4.7 Chapter summary

In this chapter the thesis described how the study was designed from an interpretivist paradigm and employed an ethnographic approach. The ethnographic methods of data collection used include field participant observation, focus group discussions and topic-guided one-to-one interviews. The chapter discussed in detail the procedures taken to analyse the collected data. The data analysis involved detailed application of thematic analysis (Braun & Clarke, 2006). Rigour in this study was enhanced by triangulation of findings and thorough respondent validation. The next chapter will present the findings obtained from the analysis of data in this study.

Chapter Five - Findings

5.1 Introduction

The previous chapter discussed the methodological approach employed for the current study. This chapter reports the findings from the observations and interviews (individual and focus groups). The chapter is organised in two sections. First, findings from observations are presented and the intricacies of socialisation in face-to-face situations are discussed. Second, findings from analysis of individual interviews and focus group interviews are reported and conclusions drawn from these analyses are further discussed in relation to the theoretical framework guiding the study.

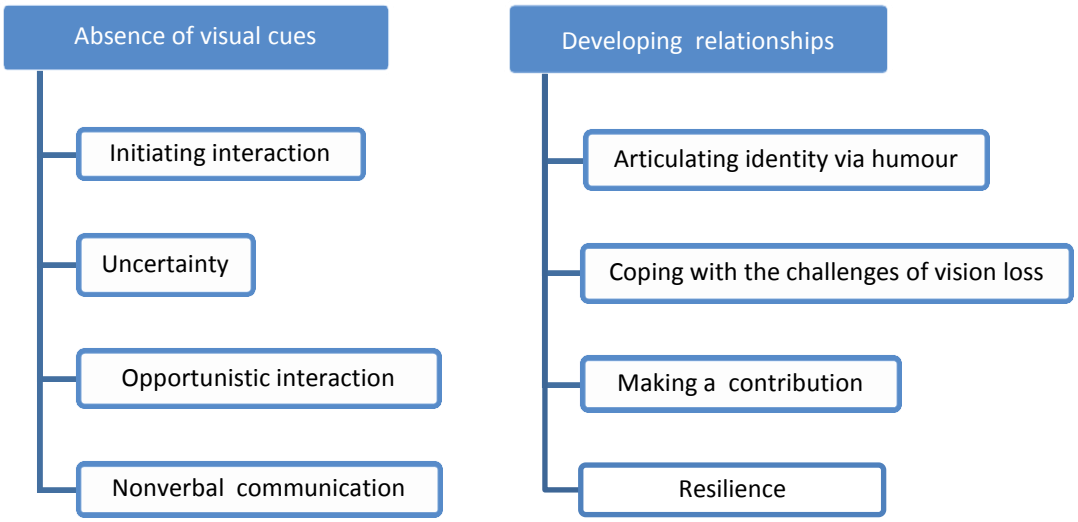
5.2 Observations

In the first phase of the analysis, I conducted the interpretation of data from field observations. As I observed participants' activities as well as their social interaction practices at the cafe, I identified recurring patterns in their daily face-to-face interaction practices and how they had contrasted offline difficulties to their online experiences during the friendly chats I had with them on the field. I focused on excerpts from such chats and explored them further during the one-to-one interviews in order to find answers to the research questions.

Subsequently, I sought to interpret the "meaning" behind their practices, as proposed by Carspecken (1996). Through this process, I identified themes that reflected participants' understandings of the benefits and relevance of computer use to their lives. This enabled me to grasp an understanding of their views on what computer use meant to them and how they perceived that it impacted on their well-being. The field observations revealed the complex processes of communication in face-to-face (offline) environments as participants experienced it. The two major themes: *"Absence of visual cues"* and *"Developing relationships"* were from analysis of field notes. They gave insight into how participants struggled with socialisation due to the loss of visual cues, dynamics of their socialisation with others at the centre and factors that motivated their desires to use computers. Eight sub-themes emerged from the axial coding of field notes. The eight sub-themes were

eventually categorised into two parent themes, namely: "absence of visual cues" and "developing relationships". The categorisation of themes and subthemes is illustrated in figure 5.1 below.

Figure 5.1: *Diagrammatic representation of themes and subthemes from field notes*



5.2.1 Absence of visual cues

Face-to-face social contacts were frequent at the NSBP centre but interactions during face-to-face meetings were often constrained by difficulties due to participants' loss of sight. However, participants employed different coping strategies. Many important aspects of socialising were affected by the loss of visual cues. Due to vision impairment, non-verbal cues were regarded as shrouded cues that needed to be demystified by developing adaptive strategies. The coping styles that were often used by participants to enhance socialisation are presented in this section.

5.2.1.1 Initiating interaction

Establishing eye-contact is often the first cue indicating interest in a conversation. In some instances, it was difficult for participants to initiate social interaction because they could not visually assess whether others were available for a conversation or not. The apparent difficulty of ascertaining visual aspects of nonverbal communication, such as body posture and direction of gaze, seemed to inhibit the flow of interaction. During group discussions,

there were often noticeably long silences between conversations when participants took turns to speak. This was due to an inability to perceive non-verbal subtleties of communication that could prompt another participant in turn to speak. However, participants seemed to have devised means which sometimes enabled them to cope with such difficulties. They achieved this by saying the names of peers who they thought might want to contribute to the discussion, asking them questions or asking open questions (such as *"isn't it ?*", "*is it?"*) to signal the end of their statements. In other instances, the tutor played a key role in facilitating interaction among participants. One of the tutors expressed her opinion on how she is able to ensure everyone has a say:

> "*Sometimes, they need support to ensure that they all have a chance to contribute to the discussions. Like you observed, Billie is often quiet during tea breaks when the class is noisy, but sometimes I can make him talk by asking his opinion in between" [IT Tutor]*

The tutor initially believed that Billie was an introverted participant and often needed to be prompted in order to speak. It was observed that Billie often engaged in conversation with others when there were relatively few participants in the classroom speaking at once, but when it became noisy, with many side conversations and much chatter, he often became rather quiet. During an informal chat with Billie he revealed why he has these two contrasting behaviours. He comments "*I don't usually talk when I hear many voices because I get confused"*. Apparently, when there were many side conversations, Billie found it difficult to pay attention selectively and sift voices. Eye contact, lip reading and observing facial expressions are important elements of the visual world that facilitates communication and helps to sift voices when hearing intermixed voices (Langton, Watt, & Bruce, 2000). This finding demonstrates that some visually impaired older people might be more likely to be socially withdrawn and reserved in participating in group interaction, particularly when different people speak simultaneously. This is because the loss of vision may lead to impaired ability to selectively focus on the desired source of information and ultimately lead to information overload. The overload of communication cues, in turn, may cause confusion (Boiney *et al.,* 2008). Billie perceived that a face-to-face multiple-chat room was a complex environment in which to initiate or follow an interaction due to the inability to perceive visual cues, whereas an online chat room does not necessarily cause such distractions.

5.2.1.2 Uncertainty

Some participants said that they were often reluctant to start a conversation with unfamiliar people because they were not sure of the proper response. This feeling of uncertainty was often compounded by their inability to access visual cues such as facial expressions and body language. There was also a fear of embarrassment associated with starting a conversation with people whose identity they could not ascertain by physical/facial appearance. In other words, visually impaired older people were less likely to initiate a conversation if they were unsure whether they were speaking with the right person at the right time. This is illustrated in the following comment by Sharon:

> *"You walk into an office and because you can't see somebody, you are not sure who to see or who to talk to or who actually works here. It might be the wrong person you are asking. If you are doing it through the internet, you'll get straight to the person you want to talk with" [Sharon]*

Sharon argued that it was easier for visually impaired people to make direct social contact without making mistakes about the identity of the intended partner in an online context than in a face-to-face environment. Similarly, Larry had his reservations about speaking with strangers in offline environments:

> *"Sometimes, when you meet strangers and they see you've got vision impairment, they think you've got mental impairment as well. At other times, when you say you are blind, they tend to speak louder and they think that your reasoning is gone as well, you know, it annoys me" [Larry]*

Larry's comment suggested that the feeling of uncertainty about how tolerant strangers were about disability often fostered fears of rejection and could be upsetting. His comment suggested that he was often conscious of a social stigma surrounding visually impaired people due to misconceptions held by many sighted people about vision impairment. The conscious awareness of such misconceptions and the potential for stigmatisation made Larry reluctant to associate offline with people he was not acquainted with. Sharon believed that such feelings of uncertainty were fostered by the inability to access visual cues and has the potential to lead to social withdrawal:

> *"It is difficult for us offline. Sometimes you don't know what is going to be a friendly comment because you can't see the faces of others. You don't know if people are making their comments sternly because you can't see smiles or expressions. It makes you a bit more isolated. It's quite depressing because you start to feel that you are withdrawn from the world a little" [Sharon]*

Although people vary in their ability to initiate friendships and initiate friendly interactions in face-to-face situations, these comments suggested that the loss of visual cues due to vision impairment made the process of building friendships challenging. In other words, interacting with strangers and unfamiliar people whose facial expression and body language could not be determined made it difficult to ascertain whether a person was interested in the conversation or not. Sharon's comment implied that such constraint was the reason she hesitates to start a conversation with unknown people. However, many participants seemed to feel a lot more at ease in initiating communication with strangers in group settings. For example, when Mark, a new member, initially joined one of the IT groups, the participants in his group were comfortable having a chat with him and asking him questions. This suggested that, in a group situation, participants felt less reluctant and less uncertain to initiate a conversation.

5.2.1.3 Opportunistic interaction

Opportunistic interactions often occur when people see each other and remember that they want to discuss a topic. Participants' comments suggested that the loss of visual cues often made it difficult to maximise such opportunities. Many visually impaired older people only relied on auditory (verbal) cues to determine if there was anyone within close range to interact with and who it was. Overhearing someone making a phone call, the tapping of a computer keyboard or the sound of footsteps were tell-tale signs that often indicated that someone they could speak with was near. Regina talked about how she was always able to identify Oscar's arrival:

> *"I can tell when Oscar is coming because he taps his white cane on the floor" [Regina]*

Despite being totally blind, Regina could surmise the physical presence of her group members at the centre by analysing audible cues that she believed were peculiar to each member. This explains how she was able to adapt to the loss of visual cues in the face-to-face environment by using other senses. When she was unable to detect such adaptive stimuli, she simply assumed that group members were either absent or not within communicable distance. In addition, while some participants said that they were able to determine the presence of others in their proximity by the smell of their perfume, others simply guessed that someone was present by the shadows cast in their visual field. For example, Oscar commented how he was always able to tell if someone was in front of him:

> *"I can see you seated in front of me like a shadow cast. I can see your hands but I can't see your face" [Oscar]*

Being aware of the physical presence of other people is a requisite for initiating interaction. However, while this might be taken for granted by many sighted people, it was obvious that it was not an easy task for many visually impaired older people. This difficulty often hindered effective communication among visually impaired persons in face-to-face contexts. However, participants agreed that such challenges were eliminated when they socialised online. Apart from coping with audible cues and other non-visual cues, many participants seemed to make further confirmatory efforts to be certain that someone was around them and to be certain that the sound was not from another object or source. Such efforts included a quick question which occasionally opened a social conversation. For example, Kelvin said that if he was unsure whether someone was around him or not when he was alone at the cafe, he would initiate a conversation by using phrases such as "*is that Patrick?"* or "*what time is it please?".* Another non-verbal strategy that was commonly used by participants to catch the attention of a sighted speaker (such as the IT tutor) was by feigning a gaze or turning their face in the direction of the speaker's voice. It was also a strategy often used by visually impaired older adults to draw the attention of tutors and volunteers for technical assistance with operating their computers or when they needed any help.

Alfred seemed to have his preferences about people with whom he could start a conversation. His comments during an observation session suggest that he made his choice of friends based on the pitch and tone of voice because he had a hearing impairment:

"If you have the right kind of voice, you would be my friend for life. I can hear you. Sometimes I can hear but people don't realise I can hear. If you have the right tone at the top of the scale, the bass scale, then you've got it. But if you've got the clicking voice like everybody, talking with clicking voices like them, then I won't be able to understand" [Alfred]

However, Alfred believed that one of his reasons and motivation for internet use was that, in online environments, such qualities did not determine whom he interacted with. He argued that online media do not depend on the voice of users; rather, applications allow users to adjust the synthesised text-to-voice sounds to their preferences. The inability to do the same offline was described by Alfred as "off-putting", discouraging him from socialising:

"Well you see, when I'm in a group like this, sometimes, I don't hear what is said and I don't see. So this socialising thing means to me that I go, and sometimes I think I'm done with it. This computer thing is the only way that I keep in touch" [Alfred]

Alfred believed that socialising online was easier for him than socialising face-to-face because the online environment accommodated his communication needs better than offline. He suggested that he often discriminated against voices that were not high pitched in face-to-face contexts but that the online environment removes the need to discriminate between voices. In other words, he could communicate effortlessly with everyone online. Alfred's comment further suggests that while disability may dictate preferences for specific characteristics in order to ease socialisation, such preferences were often waived online due to the absence of social cues in an online environment. His comments also demonstrated that, although the inability to perceive visual cues could make socialisation difficult for visually impaired persons, having an additional disability condition such as hearing impairment could make socialisation more difficult than it already was. Thus, for many visually impaired older adults, adjusting to the challenges associated with the loss of visual cues in face-to-face situations entailed being able to optimise non-visual cues. According to participants, an inability to make such adjustments might jeopardise opportunities for

socialisation or make the process of overcoming communication barriers more tedious. In other instances, making the wrong guess from such social cues often led to socially awkward and embarrassing situations. For example, Regina said that she met a sighted visitor at the reception but she thought that the visitor had a voice that sounded familiar to her. She thought it was Patrick's. Unknown to her, it was not Patrick. The following comments illustrate her experience:

> *"I was talking with somebody at the reception some minutes ago. His voice sounded like yours, so I thought it was you. I started asking him some questions about research. I didn't know it wasn't you until Cynthia told me it wasn't Patrick. It was quite embarrassing for me. I quickly apologised (Chuckles)" [Regina]*

Regina misjudged the voice and inferred wrongly. Her comments suggested that, the awareness of the embarrassment associated with failing to start an interaction with the intended person could potentially discourage visually impaired older adults from making an attempt. Arguably, when such experiences occur too frequently it could compel a visually impaired individual to be hesitant with initiating an interaction. If frequent, such hesitations could be interpreted as being socially withdrawn.

5.2.1.4 Non-verbal communication

Participants believed that many sighted people are not aware of the communication needs of visually impaired persons. This not only makes communication cumbersome for them, but their comments suggest that it also contributes to the social isolation of visually impaired individuals. In Vivian's opinion:

> *"Vision impairment is an invisible disability that can go unnoticed by sighted persons. An individual in a wheelchair is easier to be spotted as a person with disability than a visually impaired person without a white cane" [Vivian]*.

Vivian's comment suggests that the difficulty often experienced by visually impaired people when communicating with sighted strangers is that vision impairment is an invisible disability and therefore, it is usually easily overlooked. Oscar narrated his experience at the bus stop:

> *"I was at the bus stop on time but I wasn't able to board the bus. I can't see the numbers on the buses. I asked a lad which one was bus 34 and he said 'that one' and he hurriedly jumped on another bus. I missed my bus because I didn't know which one he meant by 'that one (laughs)" [Oscar]*

In this example, Oscar's experience shows how difficult communication between sighted and visually impaired persons can be. The young man was not aware that Oscar was blind. According to Oscar, pointing to give directions to visually impaired people is as good as not giving any clue because they cannot see such non-verbal gestures. He mentioned how sighted persons are often unaware that he is visually impaired. He said that communication with visually impaired individuals requires making answers as descriptive as possible. However, the IT tutors were aware of such intricacies in communicating with participants. When questions were asked during IT sessions, the tutors endeavoured to mention the name of the participant whom they wanted to answer the question. There were nevertheless a few occasions when the IT tutor inadvertently omitted mentioning names and in many such instances, either a chorus answer was given or there was an unexpected silence. This was because participants were not sure to whom the question was specifically directed. The inability to perceive visual cues compounded such complications because eye contact could not be made to ascertain the tutor's direction of gaze and perhaps prompt a particular participant to answer the question. Another example cited below is an excerpt from field notes and illustrates how participants' inability to perceive non-verbal cues affected their awareness of time:

> *"It was a few minutes past closing time for today's IT session. The IT sessions close by 12 noon and it was already 5 minutes past noon. Apparently, the IT tutor had one more lesson to explain to the participants who were not aware of time. One of the volunteers seemed to be in a hurry to leave. She glanced at her wrist watch several times. The IT tutor saw her glancing at her wristwatch and perhaps, interpreted it as a gesture – (a non-verbal prompt) that it was past closing hours. She had worked tirelessly and it was time to leave. She glanced at the wall clock and realised that she had to end the day's session as fast as she could" [Field notes: 6/11/2012. 12:05PM]*

In this excerpt, a non-verbal cue from a volunteer (a glance at her wristwatch) was sufficient to send a non-verbal signal/message to the IT tutor that it was past closing hours. However, while such non-verbal cues could be seen and assessed by the tutor, the participants were not conscious of the cue and therefore not able to respond to it. They were often unaware of time unless someone told them what time it was. Overall, these observations reveal that participants needed to draw the attention of others (or get their own attention drawn by others) in order to communicate with the intended person. These strategies were important for effective communication and socialisation in face-to-face environments but not needed in online environments.

5.2.2 Developing relationships

Observation of group meetings reflected how participants learnt to use computers and socialised. Offline meetings at the internet classes simulated online forum discussions. Participants felt that it created opportunities for them to develop social relationships. Many visually impaired older people in this study confirmed the value of group meetings, not only for integrating them into one another's social networks but also for gaining information about their personal welfare. The interactive-based learning environment also gave many participants opportunities to be actively engaged with other social events at the centre as opposed to just sitting and using the computer. Participants usually searched the internet independently for information of interest and articulated such information with others. They often used the online world to find information that they were unable to access by visiting their local community due to mobility difficulties. Many of them felt that socialising in this way could grant them the open access they needed to information and help them to draw on the experiences of others.

5.2.2.1 Articulating identity via humour

People with disability can feel socially excluded because at first encounter others may only perceive the disability and not the person (Galvin, 2003). The centre fostered an environment where visually impaired older people were welcomed and respected. As an environment for people with similar impairments, participants felt secure to interact with one another without feeling different. In adversity, this seemed to facilitate self-disclosure because visually impaired older people at the centre were free to discuss what type of vision impairment they had and how it impacted on their lives. Visually impaired older people

seem to articulate their disability status with a sense of humour. They felt comfortable making jokes about their situation. Larry was particularly fond of making humorous commentaries. According to Larry:

> "*Humour has actually endeared me many people. I make friends through humour"*

Larry believed that humour helps to put others at ease whether they have just met him or knew him before he became visually impaired. Laughter and humour were ways of coping with vision impairment, rather than challenging some of the subtle prejudices that they often faced as people with disabilities. In this way, Larry regarded humour as not only a coping strategy, but a social strategy which can subvert stereotypes, and give others a sense of liberation from the misconceptions about visually impaired people as subjects of pity. This also demonstrated the articulation of his identity as a person who, although visually impaired, had a cheerful approach to accepting his condition rather than seeing it as tragic. In some instances, humour and laughter enabled them to share their frustrations with computer use in a positive manner. Again, because the lack of visual cues made it impossible to see a smile on one another's faces or other visual acknowledgements, sounds, such as the sound of laughter when a joke is shared, were more or less seen as a way of indicating their social presence. In some instances, anxious tensions at not being able to perform a particular computer function were seemingly relieved by laughter. In one funny instance, a participant had asked for a rubber eraser to delete a "typo" because he couldn't find the "delete" button and others couldn't help laughing.

5.2.2.2 Coping with challenges of vision loss

Much of the data pointed to the value which visually impaired older adults place on the potential of internet use for initiating interaction and coping with the challenges of vision impairment. Participants varied in their level of experience and skill with computer and internet use. Although some participants relied mainly on help from the IT tutors, volunteers and peers to hone their IT skills, others were assertively independent. Interestingly, those who were totally blind and lived alone were more confident with using the computer than their partially sighted peers with the same number of years of computer use experience. It seemed that they spent more time on the computer than their partially

sighted counterparts. The reason may have been that the severity of vision impairment increased the need to selectively optimise internet use in order to cope with the challenges and constraints associated with the condition. The following excerpt with Alfred during a field observation illustrated this:

> *"I live by myself, I fend for myself. I do a lot of things on the computer independently. I can't imagine life without it. If I didn't have it, what would I be doing? I wouldn't be reading, I wouldn't be scanning my own bills, I wouldn't be doing a lot of things". [Alfred]*

Alfred was totally blind but very confident on the computer. He believed that his high proficiency with internet use was because he used it very often for daily tasks, which would otherwise be difficult because he lived alone. Seven participants who lived on their own and attended the IT classes regularly said they believed that coming to the centre not only helped them to improve their IT skills but also gave them opportunities to counter boredom and feeling lonely. According to Jennifer, "*it is more than just an opportunity to learn and 'keep the old brain box' functioning, it is an opportunity to join others in a social space that gives a choice to socialise and fight the feeling of isolation"*. The research suggests a number of ways in which offline social interaction can reduce loneliness and boost a sense of belonging for visually impaired older adults. Being part of a group of people with visual impairment seemed to make it possible to organise social activities that accommodated everyone's needs. Such activities were usually organised between the IT classes and provided participants with opportunities to socialise with one another and build social ties which they often followed up between classes – for example by exchanging emails. During one of the observation sessions, an IT tutor (Janet) narrated a story to me. She used the story to support her opinion about the importance of the centre to some participants and how it redefined their social lives.

> Question: "What do you think the centre means to visually impaired older people?"
>
> Janet: "*Apart from opportunities to learn how to use the internet, it's a social platform for many of them. A blind man once came into the NSBP computer suite to browse the internet. He learnt about*

internet browsing after his sight loss. He said he never knew he would learn to use the internet because he had hitherto been involved in unskilled jobs. He said his sight loss was so traumatic for him that he locked himself up in his house for three years. But then he thought life must go on, so he came in and registered with the NSBP. When he came in, he used to be so introverted and reticent, but some of the older participants made him talk because they teased him with questions and probed him. They felt their age and experience allowed them to ask questions that perhaps younger people would not have. They made him talk and laugh. He said after the session that it was the first time he had socialised in three years after his sight loss" [Field notes 12/11/2012, 11:00 AM]

Sharing memories of their childhood days and how they lost their sight were also topics that participants discussed. It is possible that sharing fond memories, chatting and sharing adversities helps to cope with depression and isolation (Shmotkin, 2005). Many participants perceived this as affirming and reassuring.

5.2.2.3 Making a contribution

Participants often talked about how their confidence and self-esteem were bolstered by fitting into a social gathering of people facing similar difficulties. They felt relaxed to assume social roles that demonstrated resilience, independence and support for others. For example, during tea breaks, the IT volunteers or tutors usually made the tea and coffee for participants. However, in one of the groups, a partially sighted participant, Greg, always insisted on making tea for everyone despite having to strain hard to see which box contained sugar or which contained coffee, or even see the level of milk in the milk jug. It was his way of having a role in the group, making a valued contribution and offering support to others. Making a contribution at any stage in life is important in order to maintain self-esteem and a sense of connection with others (Steinfield, Ellison, & Lampe, 2008). With appropriate communication and interpersonal support many participants made new contacts and friendships during meetings at the IT classes. They also offered one-another some support between the classes, especially by email. Another example of such interpersonal support included sharing practical knowledge about vision aids that could

enhance internet access. The following conversation ensued between two participants at the cafe:

> Abigail: [Holding a magnifying glass to Greg] "*do you think this will be of any use to you? I have many of them at home and I just feel you may find it useful. It's a magnifying glass and you place it on your newspaper like this" [demonstrates use]*
>
> Greg: *[smiles] "Thanks [he brings up a newspaper and placed the glass a few centimetres above the newspaper]. It'll be useful because I struggle to read this all the time. I have not seen this type before*"

The above example illustrates how two participants understood one another's visual needs and shared support and assistance. All participants frequently had specialist assessments by the IT tutors, and also received assistance tailored to their individual visual needs. They were usually provided with printed instructions on how to optimise the use of assistive technology in different font sizes selectively determined by their visual acuities and their preferences. The IT classes were a way for visually impaired older people to share and receive the latest information and articulate their opinion. Participants believed that the informational support they shared was important and central to gaining knowledge for successful adaptation to vision impairment. During break time, they often had social chats about new technologies for visually impaired people and low vision tools that they had read about on the internet. They critically discussed the usefulness of such tools for the everyday tasks of visually impaired people. This shows that the usefulness of the internet for this group extends beyond staying in touch with family and friends to learning new things about coping with vision loss. The socialisation process of learning to use the internet not only meant that they were able to perform certain tasks online, but also included being able to articulate their skills to peers. Although it was difficult to demonstrate such skills with visual/graphical illustrations, they often talked about the steps involved in completing such tasks. For some of them, this was a form of instrumental support that they gained from more experienced peers at the IT classes. This interactive process instilled a sense of familiarisation among participants and fostered cordial interpersonal relationships. The interactive learning process also implied that all participants had valuable contributions to share with others, making their voices heard and learning from one-another. It further

facilitated a healthy rapport and the formation of social relationships between participants and IT tutors/volunteers. In one of the field observations, I had an informal conversation with one of the IT tutors in which she expressed her opinion about how participants socialised at the centre:

> *"They like chatting and talking about childhood days and I don't interrupt them whenever they do so because I know they enjoy doing so. Some of them share ideas on how to cope with vision loss. For example, you heard them talking about how to use audio-description TV to watch the television. It simply describes the scenes on the TV screen to them and they listen. Some of them do not know about this, but when they come here and share such knowledge, it helps them understand better ways to cope with vision impairment". [IT tutor]*

Some participants felt that the difficulties in learning to use assistive technology and the amount of time that must be dedicated to training and practice in using assistive devices sometimes outweighed the potential benefits of using the internet. One participant who was partially sighted commented that it took an entire year to learn the commands for the programme that was used. Another participant in his 80s who was totally blind worked with elaborate instructions but was often slowed down by struggles in locating the right keys. The following conversation is an excerpt from field notes between the IT tutor and the participant:

> Richard: *"I don't think I want to continue with these lessons".*
>
> IT tutor: *"Why don't you want to continue anymore?"*
>
> Richard: *"The keys are awkwardly placed it will be too time consuming for me to learn this. It is not worth me bothering anymore. I thought it was something I could easily learn''*

Richard later gave up on learning how to use the computer because he was totally blind and had difficulties with learning the location of the keys. He also had a hearing impairment. However, he said he would continue to visit the centre to socialise. Many of these

technologies require a student to be a proficient keyboard user, and to have a fairly good auditory sense in order to hear the voice commands. Nevertheless, Richard acknowledged that the internet was a means to acquire valued knowledge that could help people fulfil social roles and believed that being able to use the computer in an ICT centred age could help him maintain his independence. Participants often talked about how being able to use the internet helped them to maximise their capacity for engagement in socio-cultural practices of reading and writing while socially representing themselves as cognitively engaged social beings. While acknowledging that the process of learning to use the internet as a visually impaired person without a prior experience of computer use is very demanding, they remarked that their successes could encourage inexperienced members through the process.

A frequent topic of conversation among participants was about how their IT skills had improved by coming to the centre. In each IT class, at least one or two participants made positive comments about how the skills acquired had enhanced their ability to keep in touch with members of their social network and "get involved" with family matters. Internet use for building and maintaining social contacts seemed to be an important activity that many participants engaged in, and the centre provided an environment to build friendly ties. However, some participants mainly came to the centre in order to socialise. The following excerpt illustrated this point:

> *In one of the IT sessions, I asked a participant, Greg, if he had a computer at home. He answered with a smile and said "I don't want to have a computer because I don't think I need one". Then I interrogated him further to know why he was so keen to learn how to use a computer. He gave his reason: "I think I have passed that age because I'm too old for all that now." I asked* "*Why then do you come to the NSBP to learn how to use the computer?"and he said "You see, it's more like a social event here. I just come in to socialise mainly and chat with other people in the class and to make friends during the computer lessons" [Field notes 10/04/2013, 10:35AM]*

The volunteers and IT tutors were younger adults who had undertaken training at the centre on how to offer friendly assistance relating to IT and mobility needs of visually impaired older people. The social and friendly learning atmosphere practically contributed in

integrating these older adults and the younger generation surrounding them. Perhaps, the interpersonal relationship processes that exist within this context may play a role in bridging the generational gap. The following conversation at the cafe illustrates the potential of internet use to bridge the generational gap in IT use:

> Patrick: *Hello, would you like me to help you?*
>
> Kimberly: "Y*es! I can't see it because I have got no central vision so I have been trying to read with one side*"
>
> Patrick: *You can magnify the letters if you wish* [magnifies it for her]
>
> Kimberly: "*I didn't know I could do it that way. You see, I don't have a computer at home, but I think I really need one now. I wouldn't make the mistake I made before"*.
>
> Patrick: *What mistake was that if I may ask please*?
>
> Kimberly: "*I once made an attempt to get a PC, a young man came to assist me to set it up. He came about two times and by that time, I just realised I was going blind; the doctor had broken the news to me and it was very traumatic. My children were around me then, trying to help me cope and it was so overwhelming for me. I had to change my mind about the PC. I am here now anyway. I am not so confident doing emails but I hope to learn. My children and grandchildren teach me sometimes. I also want to make new friends here. The young woman over there has been very friendly. She has been a source of support and encouragement".*

In this excerpt, Kimberly described how her children and grandchildren kept regular contact with her because they needed to teach her how to use the internet. Oscar also narrated how he developed virtual rapport with a young man at the forum and subsequently transferred the relationship offline:

> *"I've just got gotten out on a walk…one of the boys on the forum actually came to work in Newcastle yesterday and he came to see me in my house! He telephoned first and asked that I gave him*

the address. I gave him the address and he came to see me. We started chatting for about 3 or 4 hours and just like that. He lived somewhere in Midlands, middle England" [Oscar]

These findings corroborate the dynamics of bi-directional socialisation processes between older and younger people (Hutchinson *et al.,* 2003; Quadrello *et al.,* 2005). Apart from this culture of IT use which facilitates socialisation between older and younger generations, the IT classes also fostered socialisation across generations. This is because many of the volunteers were younger adults. Thus, the internet and IT classes translated into platforms that not only served pedagogical purposes, but also provided participants many opportunities to establish social relationships in ways that facilitated social contacts with the younger generation.

Mead (1971) emphasised the importance of intergenerational interactivity as an avenue for fostering social behavioural changes. She argued that it can keep the minds of older people open to new ideas that are generated by a younger generation. Through such interaction, participants in this study learnt new ways to adapt to vision impairment and explored opportunities for better ICT access. For example, the literacy requirement of the media transcends the ability to touch type to skills needed to operate assistive computer operating systems, and comprehend the variety of equipment needed to enhance internet access for visually impaired people (e.g. CCTV, CDs, and scanners). In socialising with younger adults, they also learn to become more skilful.

5.2.2.4 Resilience

Many participants were aware of the predominant stereotype about older people and ICT. Their comments suggested that they refuted illogical beliefs and stigma in order to remain active within society and in their personal lives. Although they acknowledged that vision impairment could make computer use difficult, they feared being seen as incapable because of vision disability. Thus, being able to use the computer was also regarded as a means to disprove the popular stereotype that they were technologically disabled because they were not sighted. The following excerpt from an informal dialogue with Vivian in the centre illustrated how this group made meaning from their involvement in internet use:

Vivian: *"The internet would be good if it were easy to use for visually impaired people. Many visually impaired people do not find the internet easy to use. It's sometimes frustrating accessing some websites because you have to listen to all the links before you eventually choose one".*

Question: *Do you mind telling me why you think it is difficult?*

Vivian: *"Sometimes, you may have so many links on just one page and you have to listen to them all. Whereas, as a sighted user, you simply navigate or skim through them fast and choose the link you want. Each page has to call out all the links for visually impaired people and if they make a mistake, they have to start all over again so you see; it's not easy. But many of us don't mind doing it because we feel it enhances our independence by being able to do some shopping and send emails to family and friends we cannot visit or call. We can't give up".*

Vivian's comment suggested that, despite the difficulties, being able to engage proficiently in a task that is as vision-intensive as using the internet against the odds of vision loss was a hallmark of resilience. In line with Vivian's comment, Alfred often told others about how it helped him to maintain his independence as a visually impaired person who lived alone. Many of them held beliefs that agreed with Alfred's point and often suggested that, whilst they could accept giving up certain luxuries such as driving a car or gardening, they did not want to compromise their independence as Jennifer commented:

"I don't travel but I travel all the time with my brother and I suppose I rely on him and because I can't see, I mean like when I look at you now, I cannot see you there. I've got peripheral vision in this one, so, I find it difficult to see. Well I suppose the first thing you think of is I'm I gonna trip on anything, if there's a small ball or if it's uneven, you think you can easily fall...and you think when you are older, all these brick and when you go to the station, you cannot read any of the boards or anything. Now if I lost my husband which heaven forbid...he's a gem really…but if anything happen to him, I would try and get around on my own and I just have to go and ask somebody and say 'excuse me I'm registered blind, would you mind reading this for me? I would give it a try because I'm quite determined" [Jennifer].

Jennifer's comment suggested that although she received supportive care from her husband, she was enthusiastic about exploring ways to enhance her independence through internet use. Similarly, Larry often came into the cafe guided by his partner because he required assistance with mobility but he objected to being assisted to turn on/off his computer or correcting typos. He believed that being able to execute such tasks on the computer was central to his independence as a computer user. Many others believed that the only way to engage with broader society on a more technologically based level was by overcoming difficulties due to vision impairment that deterred them from accessing the internet.

Although many participants perceived internet use as a cultural activity more common in younger people, they believed that it is capable of portraying them as people with potential to overcome their fears. They wished to be connected online in order to be able to articulate issues regarding internet use and keep up to date with related contemporary issues in a technologically advancing society. Participants believed that in order to remain relevant and fully participate in current ICT oriented society, they should be technology users.

5.3 One-to-one and focus group interviews

This section presents a detailed account of the findings obtained from the in-depth one-to-one and focus group interviews. The findings highlight many concerns about internet access compared with other means of communication such as telephones and face-to-face. The findings also articulate how the absence of visual cues in CMC impacts on the perspectives of visually impaired older people and differentiate them from sighted users.

5.3.1 Regaining control

Being in control of interaction is central to having meaningful and effective communication. Affective expressions allow proper assessment of a speaker's emotional state and can facilitate the ability to make inferences based on reactions to what is being said. Lack of access to affective expressions could have implications for control of the complex processes in communication. However, participants described how internet use enabled them to manage such difficult situations, especially with emotional reactions to vision impairment and disclosure of the disability.

- *Control of emotion*

All participants described the onset and diagnosis of vision impairment as traumatic. Abigail said that her grieving period was spent alone. She looked up information about vision impairment online and signed up for online forums where forum members discussed coping with vision impairment. She further explained that the facelessness of the forums enabled her to control her emotions. She had to type everything and had sufficient time to read over what she had typed before sending it. Abigail said that the time afforded by the internet media to read over her text and reflect on her emotional state helped her to change the intensity of the emotional content of her text. She also described how she sent emails to her family when she was first diagnosed with vision impairment:

> *"I was depressed and I emailed only my sister very often. She gives me good support and tells me how things are. I didn't want to bother anybody or get them worried" [Abigail]*

Abigail was conscious of how she showed her emotions using texts. She believed that the lack of visual cues using the internet was a communicative advantage because she could edit her message in order to mask her anxiety. Hearing her grief in anger or mourning her loss of vision on the telephone or face-to-face might not only worry them, but could attract pity, which she did not want because it could make her more depressed. In addition, while the emotional trauma of vision loss initially made it difficult for her to socialise with others offline, the online world became a place to draw inspiration from others in the same situation:

> *"I joined a support group online, that way, I was able to email more people. Because I don't know them well, I could have a conversation and share ideas that that I've got" [Abigail]*

This echoes findings by Percival and Hanson (2005) which suggested that visually impaired people are sometimes reluctant to share the problems and difficulties they face with family members due to feelings of anxiety or because they do not want to burden them. Abigail found solace in discussing with "faceless others" online rather than discussing her problems and challenges with family. She felt more at ease in disclosing aspects of her private concerns, which she did not feel comfortable telling other family members (apart from her

sister) in order not to worry them. In addition, having the opportunity to interact with others in similar condition helped her to grasp the breadth of challenges that others were facing and how they coped with such challenges. Abigail believed that the facelessness of the internet forums enhanced a psychological feeling of security. This was because she could disclose her experiences of vision impairment without such disclosures being traced to her in real world, except if she desired. In addition, she said that the anonymity afforded by the media allowed others to give her their unbiased opinion without attaching sentiment or pity to their opinion.

Other participants believed that regular email exchanges between them and members of their families had strengthened their relationship:

> "*Since my mum died, I have been communicating with my dad through -mails. I think the relationship with my father has gone stronger" [Newton]*

> *"When I mean closer, I mean emotionally closer, not close in person because one lives in Oxford and they are all over the country but I think it has brought us closer keeping in-touch more by the email" [Jennifer]*

> *"Well, I will say it's got me closer because I lost contact with her father a lot of years and then she turned up on the doorstep one day and it seems we have been in contact like my daughter" [Amanda]*

Newton believed that the regular exchange of emails with his dad is a reflection of better quality of their communication. Jennifer and Amanda also regarded it as a way of sharing emotional support with others. Some participants believed that being able to interact with others who were sources of their emotional and instrumental support stimulated a feeling of accomplishment and fulfilment. It also made them feel that they were loved and cared for. Regina described this satisfaction and fulfilment as an invaluable source of reassurance. This was illustrated in her comment:

> "*We need to communicate in this world. That's the only way we are going to be fulfilled. Otherwise, you are just sitting there by yourself being a vegetable" [Regina]*

- *Control of privacy and self-disclosure*

Participants said that the lack of visual cues in online platforms allowed them to disclose their disability only when they felt it was necessary. However, participants were divided on whether disclosing disability online might trigger stigmatisation or not. While some participants were less concerned about the potential of such disclosures to cause stigmatisation, others argued that disclosing vision disability online could be potentially dangerous because it could make them easy targets for others with bad intentions. Fred talked about his reservations with self-disclosure in CMC:

> "*Well, I think…visually impaired people are a bit like children...in as much as they can be very vulnerable if they are not comfortable or if they do not really understand how the technology works...and really they could be inveigled into giving out their personal information to strangers" [Fred]*

> *"Well, and some old people are actually stupid you know. They surf. Some of these people get some of these telephones calls and the man says oh! well, we are doing kitchens in your area and there's so many we are giving you a discount so we need to come round and see. Now, some people will say yes with the discount on the kitchen and they don't know what the person is, whether he's doing a kitchen or not or whether he just wants to see the house and what the kids look like or whether really he's doing kitchens and he gets into the house, it might be difficult to get rid of him. Well, do you not know this, and I think that's dangerous as well. [Wendy]*

Wendy and Fred believed that visually impaired older people who were not proficient with internet use were vulnerable online, particularly if they disclosed that they were visually impaired. However, comments from many participants suggested that they had no reservations about disclosing their disability status as visually impaired individuals if it became necessary. For example, Oscar revealed that he disclosed his identity only when he wished to develop the relationship further or when discussing certain topics. In other words, although Oscar participated in online public forums, he did not disclose information about vision impairment if he felt that it was not necessary:

"It's amazing really, because some of them didn't realize that I'm blind. We discuss about Land Rovers. Although I can't drive anymore, but I participate in the discussions" [Oscar]

This suggested that one of the reasons for not disclosing information about vision impairment was that, theme-based discussions at the forums were not related to disability. Furthermore, Oscar reiterated that the facelessness of the forum created a unique platform for him to participate in the social world outside the barriers and limitations that could have hindered his participation in the physical world. Bowker and Tuffin (2003) suggest that this phenomenon may provide a means of dealing with the pain of living with disability. They argue that the lack of visual cues in computer mediated communication affords people with disabilities the opportunity to interact without necessarily exposing stigmatised identities. Spears *et al.* (2002) also describe this phenomenon as freedom from inequality and restriction of daily identities because, in online platforms, disability is masked, which makes it impossible to judge those with disabilities on the basis of impairment.

Other participants in this study affirmed that, when they disclosed their vision disability online, such disclosures did not affect their online interactions with others. They said that they were able to communicate as effectively as others in an online environments, and even better because the media operated independently of visual cues. In this way, they perceived the online platform as a sharp contrast to face-to-face setting where they were often permanently confronted with the disability identity and sometimes judged by the prejudice attached to disability. The absence of visual cues in the online environment offered visually impaired older people a higher degree of choice over when to engage in self-disclosure. Some of them believed that offline settings, to some extent, also offered visually impaired people such privileges because vision impairment is an invisible disability. However, others held a different opinion by stating that, in some instances, it predisposed them to being judged at first sight as blind people.

Visually impaired older people in this study expressed concern about their privacy and security when they socialise with strangers in online forums. Some participants said that they employed several safety measures to remain safe in online environments. Oscar believed that textual cues that were available in online forums were useful in protecting

himself against harm and deception by strangers with bad intentions. This was illustrated in the following comment:

> "*You try and analyse the way they write you, what they say when you are writing and I think you can pick it up from there and say...'I don't like this guy and I'll try and avoid him if I can' but if I like what they are saying and what they are writing, I'll say yes, I would like to meet this guy offline someday" [Oscar]*

By analysing textual cues, Oscar believed he was able to protect himself from making potentially harmful associations. He contrasted this ability to draw inferences from textual cues with the offline contexts where he was unable to make such assumptions using visual cues. In this way, Oscar believed that he was more equipped to occupy a safe and secure subject position in order to build meaningful relationships with well-meaning and trustworthy people.

5.3.2 Developing trustworthy relationships

Trust was perceived as being important for developing social relationships online. Many participants stated that, by maintaining regular contact with others online, they were not only able to maintain relationships they had with them, but were also able to sustain the trust they had for them. Keeping regular contact via email, especially when face-to-face visits were constrained by challenges of mobility, encouraged them to share their difficulties with others. Visually impaired older people in this study believed that maintaining trustworthy relationships was central to their social well-being. According to Oscar, it might not be easy to know whom to trust online, but he could develop trust for forum members who acted in accordance to the regulations guiding social conduct at the online forum:

> "*You have to trust people until you know them. There's only one or two things on the forum like – if you are nasty, the moderators will take you off [yeah], if you get too political, you'll be off...no racial comments are allowed on the forum and things like that and well, most of the people on the forum are not racial in anyway you know what I mean? In New York people who did Land Rover forums are like down to earth people" [Oscar]*

Oscar believed that members who respected the codes of conduct at the forum were worthy of trust because such members did not take undue advantage of the facelessness of the forums to bully others. His point suggested that people who made rude comments online were more likely to be untrustworthy people and, thus, he avoided them. From Oscar's comment, it was inferred that he avoided making friends with online forum members whose expressions or comments were made in a peculiar or chaotic fashion. He believed that such people were likely to have erratic behaviours that would have a negative impact on him. In this way, Oscar depended mainly on phrases used on the forums to form a personal, impression of others.

While it may be possible for sighted users to make additional assessments from online profile pictures of communicating partners, it is more difficult for visually impaired people because they cannot view pictures with assistive devices. This presents a challenge for them when socialising online. Participants re-iterated perceived communicative advantages they perceived in CMC. They believed it was easier to assess a stranger online than offline because they could not make judgments based on physical appearance. Some participants said that they preferred the online interaction platforms over offline interaction, especially when they were yet to meet the person face-to-face. Sharon's comment illustrated this phenomenon:

> *"Going on the internet is better because you can't see a stranger face-to-face, you are not sure who you are seeing or talking to it might be a visually impaired person you are talking to. If you doing it through the internet, you know you're getting it straight to the person you are talking to*" *[Sharon]*

Textual cues, such as phrases and sentence syntaxes in the online environment could be useful in compensating for the loss of visual cues in CMC (Picornell, 2013). This compensatory mechanism seemed to favour online communication over face-to-face interaction for this group. This was because visual cues (which are equivalents of textual cues offline) could not be accessed. Oscar believed that it was better to study and understand a new friend and his personality online before arranging a face-to-face meeting if there is mutual interest. This echoes Bargh and Mckenna's (2004) findings that meeting people online can be a good way to form new social relationships, especially those that are based on shared values and interests as opposed to visual appearance and attractiveness that

usually occur in the physical world. Empathy and altruism were often shared online with others in similar situations and also facilitated the development of trustworthy relationships.

- *Empathy*

Many visually impaired older people were empathetic to the difficulties and challenges experienced by others due to vision impairment. On online forums devoted to visually impaired people, participants sought other people's opinions about how they lived with vision impairment. They shared their challenges and strategies for coping with the condition. The willingness to share their challenges and seek ideas from one another, despite the anonymity of the media, seemed to foster trust between them, as suggested here:

> *There are a number of websites that are specifically devoted to visually impaired people. For instance, I regularly listen to something called Talking Computers which is a website which we share information as visually impaired people about the latest developments, technology, associated with visual impairment that's called 'Talking Computers', anyway, I wouldn't say they are friends but I've got contacts in this organisation, although I've never met them because they are based in Manchester" [Fred, Focus group discussion]*

Fred talked about building social contacts on forums where people share knowledge about advances in technology for visually impaired people. Although he did not describe them as friends, he believed that they could be friends if he desired to develop such relationships further. This was because he trusted them and often relied on them for information. A number of participants reported making new contacts through online forums. It enabled them to meet different people who shared similar interests. Oscar lived alone and was a regular member of a forum with members from different parts of the world. It brought together people who had a keen interest in car rallies. Driving at the rallies had been Oscar's hobby before he lost his vision. He met others who shared this same interest online. In this way, he was able to discuss his hobbies and make friends, as this quote shows:

> "*I use about four different forums. Most of them are Land Rover based and they give me connections to people who are interested in Land Rovers all over the world...not just England. I make friends on*

the forum. People I never knew. I wouldn't recognise them if I saw them" [Oscar]

Alfred also made new friends and developed satisfying relationships through different online platforms for visually impaired people and online genealogy research forums - which were his hobbies. His comments suggested that unlike the physical world, where it could be difficult to meet people who also share similar interests, theme-based discussions on internet forums for visually impaired people allowed him to connect with others in the same situation and articulate difficulties that were associated with his daily living, as he described:

> "*I'm always getting new contacts through the forums and there are many clever blokes who are visually impaired on the forum. We share ideas on anything we think may be difficult. Through it, I met a lady. She saw my name on the forum, because I was doing some research going backwards in my family to find out where my grandfather came from. But she saw my name and emailed me. I've emailed her back. She let me go into her family tree. We are friends now" [Alfred, Focus group discussion]*

This finding seems to suggest that having mutual interests is one of the most important criteria to build social relationships. Pelaprat and Brown (2012) suggest that such social relationships start from understanding collective interests which provides opportunities to discuss subjects that may be difficult to approach in the real world. Many online forums are platforms that can be used to reach out to large numbers of people and share information on how to cope with disability specific challenges that affect their daily lives. In this way, relationships are built online irrespective of geographic distance or physical attractiveness, rather they are based on shared mind-sets, values and interests.

- *Altruism*

The impact of the absence of visual cues when sharing information about coping strategies in online forums was perceived as central to the feeling of altruism. Participants' comments suggest that the anonymity of the internet meant that they were sharing coping tips with

others they did not know and may never meet face-to-face. The satisfaction of having helped someone unknown by sharing information from their experience gave them a notion that they were unselfish and had a virtuous regard for the welfare of others in similar adversity. Comments from some visually impaired older adults in this study suggested that this act of altruism impacted positively on their personal and psychological well-being, as the following comments showed:

> "*Because you are moving with people who are also suffering the same condition as you and some of them are not doing so much as well as me and then you feel compassion for them and then you also feel as if…at least, I can do much better than that so I feel as if I'm better so I can do something about it for other people to help them from their problem" [Regina]*

> *"In fact, it's something I would never had thought of doing if it hadn't been suggested to me and I thought I'll never do that…and of course I came to the classes and I think its wonderful because just as I say, you are socialising...it's one of those things, finding something out about others at the centre and doing something to help them" [Amanda]*

Regina believed that helping others who were suffering the same situation provided her with a real sense of perspective about the challenges of other visually impaired people and also enabled her to evaluate how she had coped with her own challenges. This enabled her to stop focusing on her weaknesses due to vision impairment, and to have a more positive outlook. Amanda said that she often felt challenged to reciprocate the (good) encouragement that she had received at the centre (NSBP). She believed that the socialisation process enabled participants to be aware of how others were coping with vision impairment and to explore ways of assisting one-another. This practice of kindness seemed to foster the development of trust, optimism and happiness. Some studies suggest that the benefits of altruism in later life is that it is associated with better life adjustment (Schwartz *et al*., 2003; Post, 2005) and higher levels of mental health (Fujiwara, 2007; Kahana *et al.*, 2013). Many other participants regarded the mutual sharing of emotional support as altruistic behaviours that combined not only compassion and benevolence but also fostered friendships and created opportunities to be part of an online social network.

- *Trust and self-disclosure*

Participants acknowledged the value of trust as the foundation for building social relationships. Many participants agreed that it was not always safe to engage in self-disclosure with strangers online and acknowledged that the absence of visual cues in the media could make deception easier. As pointed out earlier, some studies argue that the absence of visual cues in CMC affords plenty of opportunities to people with disabilities to mask it in order to protect themselves from potential stigmatisation (Spears *et al.*, 2002; Bowker & Tuffin, 2002; Bowker & Tuffin, 2003). While such studies imply that the internet is useful for masking disabilities, findings from the current study suggest that visually impaired older people regard self-disclosure as an opportunity to construct their identity and articulate their positive sense of self. Some participants regarded self-disclosure as an opportunity to reconstruct what constitutes normality to other forum members who were not disabled or had misconceptions about disabilities. For example, Oscar's comment below suggested that other forum members were impressed when they realised that he could use the internet despite vision impairment:

> Oscar: "*We met offline and...when they found out that I was blind, first of all, they couldn't believe it...you know, it was like they didn't want to believe it, then they became interested and wanted to know how a blind person could use the internet...Because... as you know...I live on my own [yeah] and I have no one at home. People come and see me everyday but they were more interested in that than they were in anything else at first"*
>
> Question: *How did you explain that to them?*
>
> Oscar: *"I try to explain to them that the computer actually reads it as well and for the first night, I took most of the night up actually because it was very difficult to get them to grasp what I was saying when I was telling them. By the weekend, just quite a few of them came across when we're leaving and said they actually thought on a second and said wow! We can't believe that you can't see... I've got a lot of confidence now as you know"*
>
> *[Focus group discussion]*

These findings reveal two important aspects of appropriation of self-disclosure by visually impaired older people. Firstly, it shows how visually impaired older people reconstruct popular stereotypes about vision impairment, and secondly it provides insight into how the concept of "flaming" (see page 43) is subjectively defined. In the first instance, because Oscar disclosed to forum members that he was visually impaired and explained to them how it was possible for a blind man to use the internet, many of them changed their erroneous beliefs that visually impaired people cannot use the internet skilfully. Oscar believed that he had challenged the perception of vision impairment and misconceptions about the abilities of visually impaired individuals. In this way, self-acceptance and self-disclosure of abilities became a product of a confident articulation of identity, which challenged stereotypes held by forum members about visually impaired older persons.

Oscar affirmed that because of the lack of visual cues in CMC, he was able to socialise with forum members in ways that left no clue that he was blind. In other words, the absence of visual cues online enabled him to assume an identity other than the one conferred on him by vision impairment. In this way, he was able to socialise with others beyond socially constructed obstacles against vision disability and establish a healthy rapport with them before disclosing that he was visually impaired. Through this approach, the problems associated with preconceived notions of disability were eliminated online. He presented his skill set and abilities in ways which stimulated others to be interested in developing relationships with him. By disclosing his disability when the need arose, he demonstrated acceptance of the situation which seemed to earn him greater trust and admiration from others.

Some participants had no reservations about engaging in self-disclosure in online environments, nor considered themselves vulnerable because they disclosed their disability online. They would not be risking anything if they decided to withhold information about vision impairment online since the media lacked visual cues, but being honest about themselves, they developed trusting relationships with others who were accepting of disability.

Participants determined whom to trust and whom to avoid by analysing how people reacted to them subsequent to self-disclosure of vision disability. According to Larry:

> "*Sometimes when you meet people and they see you've got vision impairment, they think you have a mental impairment as well. At*

other times, when you say you are blind, they tend to speak louder and they think that your reasoning is gone as well. You know, it annoys me. I feel it's not right" [Larry]

This suggested that some visually impaired older people might be averse to remarks which underrated their abilities while others simply regarded such remarks as an opportunity to change stereotypical misconceptions. Larry stated that such comments reflected the tendency of some sighted people to concentrate more on disability rather than abilities of disabled people. He believed that such questions were offensive, rude, unacceptable, and capable of alienating visually impaired people. While Larry interpreted comments which denigrate the ability of visually impaired people as offensive and unfriendly, Oscar regarded such comments as a mere expression of unawareness about the abilities of visually impaired persons.

5.3.3 Ease of communication and socialisation

Email was regarded as useful, particularly in the light of decreased mobility and geographic barriers. Many participants had children and grandchildren who live abroad, which limited the possibilities for face-to-face contact. Emails presented an easy alternative means of keeping in touch. The following quotes illustrated this:

"Well, I just like to...I think the older you get, the...you're likely to...I mean when you are younger, you don't bother so much, but when you are younger...you think goosh…I suppose you think I'm not here for that much longer. I would like to contact people I used to know and see how they are and get to know how life is going and everything. I think it's good because it helps you when you are older especially and you are in touch with people it's much better rather than sat on your own…I've got my husband but no, I think it's good to keep in touch with people." [Jennifer]

"*Emails have been very good for me because my relations live far apart. My brother lives in Birmingham, my sister lives in London, my father lives in Helsinki and my elder brother lives in Estonia...so my communication is mainly by emails" [Newton]*

During the interviews, many visually impaired older adults said that they preferred using emails over telephone conversations because their vision impairment made it difficult for them to use telephones. The reason often stated was that it was difficult to see the numbers inscribed on the buttons and the name of the caller on the screen. Thelma, who was the Chairperson of a voluntary group, communicated with members of her voluntary group through email. Thelma said that sending group mails to all members saved her the effort of phoning them individually. Emails allowed her to contact people within a relatively short time and, at the same time, to quickly switch between individual group members. She acknowledged that when a phone call is not answered, a message could be left which often prompted the person to return the call. However, she also maintained that such "missed calls" could be returned at an inconvenient time. Thelma regarded this "phone tag" process as awkward because she believed that it was usually difficult for visually impaired people to dial numbers which were often not legible for them. Oscar's and Harold's comments below supported Thelma's viewpoint:

> *"Email is easier than the telephone because if they are not there, they don't have an answer phone, they wouldn't know. Again, visually impaired and blind people usually find telephones difficult to dial a number. I've got one with 5-one push buttons but there's even a problem because I can't sometimes remember who is on what button" [Oscar]*

> *"Well, because I am blind, it's of enormous benefit probably more benefit to me than it would be to sighted people (I don't know)...but I would hate if I have to do without it. Well, it's opened a door really, because [can you share experiences well, yeah! Because without emails, I would never have been in touch with all these people. Like I said I have about 20 address on there…I wouldn't have been able to really…no I wouldn't…so it really opened the door ways" [Harold]*

Due to this, many participants reaffirmed their preference for email irrespective of geographical distance. Some participants also noted that they preferred the internet to watching TV because they found the experience more socially fulfilling. Fred talked about this:

> "*If it came to a choice between keeping the computer going with the internet connection or keeping the TV going, if it was my choice, I'll dump TV and keep my computer. I wouldn't do without internet connection" [Fred]*

Fred and many other participants shared this preference because they argued that watching TV is a solitary activity which does not involve social interaction. They were of the opinion that their virtual social life would be more exciting than any experience away from the internet. They also argued that watching TV was more visually taxing than using the internet. For some participants who did not develop relationships on forums, it was nevertheless a platform to nurture feelings of being connected with people by regular interaction. The influence of online social relationships and how they impact on participants' offline social engagements is an issue explored further and explained later in the course of this chapter.

A fair proportion of participants stated that they were not keen on making new friends as illustrated in the following quotes:

> "*I don't want to make new friends. I'm not interested in meeting more people" [Angela]*

> "*I would say I have acquaintances. I wouldn't call them friends because I'm not a very friendly person (chuckles)" [Thelma]*

One of the participants, Alice, believed that her vision impairment made it difficult for her to develop friendships with others in the classes:

> *"Well, I have not made many friends here really because I am working at the computer most of the time and having a coffee break and you are there with other students and then you are sort of interspersed between so I couldn't really see other students." [Alice]*

In trying to explore potential avenues through which participants could build and maintain social relationships, participants' comments suggested that applications that mainly support socialisation, such as social networking sites, did not meet their expectations and visual

demands. Internet social media were mainly considered as not being user friendly. In essence, although a few participants were aware of the existence of a number of social network sites such as Facebook and Twitter, the difficulty with using them presented many barriers to their ability to socialise online. Thus, while communication on online platforms was sometimes easier, it nevertheless presented challenges for this group.

For some visually impaired older people, the ease and advantage of internet use seemed to outweigh the difficulties and disadvantages. Some participants pointed out that when socialising offline, being aware of the social presence of other people could be difficult for visually impaired people, particularly if such people do not signal their presence. Participants noted that this sometimes made socialisation difficult for them because they could not initiate a conversation without being aware of the presence of the other person unless they spoke first. Fred commented about this:

> "*People who are blind are at a disadvantage in face-to-face social groups. If there's a group of people sitting around, and they are chatting away, who are they actually chatting to? And if you've got no eye contact, and you don't know, it's another mystery call...isn't it? That's why I sometimes don't feel comfortable sitting with groups who don't understand you are visually impaired" [Fred]*

Fred's comment illustrated the point that it was sometimes difficult for a visually impaired person to join a conversation offline because they may not be aware of the non-verbal cues that signalled an opportunity to speak. His comments suggested that such constraints were among the many difficulties faced by visually impaired people offline which might sometimes make them feel more at ease socialising online. Fred argued that many aspects of communication in face-to-face environments could be overwhelming due to difficulties in filtering voices when there were side conversations. His argument contrasts the experience of face-to-face contact to that in the online environment because such distractions were eliminated online, irrespective of the number of communicators that might be chatting simultaneously. Apart from the fact that extraneous noises were cut off online, all users assumed that there was always someone (a receiver) at the other end of the communication channel who would respond after receiving a message. Fred said that he felt "*more relaxed"* in online communication because there was no anticipation of an announcement of a social presence which was often neglected by sighted people who may

not know that a visually impaired person among was them, and that such information was vital. Similarly, Oscar's comment illustrated how this made him feel less isolated:

> "*It means I'm not lonely. It means ...even if ...I'm there at home alone. Nothing about… and I've got it, all I've got to do is get on to the forum, and there'll be somebody on there something that I can pick up…a thread anytime – that I can send a message to and they'll send a message back to me back and it sums up a vista, a world that's hard to believe that that exists*'' *[Oscar]*

By saying that he "*could pick up a thread anytime*", Oscar's comment suggested that the loss of control in face-to-face settings over conversational aspects, such as taking turns to speak in group interaction, was eliminated online. The phrase suggested that he could start a conversation with ease whenever he chose to do so. This contrasts to face-to-face contexts where initiating interaction might be difficult. He believed that there was always another user online who would respond to his chat message. In this way, Oscar said that internet use helped him fight the feeling of loneliness because he interpreted the synchronised forum chat as the social presence of others. It seemed to foster a subconscious awareness of the social presence of others, albeit psychologically. The forums also afforded him opportunities to develop social relationships with people from different parts of the world. His comments reflected the potential of the internet to foster connections with others from diverse ethnic or social backgrounds. Oscar regarded his ability to form such social connections as a social process that could overcome the physical barriers posed by vision impairment in the physical world. He commented:

> *"I'm very confident now. Most of my friends now, are people I knew through sports I used to do years ago and they are not easy to contact normally and email is the easiest way for me to do it. It's an interesting life. If I don't have something like that outside the norm of things, I'll be completely lost. When you are blind, people are very sympathetic. They think they've got to look after you and they can go extremes to look after you too much. I don't want it. I've been well trained. I've had a trainer who teaches me how I got on about on my own all over the place by bus and cross so many busy roads, without any help of anybody. I'm completely independent and that gives me a big boost – and I get same sort of thing from the forum" [Oscar, Focus group discussion]*

Oscar described the kind of confidence and satisfaction he gained by using forums as similar to the independence that he successfully gained by being able to perform activities of daily living without help. The extent to which he valued his ability to socialise was reflected and emphasised in the phrase – "*I'll be completely lost*". This suggested that, without the internet, he would be less able to achieve satisfaction socialising with others and be incapacitated by the challenges of vision impairment. In other words, he was able to surmount the challenges of being blind and live a confident life by compensating for the losses of vision impairment through this means. Another participant, Sharon, also shared the same belief. However, she made it clear that she was not suggesting that she preferred online communication to face-to-face interaction but that it could be a useful means of establishing face-to-face contacts.

Internet use facilitated social connectedness for visually impaired older people in this study by keeping them in touch with both old and new contacts in their social networks. As members of online forums and other social groups, some participants were involved in organised social events offline. It afforded many visually impaired older adults opportunities to socialise with others offline. Oscar, a totally blind participant believed that the offline social events organised by the online forum members afforded him greater privileges meet and interact with people in the physical world. He said:

> "*Members organize tours online and schedule real life meetings or rallies at camp sites and tourist locations. The events are mainly organized to enable members to have fun, meet face-to-face and engage in some sorts of adventure. We go to the Scottish forest drives or Lake District. Sometimes, we organize them abroad as in Switzerland; there has been a couple in Russia, United States. I have attended many in South-Africa" [Oscar]*

Similarly, many participants were members of one or more voluntary social organisations of interest to them. They interacted frequently with members of their social groups and shared information about meeting time and venue via emails. The potential for more offline social engagement and participation in such events was enhanced because email correspondences among members facilitated dissemination of information on schedules of face-to-face social meetings as the following quotes illustrate:

> "*Oh yes! I've got lots of social events. I've got emails. I do email plans for work coming up for next year. It helps me keep in contact with people and social events in a voluntary organization which I'm a member. I can't afford to go anywhere without others. May be there's a cancellation of event, you know they'll email and say 'don't come tomorrow...somebody's ill...or you know" [Larry]*

> "*A lot of the emails are from people here at the NSBP. They are also from Northumberland County blind. I am a member of both organizations. So they are telling me about meetings, about things that are happening" [Vivian]*

Vivian also explained how using emails helped her to organise social group meetings:

> "*I'm chairing the reading group for visually impaired people at the local library so obviously, I email people about the meeting what book we are going to listen to next...so I'll be emailing people about things like that because I can't use the telephone to call everybody" [Vivian]*

In this way, participants' comments suggested that internet use enhanced offline interpersonal contact and participation in face-to-face social events. For many participants, taking part in such social activities was a way of feeling socially connected. Such feelings enhanced their capacity to develop more supporting relationships. Their comments suggested that by socialising in this manner, they were able to expand their social networks:

> "*It helps to keep in contact with the existing circle itself. It's a growing circle itself because we've not just had our own group, we go keep in touch with groups in Benwick. We go trips in Gateshead and Tyneside groups, yes, Teeside, Waleside, Durham, Chesterle street, all up at Forest. So, I met quite a few people there and I've got a few more email addresses and I keep them. Occasionally, if I suddenly have interest, I'll send them email" [Larry, Focus group discussion]*

> "*I was married for 57 years. My wife died in 2006. And I was left on my own...and I was absolutely lost to be honest and I get all sorts of hope from here and St. Dunstans and MEA house has helped but the biggest help is being able to contact people"[Oscar]*

These quotes suggested that participants experienced changes in their level of social connectedness because they explored the opportunities provided by the internet to form and develop new social ties which they often extended to physical world. Building and maintaining online social ties can shape relationships in the physical world and vice versa (Xie, 2008). In the current study, offline contacts among participants were often added to their online contacts when they socialised offline by exchanging email addresses. Similarly, online contacts with friends met at the forums were also extended offline when they deemed it fit.

Visually impaired older people in this study made new friends mainly through online forums and through internet classes. Emails were not useful for making new friends; rather, they were used to maintain social ties with already established offline relationships. According to participants, email did not substitute face-to-face conversations. Participants whose families lived faraway said that one of the reasons for emailing was to enable them feel less detached from their families:

> *"The emails make me feel very good, I always feel they are so near to me. It makes them feel closer to me" [Angela]*

Some participants were interested in learning more about diaries. They wrote their autobiographies using Word documents and saved them as personal diaries. Many of them also shared their diaries with friends before or after the hands on sessions. Participants reported that they would not share such personal information with strangers. Giving personal information to unfamiliar people was regarded as dangerous. This echoes Pfeil, Panayiotis, & Wilson (2009) and Gibson *et al.* (2010) findings that older people are often reluctant to share personal information. In an ethnographical study of teens engaged with a social network site, Boyd (2008) observed that although participants had concerns for privacy and security, they took an open attitude to such concerns. Visually impaired older people's unwillingness to share private information

was related to their conceptions about social media. Thelma's comment illustrated this point:

> "*Facebook as well, you don't know who else is reading your mail…and that's another thing. I don't want to say something to you and half of Newcastle will be able to pick up these things...'oh yes Thelma said such and such thing...you know" [Thelma, Focus group discussion]*

However, participants did not object to sharing their diaries with friends at the NSBP centre. Sharing their experience and learning from others on issues related to their interests was regarded as an opportunity for socialisation.

- *Communicating without ambiguity*

The text-based media of the internet enabled participants to communicate more effectively with others, without confusion caused by the inability to see facial expressions. Participants who socialised on online forums said that they were able to communicate with different people across geographic boundaries and cultural backgrounds. According to Oscar and Alfred:

> "*Emails are quite good, I find…emails more personal like between family and very close friends, but in forums it's the entire world! Anywhere in the world...Australia, Africa, or European Countries, America and all the different...the forums are different, some forums are just like a club [yeah] like the local clubs here…Scottish clubs, Irish clubs. You can make friends all over the world on the forums" [Oscar]*

> *"I have friends from South Africa and America, and we communicate very often. The Guide program does not have an American accent that I sometimes find difficult to understand" [Alfred]*

Alfred's comment suggested that communication in an online environment is different from offline, because in face-to-face environments, communicators might be disconcerted by

accents. Despite different cultural backgrounds, Alfred believed that forum members found a common point of reference to overcome differences on which to base their social interaction. In this context, his point emphasised that it could be more difficult for a visually impaired person to communicate with others who have a strong foreign accent in face-to-face contexts because of an inability to lip read.

The use of texts in CMC made it difficult to hear the tone of voice or observe non-verbal behaviour. However, the tone of message could be read from texts. In this way, users could deduce the mood of the sender based on their own interpretation and assumptions of the texts. Lack of access to non-verbal cues in the face-to-face setting, could make it more difficult for visually impaired individuals to make assumptions about what was said, especially if an accent that they were unaccustomed to obscured comprehension of what was said. This explains part of the reasons for Alfred's complaints about not understanding strong accents in face-to-face settings. The tendency to leave out chunks of information which might be necessary for him to understand what was being said and respond appropriately is reduced in online contexts because the influence of accent is eliminated online.

Communicating with people from different backgrounds often entails dynamic processes, which include the ability to orient one's behaviour appropriately (Prince & Hoppe, 2004). Some of such adjustments may include using social cues available for expression and using appropriate body language. Alfred's comment suggested that online platforms do not demand such complex social cues. However, he was not arguing that visually impaired people do not have the ability to make such adjustments in face-to-face contexts, but that communicating through textual media eradicated the need to make adjustments in response to body language and visual cues.

Verbal cues such as tone of voice in face-to-face interaction may reveal intention and motives of a communicating partner, and also provide information about when and how to respond (Thompson, 2001). Some participants said that they often misinterpreted what was said in face-to-face interaction because they were visually impaired. Sharon's comment illustrates this point:

> *"When you are in a room and then there's a lot of people there...people that you may know…it looks as if you lose your communication skills...although you can hear tone, you can't see*

> *people's expressions on their faces and sometimes, you don't know whether what is said is a friendly comment or a hostile comment. You don't know whether they might be saying something that to them it's a joke or they are saying it sternly because you can't see the smile or their facial expression. May be they are not very happy. It makes you become a bit more isolated towards everyone else. So it can be quite depressing because you start to feel that you'll be withdrawn from the world a little." [Sharon]*

Sharon acknowledged that the inability to see facial expressions could lead visually impaired individuals to draw the wrong inference or make the wrong interpretation about what is said. She further explained that such difficulties could lead to social withdrawal. In contrast to face-to-face settings, all users online are consciously aware of the absence of visual cues, and thus they endeavour to make information as explicit and comprehensible as possible so that it is less likely to be misinterpreted. In this way, participants articulated their perspectives about the reduced likelihood of misinterpreting what was said in online environments because it does not rely on visual cues. Because such complexities could make the communication of feedback difficult for a visually impaired person, Sharon believed that it could lead sighted communication-partners to think that the visually impaired person did not have a sense of humour.

Other participants said that using the internet had enabled them communicate effectively with others who had different forms of disability:

> "*When my daughter books the train, she knows exactly what time it leaves Newcastle and the time it arrives at the train station. She makes sure there's somebody there at the station to meet me. She's profoundly deaf. She can't use the telephone. So she sends me an email to let me know about the arrangement and meets me at the station to get me" [Angela]*

Angela's comment confirmed the relevance of email, particularly how it fits into the lives of two communicating partners with different forms of disability.

- *Forming an impression of others*

Non-verbal behaviours and facial expressions often augment the content of face-to-face interaction and help to form an impression of others. However, participants stated that non-verbal cues were more likely to elude them in face-to-face environments and make judgments about the social behaviour of others difficult. Schlenker & Pontari (2000) argue that during the initial processes of developing a new relationship, the impression people create about themselves is important because it provides information needed to decide whether or not to pursue the relationship. Some studies argue that the need to present one's true self to others is often associated with a desire to highlight one's positive attributes (Joinson, 2001; Ellison, Heino, & Gibbs, 2006). In this study, some of the visually impaired older people reported that forming an impression of others without visual cues was easier in CMC than in face-to-face. Unlike visually impaired users, sighted people often use remaining visual cues in CMC, such as photos, to form an impression of others (Toma, 2010). However, because assistive devices for visually impaired older people cannot process photos, participants relied only on textual cues to make inferences about social characteristics or the identity of others. One of the vital social skills to decipher whether one has had an encounter with someone before and if so whether they are friend or foe, is being able to recognise faces. Although many people have trouble recognising faces, it is more common for visually impaired people. Many participants described such difficulty as the major cause of feeling isolated and a motivation for internet use in seeking information. As cited earlier, Sharon commented:

> "*Going on the internet is better because if you can't see a stranger face-to-face, you are not sure who you are seeing or talking to it might be a visually impaired person you are talking to. If you doing it through the internet, you know you're getting it straight to the person you are talking to*" *[Sharon]*

Sharon explained that the inability to recognise faces could make visually impaired people reluctant to initiate interaction with someone whose identity was uncertain. On many occasions, the consequence of such reluctance is that the visually impaired person may be perceived as unfriendly, aloof or deliberately avoiding contact. Sharon's comment further suggested that such challenges motivated her to explore other ways of maintaining social contacts, such as emails.

Opportunities for social interaction can be reduced due to an inability to respond to gestures from the facial expression of others (Anne, 2008). This was reflected in Thelma's comment when she said:

> *"Sometimes you meet someone, have an interesting conversation with the person, and then not recognise that person when you meet again. Email is different. It doesn't happen" [Thelma]*

Thelma highlighted the contrast between email and face-to-face contact from the perspective of a visually impaired user. She contrasted this difficulty to the relative ease experienced online with emails. Similarly, Doris and Harold argued that email addresses and message content facilitated instant recognition and identification of the sender and mailing lists readily helped them to identify the receiver:

> *"The first thing I did when I came here was to put all my addresses on to a disc, and then eventually went on to a hard drive and then I was told I can put all the email addresses into the address book, so I put them in there, so, if I want to send an email, I just go to the address book, get the address I want and send it. So, that's not the problem, so there's no chance of me making a mistake when I type the addresses" [Doris]*

> *"You see...in this system where you share Guide, [Ok] there's a part where you can have your own book or Diary…or whatever you want to call it, where you can put the name and the e-mail address in and every time you want it, you just go down to that address and press the button and it's on your book…it's on your face, ready for the rest of it" [Harold]*

Oscar said that the lack of visual cues and anonymity afforded by online forums enabled members to construct an identity via pseudonyms:

> *"We socialise on the forum and I know everybody, but when we meet offline, I say the same to everybody - I say it like…if you are going to speak to me, please say my name first and then I know you're are speaking to me, you know...When somebody is speaking, I don't know who he is speaking to even if he's as close as you are now" [Oscar]*

The pseudonyms used on forums were exclusive to each member and enabled Oscar to recognise forum members without ambiguity. However, in offline contexts, he was often unable to recognise people unless they introduced themselves before speaking. In other words, recognising acquaintances was easier for Oscar in a text based medium than it was in face-to-face contexts. The facelessness of the media eliminated the stress of struggling to recognise faces, and enabled Oscar to socialise without the constraints of visual cues.

5.3.4 Barriers to socialisation online

The previous section described the context of internet use for building and maintaining social ties among older adults with vision impairment. This section will discuss the barriers to online socialisation as reported by participants. The importance of understanding the barriers to online socialisation among visually impaired older people is highlighted in this section in order to understand the factors which also mediate the digital divide. Although many participants expressed their desire to use the internet in building and maintaining social ties, some of them felt that they were not using it as much as they would want due these barriers.

- *Complex internet interface designs*

Although there are guidelines stipulated by the worldwide web consortium on how to make websites accessible to people with disabilities, participants' comments suggest that the web pages of many social media still remain difficult to access for visually impaired older adults. Participants' responses indicated that web lay-outs presented a major barrier to their ability to catch up with the younger population of internet users. It is, therefore, not necessarily disinterest or lack of awareness. Distractions on web-pages were also criticised by many participants:

> "*Internet pages should be made clearer. They've got advertisements everywhere. Many visually impaired older people can't use some websites because they've got too much, too busy for visually impaired people because it makes it confusing for us. It's just too fussy" [Sharon]*

> "*You are bound to go from A to B for some things and then see that you'd go to something else...in fact, sooner or later, you think what was I looking for in the first place because there are lots of things on the way...I just get completely useless...I don't know"[Thelma, Focus group discussion]*

This suggested that the increase in the use of social network sites (SNSs) for socialisation (Madden, 2010) may not be applicable to this group. Some participants believed that, because they did not grow up in a technological era, it was difficult to learn how to use computers, particularly with visual impairment. This point was emphasised in Newton's comment when he said "*I worked in a non-electronic age but seeing what is happening now, it's quite frightening at times as well as the innovations"*. Alfred and Sharon also complained about the website lay-out of Facebook. They felt that the lay-out was usually confusing because the fonts were not tailored to support usability by visually impaired people:

> "*I can't do Facebook, I can't do Twitter because I can't read their screens. If you can't read the screen on Facebook, you don't know where to go" [Alfred]*

> "*I tried using Facebook but I can't. I can bring the screen up and make the font as big as possible but it's still difficult to see. There are little things everywhere. I miss the things going on because it's not visible. Sideways you've got all those advertisements" [Sharon]*

This means that many participants considered some interface designs as not being fair to visually impaired people and criticised them as not being "inclusive designs" because they had not been duly considered. One of the participants believed that the lay-out of SNSs often discouraged visually impaired people from socialising online and that the colour schemes did not consider people with colour blindness, as illustrated in this quote:

> "*They don't use the right colours for people who are partially sighted. I feel very sorry for people who have colour blindness. The sites must be horrendous for them to use. You know when you've got sight impairment, you can't see, there's a lot of colours you've got*

to lose. If the backgrounds are on colours, you can't see the writings at all" [Samantha]

Lack of interest was the commonest reason given by the rest of the participants, who were aware of social network sites but didn't use them, as illustrated in the following quote:

"*I know about Facebook and tweeting, but a lot of it just seems like a waste of time. I'm sure it's suitable for a lot of people to actually expand their friendship base but at the moment, I have more than enough to cope with" [Vivian]*

- *Cost of assistive devices.*

The cost of assistive devices as a barrier to internet access was a recurrent issue in participants' comments. Many studies in the past have highlighted this particular factor as contributing significantly to the disability divide (Hollier, 2007; Williamson *et al*., 2001). Participants, however, voiced concerns that they were not advocating for better pricing in their favour but for an affordable price that would enhance equality of access, as these three quotes show:

"I think there needs to be a good look at where equipment and assistive devices can be purchased at a lot more affordable prices for visually impaired people. The costs are outrageous!'' [Newton]

"*Everything is expensive...but if they make it accessible to everyone ,all that equipment as standard, hopefully, the demand will be so high that the prices will come down and it will benefit visually impaired people" [Vivian]*

"Well, it's expensive...it's just like everything else for blind people...it's terribly expensive...but we could afford that really…I mean my husband says anything that will help you and your eye sight, it's good" [Alice, Focus group discussion]

The issue of cost thus remains a recurring barrier for people with disabilities. It is apparent that many participants believed that having a universal design could be a strategic approach, integrating people with disability and also reducing the price. They suggested that if the same design were made for everyone, manufacturers could effectively manage the cost of production and control the prices of specialist devices for people with vision impairment.

- *Learning process and training*

There were also concerns about skill acquisition for the use of assistive devices. Although training and support can help older people overcome some of their anxieties, build skills and develop their confidence using the computer, others perceived it as tedious. In their opinion, the actual difficulty is not only due to vision impairment, but to ageing as well. Kimberly felt that, as a visually impaired older person, learning to use the computer had been one of the most challenging tasks for her to overcome because she was not brought up with computers:

> "*If you are visually impaired and a bit older, you haven't been brought up with computers, - I think it's like climbing the heavenly hills to me [chuckles]...Although I am desperate to learn, I think it's a struggle. I leave here on Tuesdays utterly exhausted" [Kimberly, Focus group discussion]*

Some participants believed that website complexity also contributed to the difficulties of internet use by visually impaired older people. Their comments suggested that despite the use of assistive devices, learning to use the computer might be difficult for some visually impaired older people – particularly if they had other sensory challenges such as hearing impairment:

> "*It's not just that …it's also difficult to learn, the buttons, the number of times you have to press the buttons and listen to audio instructions to get to the place you want to get to so, it's the design of the web pages themselves. Even though there is something called accessibility options, it still doesn't make life easy for the person without sight to learn how to navigate" [Kevin]*

> *"People haven't got a lot of visually impaired people haven't got access to the internet and can't access online things because they can't see them and haven't got the technology…well…or are not being able to learn computer because it's not easy or they could have other physical problems along with vision impairment to use computer" [Newton]*

Kevin's and Newton's comments above seemed to emphasise a need for adequate training in order to enhance potential benefits of internet for older people with vision impairment. Inadequate training, which poorly considers other physical or sensory problems, could hinder equitable internet access to the blind and partially sighted people. The next section describes how participants' experiences of internet use helped them to feel socially integrated.

5.3.5 Compensating for vision impairment

Visually impaired older adults seemed to adopt CMC to cope with vision impairment. Many participants described how they optimised the internet to compensate for difficulties associated with sight impairment. Such difficulties included their inability to read or write. Other participants said that they successfully used the internet to compensate for relinquished hobbies.

As discussed in chapter two, vision impairment can potentially lead to a reduction in ability to perform many tasks of daily living that require normal vision. These include hand-eye coordination, which is vital for writing. Many visually impaired people need writing guides to organise their writing to a straight line. From the participants' views, writing guides were not sufficient to make writing easier. Keeping social contacts through hand written mail was perceived as nearly impossible without vision. In addition to poor handwriting and the inability to see what they were writing, they also cited many other difficulties such as the inability to go to the post office due to limited mobility. Kimberly complained about having bad handwriting, and cited this shortcoming as her primary motivation for learning to use emails:

> "*I need a computer now because my handwriting is bad" [Kimberly, Focus group discussion]*

Kimberly said that she had once written seven pages with a pen without ink because she could not see there was no ink in the pen. Her story illustrates the usefulness of the computer and emailing as a compensatory tool in adaptation to vision impairment. To read mail, participants made use of the text-to-speech software installed on their computers or used the scanners and input written texts on their computers. Amanda believed that computer and internet use for emailing could be optimised in a way that hand-written texts cannot be used:

> *"Well, I can't see and I can't write. It's much easier for me to email and but to get it back, I have to bring it on a large computer. It's a big help" [Amanda, Focus group discussion]*

- *Compensating for relinquished hobby*

Many participants gave up on some activities they enjoyed doing as a hobby because of vision impairment. Previous studies suggest that relinquishing valued activities is associated with increased risk of cognitive decline and depression in older adults with vision impairment (Casten & Rovner, 2006; Rovner *et al.,* 2009). Loss of activities of interest can create frustration, feelings of uselessness and sadness due to loss of control in one's life and the inability to participate in social activities (Crews & Campbell, 2004). Such feelings of emotional distress can trigger depression (Horowitz *et al.,* 2003; Margrain *et al.,* 2012). Findings in this study suggest that many participants were able to successfully find a substitute for lost hobbies in computer use or adjust to such losses via internet use. This is illustrated in Rosaline's comment:

> "*Using the computer is now one of my main leisure activities because I used to do a lot of knitting and sewing and reading and things like that. Well...I can't anymore. I have talking books and I have got a CCTV reader but I have to give up most of my hobbies. I can't do gardening anymore. I used to spend a lot of time in the garden but I'm getting restricted now to talking books and the computer. So it's really becoming a bigger part of my life" [Rosaline]*

While many participants gave up their hobbies or found a new hobby in internet use, others simply sustained their interest by engaging in related discussions online. As mentioned earlier, Oscar used to go on rallies as a sighted person. However, after his vision loss, he chose to socialise online with forum members who shared his interests and also met them offline because he did not want to give up the hobby completely. Although he was no longer able to drive, he enjoyed the company (online forums and offline meetings) and discussions with internet forum members who shared the same interest. According to many participants, using the internet brought them a new lease of life:

> *"As a visually impaired person, using the computer was brilliant for me. I first learnt how to touch type. It was brilliant and it opened up a whole new world to me; emailing and typing letters and memos and everything" [Vivian]*

> "*I suppose using the internet, you get into the bigger world where a lot of people who are visually impaired are stuck in the house so if you've got a computer, it does open a whole new world to you" [Abigail]*

Furthermore, vision impairment and age related frailty can often lead to increased dependence on others. While many online social communities may not have the capacity to grant instrumental support (Jaeger, 2009), participants usually emailed their children, friends or other family members whenever they needed support. Many participants had physical difficulties with mobility. To cope in such situations, they usually emailed family or friends to give prior notice of their arrival when visiting them, and make arrangements to be picked up. Oscar, who lived in Newcastle but often visited his daughter, explained how he received support with travelling:

> "*Whenever I want to travel, I book my flight online. I book the train ride all the time and when I got those, I just email my daughter and tell her what the times are and what time I'll be arriving so they'll come get me." [Oscar]*

For many participants, such as Wendy, online socialisation and friendship formation at the IT classes helped to promote exchange of support with others in the same situation:

> *"We socialize, have a cup of tea, talk to each other, listen to each other and that's about it. Everybody has a friend here" [Wendy]*

Oscar, who lived alone and was a regular member of many online forums said: "*The contacts keep you going especially in my case because I'm alone. I live on my own. It's not easy for me to see somebody"*. Angela described how she travelled to spend time with her daughter when she felt isolated:

> "*When my daughter books the train, she knows exactly what time it leaves Newcastle and the time it arrives at Birmingham. She makes sure there's somebody there at the station to meet me. She's profoundly deaf. She can't use the telephone. So she sends me an email to let me know about the arrangement and meets me at the station to get me" [Angela]*

Email was therefore a useful tool, which fitted into the lives of the two communicating partners with different forms of disability. For many participants, the computer classes were the only opportunity to get out and about with others and feel less isolated. They talked about how socialising at the computer classes has not only helped them to fight the feeling of isolation but has also contributed to their perceived social well-being through mutual support. Rosaline, who lived alone, said she found socialising this way particularly helpful. Many other participants who lived alone said their ability to get information independently would be limited without the internet. Regina explained that, although she gained information support from family and friends, the internet also helped her to search the information first, before confirming the accuracy of such information with her son:

> "*I email my son to get important information about important things such as information about my finances or anything like that or some address of whatever, the bank or some concerns...or if I hear something on the radio, or some suggestions they say in the morning programme or something else, and then I don't just do with that information unless I ask him" [Regina]*

This shows how her internet use was intertwined with her desire to keep in contact with her son whom she was rarely able to visit because of reduced mobility. Participants often exchanged practical support at the internet classes and they attached great value to the support that they exchanged with other visually impaired people because they believed they could relate better to one another's needs from personal experiences.

- *Emotional Support and Fighting Depression*

Vision loss is often cited as a leading cause of depression among older adults (Tolman *et al.*, 2005; Rees *et al*., 2010) and is associated with anxiety and negative emotional responses (Horowitz, Reinhardt, & Kennedy, 2005; Hayman *et al.*, 2007; Rees *et al.*, 2011). Some participants made remarks about feeling depressed. Sharon, for example, described how depressed she felt when her doctors told her that she was going blind:

> "*I was told that as I get older, my sight will be getting worse. I'm scared I'm going to lose more sight. It's very upsetting and very depressing" [Sharon]*

Rosaline however, described how she coped by browsing the internet to keep busy and taking her mind off worries:

> "*When I'm having such panic attacks or depression...the best thing to do is to get something to do and very often, one of the things I get to do is booting up the computer and finding something to do from there which takes your mind off the problem and you are concentrating and by the time you've been up for a little while, you feel all-right again. So, using the computer is really becoming a bigger part of my life" [Rosaline]*

Many participants searched for information online to allay their worries. For example, participants made enquiries about vision-specific issues they needed information about on internet forums and also gathered information from family and friends using email. Participants mentioned that such information included how to cope with the difficulties they faced in daily living. In many such cases, how to access devices to help cope with daily living, such as talking clocks and alarms, were shared:

> "*I put a question on the forum and anyone on the forum can read it and put an answer there. If I get an answer, I get an e-mail telling me there's an answer and then I go into the forum to look at it and find it" [Oscar, Focus group discussion]*

Often, information was sought from family and friends about social welfare and finance concerns. For many participants, the ability to search for such information online significantly boosted their sense of independence. This bolstered their confidence and self-esteem, as the following quote suggests:

> "*Well say like I suppose now if I wasn't here, I would be in the house most of the time vegetating without working but if I'm gone to the computer and I can look in, I find so many different websites I'm looking into now to answer questions for me. If I have got a particular question I want to be answered, I could go on the computer and find it. Then I don't have to depend on other people...so it makes my life to be a bit more independent instead of being dependent on other people" [Abigail]*

Many visually impaired older people in the current study seemed to be aware that not all information obtained online was to be trusted. To ascertain the quality of such information, they often presented it to peers and tutors when they met offline at the internet classes. In addition, information about strategies to cope with vision loss and computer use was often shared among them. In one of the focus group discussions, participants shared practical innovative tips they adopted at home to compensate for their inability to use small-sized computer screens. One participant explained to the others how they could adapt the use of giant LCD screens as monitors to enhance legibility and magnify the letters on the screen further:

> "*Up till now, anything I see on the lap-top is a waste of time. I just can't see it. If you get a big screen, you can link up your computer to your television. You should be able to see things better. In that way, you can deal with some of the issues as far as seeing is concerned" [Fred]*

In what seemed like a comprehensive lecture rather than a group discussion, because the others in the group listened attentively to him, he also shared information with the others on how to get a larger keyboard. This finding suggests that internet use in shared settings could offer older people significant access to peer support and share knowledge on skills to cope with disabilities.

5.3.6 Acceptance of self and others

Study participants stated that they held themselves in high esteem for being able to use the internet despite the challenges of vision impairment. The absence of visual cues in CMC not only enabled them to confirm their equality with sighted users online, but also helped them to overcome self-criticism about being unable to use the internet due to vision impairment. They felt equal with others online, regardless of visual acuity. According to Sharon and Doris:

> *"It makes you feel more like everybody else, you can…because we are normal, we just can't see properly. It just makes you more be accepted by everybody as if you're normal up and nothing's wrong and independent. You can interact with people the way everybody else does. I'm able to use the internet, like everybody else, knowing the terminology that people use because you use it, you can use it, that keep you normal like or makes you feel like you are in a normal world like everybody else" [Sharon]*

> *"Well, it's just part of your life really. Keeping your friendships and the people you meet being the entire person that you want that's the way I look at it anyway" [Doris]*

Sharon believed that by being able to use the internet she was valued and accepted by others. She was also pleased with her knowledge about internet use. Her comments further suggest that, by being able to interact online like everyone else, she was stimulated to accept her challenges as surmountable and regard herself as an individual with many attributes, only one of which is vision impairment. This recognition is central to self-acceptance (Murugumi, 2009; Weber & Wong, 2010). Sharon and many other participants were not reserved about acknowledging their vision disability, nor were they afraid to admit their strengths and weaknesses in relation to it. Doris said that she regarded vision

impairment as part of the reality she was in. Her comment illustrated that she was able to recognise and accept her limitations as well as identify her strengths and build on them. She said that "*by being the entire person that she wants"* she gained a balanced view and a positive impression of herself. In this way, many participants regarded the limitations posed by vision impairment offline as a challenge they were able to overcome through internet use.

- *Self-esteem*

In acknowledging that they possessed a socially desirable ability - that is, being able to use the internet - visually impaired older people seemed to hold feelings of admiration for their fortitude and interpreted such feelings as self-esteem. This was illustrated in the following comments:

> *"At least I can feel self-worth really…the fact that I'm still able to be classed as a person and normal person and do normal things and yes…I think it's very depressing when you know that other people are talking about things you have nothing to do with or something you have no idea of, so I'm taking it that it has to do with self-esteem really" [Sharon]*

> *"Oh! it is good and even to see this group of people, and coming out of where you are is great. Because for me to come out, there must be some safe people to take me where I have to go and these people are on the same level as suffering and so there is a sort of companionship and also you can sympathize with each one and also, you get that much satisfaction that can use computer like other people" [Regina]*

Visually impaired older people in this study appraised their ability to use the internet as an accomplishment which not only brought fulfilment to them, but also gave them a feeling that they were not falling short of expected knowledge by society:

> *"Using the internet makes me feel normal and accepted by everybody as if I'm normal and nothing's wrong and I can interact with people the way everybody else does. Blindness usually happens,*

It's nobody's fault...you accept it and you want to be treated the same way as others, and respected and loved'' [Sharon]

"That, we need to communicate to each other in this world that's the only way we are going to be fulfilled otherwise, you are just sitting there by yourself being a vegetable and if you want to live in this world we need to keep the communication going" [Regina]

- *Acceptance of self*

Participants reaffirmed their perceived sense of self-acceptance in the expectation that they would be respected rather than discriminated against due to vision disability. Participants' comments suggested that being able to use the internet like everyone else emphasised their abilities and de-emphasised their disabilities. This is not necessarily implying that participants felt happy about their disability, but that by being able to use the internet as others do, they felt a positive sense of self-worth and respect from others. According to Doris:

"Well, it's just part of your life really. Keeping your friendships and the people you meet being the entire person that you want that's the way I look at it anyway." [Doris]

They were proud of being as knowledgeable as others about internet use. This sense of pride fostered self-worth and also enabled visually impaired older people to develop social relationships with people who accorded them that respect. Maltby, Day, & Macaskill (2010) argued that people who feel that they are wanted and accepted are capable of forming and maintaining good relationship with others. Evidently, it is in such contexts that participants' positive appraisal of their abilities to use the internet enabled them to develop a positive impression of themselves, and they believed that others held the same impression. For example, Sharon believed that it was only when she was accepted for whom she was that she began to feel worthy of respect and love:

"Using the internet makes me feel normal and accepted by everybody as if I'm normal and nothing's wrong and I can interact with people the way everybody else does. Blindness usually happens,

It's nobody's fault...you accept it and you want to be treated the same way as others, and respected and loved'' [Sharon]

She explained that this expression of acceptance by others created a feeling of emotional safety and self-esteem that was vital to build satisfying social relationships.

Although visually impaired people required assistive technology in order to gain internet access, Sharon regarded her internet access as undifferentiated. In other words, texts from an assistive device cannot be differentiated from texts that are typed without an assistive device. Sharon's comment suggests that the biological context of sight is unimportant as long as she can use the internet as a sighted person would do. Fred's comment below also illustrates that, as long as restrictions to internet access are removed, he could perform his daily tasks online and accept his daily life as normal:

"If I want information for instance, we've got loads and loads of books in our house, garage full of books and my wife was talking about it as well because I can't see them, but now, I don't need them because I can't see the books, I can get the information that I need from the websites. if we go on a holiday, I would do is that I will do my research online concerning the place that we are going to visit and be quite well clued up as to where we are going, what we might be seeing, areas that we might visit, if I was on my own, I would do internet shopping and banking" [Fred]

Fred accepted the challenges of living with vision impairment. However, he also stated that the internet afforded him many opportunities to compensate for almost every challenge and cope with it. In this way, participants developed a positive approach to life, and sought ways to make the best of their situation. The capacity to use the internet in compensating for loss of vision seemed to enhance a more positive outlook and confidence in their abilities. Thus, visually impaired older people were able to accept their situation, accept the challenges presented by vision impairment and explore coping mechanisms through using the internet.

5.3.7 Promoting a sense of identity and belonging

The findings highlight the critical role of internet use in enabling participants to construct their identity and develop a healthy self-concept. By being able to use the internet, despite the challenges of vision impairment, they appraised their resilience positively. The positive acceptance of self emerged from the emotional state of feeling pleased with their tenacity to overcome the challenges of using the internet without sight. In this context, many visually impaired older people acknowledged their self-worth and avoided self-denial when articulating their identity to others online.

The findings demonstrate that the concept of self-acceptance goes beyond acknowledging disability in the physical world to accepting it in the virtual world. For example, while many studies suggest that the lack of visual cues in CMC enable people with disability to re-construct their identities in order to socialise with others beyond the stigma of a disabled identity (Spears *et al.,* 2002; Bowker & Tuffin, 2002; Bowker & Tuffin, 2003), many participants in the current study did not regard the act of disclosing vision impairment as a way of exposing themselves to stigmatisation. For example, Oscar felt that as long as the topics discussed on the forums were not related to disability, there was no reason for him to disclose that he was visually impaired. In other words, he would only make such disclosures if the topics were related to disability. In this way, Oscar demonstrated that he would not hide such information about himself despite the facelessness of the media. He was aware that the absence of visual cues on the forum allowed him to "mask" his disability but he was not willing to engage in deception. He believed that concealing information about his vision impairment behind the veil of anonymity did not reflect self-acceptance, and regarded it as self-denial. Thus, he had no reservations about engaging in self-disclosure when the need arose. This finding echoes Rogers' (1959) argument that self-acceptance could promote the building of trustworthy relationships.

On online forums, visually impaired older people shared knowledge of adaptive behaviours. They also shared knowledge about appropriate attitudes towards vision impairment, the self and others, and articulated their identity by collectively acknowledging their strengths and weaknesses. Watson (2002, p.518) argues that self-identity created in this fashion is not about showing off a difference in identity through labelling as "having a disability", but defining disability in its own terms. Accepting that they were visually impaired not only enabled participants to reflect on their capabilities and limitations so as to establish a

balance between the two, but also enabled them to evaluate their strengths and weaknesses with others in a similar situation and develop meaningful relationships with them. This was elaborated in Regina's statement when she said:

> *"Because you are moving with people who are also suffering the same condition as you and some of them are not doing so much as well as me and then you feel compassion and then you also feel as if...at least I can do much better than that so I feel better so I can do something about it for other people to help them" [Regina]*

These findings suggest that the trustworthy relationships developed online were not only transferred offline, but often optimised for personal adaptation to vision impairment, coping with sight loss and having a sense of belonging. For example, the ease of participating in activities on an equal footing with others promoted a sense of belonging. Indeed, due to vision impairment, many participants said that they lost the ability to engage in physical leisure activities. The virtual nature of online platforms enabled them to be part of forums where people who shared similar interests often discussed their interests. Their contribution and participation in such discourse were not undermined on the basis of vision impairment. This was manifested in many ways, especially in the perceived ease of forging social connections while having a genuine feeling of being part of online social world. For example, while Oscar lost his hobby (driving in rallies) due to vision impairment, he was not incapacitated from participating actively in online chats about car rallies. In this way, the degree to which online the world compensated for barriers that frustrated participation in the real world gave participants a sense of inclusion - a sense of belonging. This feeling fostered the development of rapport with others online and opportunities to explore social relationships.

- *Promoting a sense of inclusion*

Many comments by participants reflected their fears about being excluded from participating in the rapidly advancing ICT world. There was apprehension that, as many technological devices take haptic forms (touch screens), it may eventually become difficult for visually impaired people to use ICT as sighted people do because they depend largely on being able to feel the buttons and press them. They expressed concern that such innovation

may marginalise them further. The following quote illustrates their concern about having equal access to ICT as the rest of the population:

> "*I think the concern is they are going to be left behind and forgotten. Vision impairment is really a silent disability. It's a forgotten disability and it's a hidden disability. It makes a lot of difference to the fact that we don't want to be left behind. People have got to be aware that there're so many people in this country and in the world that has sight problem and to address it rather than turn round and forget about it because that's what people tend to do...they think well, it's not affecting me, we are not really interested…If they can't use the internet well then, they can't...that's how we feel them sometimes. We just want to make it obvious to people that yes we can …you still a person, you still can't see properly but you still want to be seen the same way as everyone else"[Sharon]*

Although access to ICT may not be the main priority for this group, nevertheless participants acknowledged the importance of access to enhance their sense of belonging. Many participants felt that adequate and up-to-date training would be needed. The field observations corroborated such responses as participants made several comments about new assistive software. They felt that they were excluded and not duly consulted when manufacturers of ICT products were designing assistive devices.

Some participants were very critical of the way in which decisions concerning their training were made without consultation. For instance, one participant pointed out that the planning of internet classes was often done without them. He believed it was the main reason for the high rate of drop-out during IT training and suggested how more visually impaired older adults would be encouraged to participate in the internet classes:

> "W*hen the organisation started, they don't all have computers and we were being taught how to use the computers and I think…that it is wrong. The first two lessons should be somebody like me showing the new participants what they can get out of internet use and that would encourage them to come because you get people coming for 10 week course and you never see them again because they are baffled by the fact they can't use keyboards and they don't know what's going on. I can sit and do something like that. If they see somebody like me doing it, it would make all the difference in them*". *[Alfred.]*

- *Rapid ICT advancement*

The complexity of ICT as technological advancements progress rapidly was perceived by participants as an enormous challenge. With the disappearance of simpler, more self-explanatory systems, adequate training and support was needed. Taking notes during classes may be impractical for this group due to vision impairment. Difficulties in remembering all the steps could be stressful. For this reason, participants advocated simpler and more comprehensive design of websites with fewer links. In one of the focus group discussions, the IT tutor chipped in:

> "*The web-designs are difficult for visually impaired people. The issue is actually getting from place to place and the number of times you have to press various buttons to get there and what happens is because of the way the websites are designed. When you get to the bottom of the page and you press enter, so you choose groceries, you set up an account, you go to groceries, you press enter or whatever. It takes you all the way back to the first part of the page and you have to systematically manoeuvre all the way back to where you want to go which is may be a hundred odd clicks"[Anita, Focus group discussion]*

It has been argued that the speedy rate of advancement in ICT innovation and web design render accumulated knowledge and skills of older people redundant, thereby contributing to their relegation to obsolete technologies (Simpson, 2009). The progress being experienced by sighted users as technology undergoes constant modification and improvement may not necessarily be regarded as progress for this group. Some participants had suggestions for the technologies they would like to see developed in the future in order to enhance not just their access but guarantee easy access for all users without discrimination:

> "*I think Apple one of their selling points is that the accessibility is built in...it is not just there for blind people...it's there for everybody...so hopefully their prices will come down actually. In my opinion, the easiest thing for visually impaired people on internet use and other ICT would be voice recognition. The modern day technology with difficult access to visually impaired people isn't really improving our lives and lots of technology is making it much more difficult." [Vivian]*

> "*You just got that touch screen things now...so my concern is if it all goes to touch things, I've got arthritis in my hands and I find it hard to do the touch thing. You all happen to forget those who have difficulty in using hands/palms, how would that relate to those palms with hands that don't always...it took me an hour to get that up. As I couldn't feel the couch because as you get older they feeling is not as good but I find that very difficult" [Samantha]*

These findings reveal that, whilst society continues to advance rapidly with ICT, many participants in this study struggled to catch up. They feared being left behind and no longer being able to benefit from internet use. However, they believed that having the same access as others would integrate them into society and promote their sense of belonging. Being able to access internet with less difficulty was perceived as vital to promoting a sense of belonging in an ICT society. As might be expected, given the importance that participants attached to being able to use the internet, visually impaired older people believed that technologies that accommodate their visual needs are necessary for their social integration and social well-being.

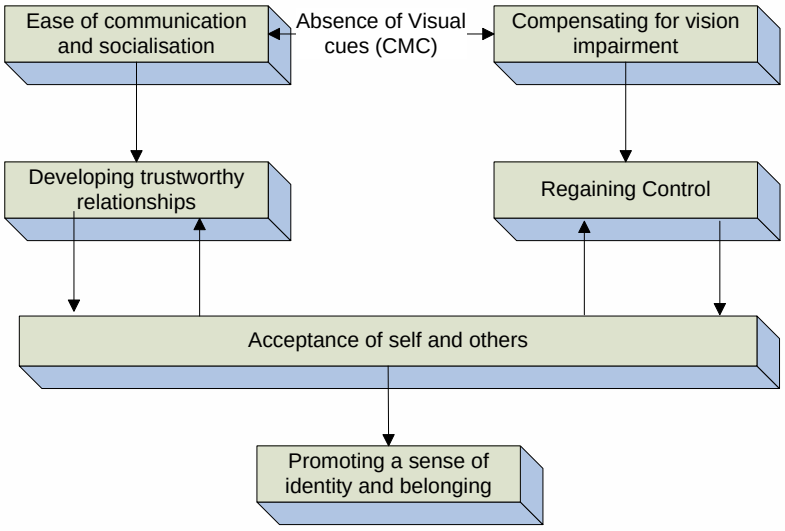
According to the findings, the lack of visual cues in any media is not necessarily in itself a fulfilling criterion for ease of communication or sense of belonging of this group. For instance, participants regarded email as more inclusive and more accommodating to their visual needs than the telephone, despite the absence of visual cues in both media. In other words, that a technology lacks visual cues is not a guarantee that it will benefit people with vision impairment in socialising. The contexts of inclusive technology that will promote a sense of belonging were described by participants as those that afford them ample opportunity for equal access for all users and/or avoid modifications or advancements which gradually exclude them.

5.4 Inter-relationship between themes

A model based on identified themes is presented in this section. It describes the inter-relationship of thematic concepts on how visually impaired older adults use the internet. A diagram of the conceptualised model is presented in figure 5.2. The model illustrates how the themes are inter-connected and how the inter-relationship between themes describes the

meanings held by visually impaired older adults who use the internet and on how internet use impacts on their well-being.

Figure 5.2: *Diagrammatic illustration of inter-relationship between themes*



According to this model, the ease of communication and socialisation online enables visually impaired older people not only to interact effectively with others and build relationships but also to compensate for the challenges of interaction associated with the inability to perceive visual cues. This facility is largely enhanced by the absence of visual cues online. In this way, the abilities of visually impaired older people seemed to be equalised with those of sighted people. They were able to socialise on an equal footing with others and they participated with others in areas of life that they regarded as worthwhile rather than seeing themselves as the passive victims of misfortune. The "regain of control" impacted on self-concept by promoting a sense of competence and adequacy to socialise rather than self-pity or frustration or mourning over being different. Through this process, self-acceptance emerged from a self-convincing affirmation that they could successfully make adjustments to cope with the challenges of vision impairment. This unconditional conviction seemed to enable the visually impaired older people in this study to express their acceptance of vision impairment during online self-disclosure without fear of discrimination. Thus, with a sense of acceptance of their situation and acceptance of others, participants were able to build and maintain social relationships with others.

Having a sense of belonging also relates to "acceptance of self and others". This is often developed when a person is accepted by others, has meaningful interactions with them and is not excluded by marginalisation or stigmatisation (Abbott & McConkey, 2006).

However, visually impaired older people in this study believed that having access to a lifestyle that includes opportunities and privileges typically afforded in society's ICT culture (such as having internet access as others) did not only integrate them in society, but also promoted their sense of belonging. The overall concept of "belonging" not only reflects visually impaired older people's ideas of the acceptance of vision impairment and integration into society, but also of alienation, fear of exclusion when barriers to uptake of ICT prevent their access.

Difficulties with internet access were perceived as a problem because they were constantly prevented from doing the things they desired to do online. For example, although many visually impaired older adults were eager to use the internet to make life easier, their awareness of the difficulties surrounding internet access made them apprehensive about how they could participate in society like sighted people. Inequity in internet access could cause a hindrance to social integration of visually impaired people, particularly as the internet revolution advances by taking many social activities into online media. The model suggests that, for many visually impaired older people, having a sense of belonging and identity is central to internet use for building and maintaining trustworthy relationships.

5.5 Chapter summary

This chapter has presented the findings on how visually impaired older adults use the internet to build and maintain their social networks. Participants made critical references to how the "norms" of face-to-face interaction relied heavily on visual cues and constructed such precepts as the major reason for their challenges in face-to-face socialisation. The absence of visual cues in CMC seems to alleviate such challenges. Communicating online was perceived as easier and afforded them a sense of control. Findings showed the distinct characteristics of CMC that were of particular importance for older people with vision impairment. Findings from the current study specifically showed the importance and benefits of internet use for older people with vision impairment.

Interactive technologies of social media such as email and forums were the most widely used tools by this group, which also encouraged them to use the internet to overcome the challenges of vision impairment. Comments from many participants suggested that internet use enabled them to alleviate social isolation and to communicate positive social identities

through self-disclosure. The findings suggested that textual CMC enabled participants to access to the same communication cues as others and enabled them to socialise on an equal footing. The next chapter will present a detailed discussion of the findings.

Chapter Six- Discussion

6.1 Introduction

This chapter discusses the study findings and also presents their implications for Computer Mediated Communication (CMC) theories and practice. It does this by critically reflecting on the social context of internet use among study participants and by discussing how internet use could be useful in creating greater social inclusion and well-being for visually impaired older people.

6.2 Meaning of internet use for participants

Findings from the current study reflect how internet use could be useful in the lives of visually impaired older people. The absence of visual cues helps to make CMC a virtual place where visually impaired older people can control aspects of communication requiring social cues and construct social relationships. The overall influence of lack of visual cues on the dynamics of communication and socialisation emphasises the importance of the internet for this group. Many of the participants acknowledged that for sighted people, face-to-face contacts were the norm, and thus, places visually impaired people at a disadvantage. The findings from this study suggest that internet use may offer positive and effective communication that is not reliant on visual cues, which reflects the needs of visually impaired older people.

Effective communications from within a CMC environment put visually impaired older people on the same level as sighted people because no user has access to visual cues in text based CMC. In other words, visually impaired people are not disadvantaged in CMC. The visual cue deficient CMC media were articulated by participants as easier media than face-to-face, in which they could not perceive social cues. Participants said they were more likely to experience anxieties when they were amidst strangers in unfamiliar places. Many such difficulties were associated with not being able to make eye contact, not seeing facial expressions or not being able recognise faces, which raised concerns for many participants, such unease was eliminated in CMC. Participants were able to overcome limitations often

experienced offline because the ease of communicating online contrasts to the dominance of visual cues in face-to-face contexts. In this way, many visually impaired older people interpreted the internet as a unique space where communication and interaction was easier.

The many articulated advantages of CMC enabled visually impaired older people not only to overcome the challenges encountered in daily social life, but also to operate from a well-adapted position that impacted positively on their well-being. Thus, the absence of visual cues online was mainly interpreted by visually impaired older people as a major feature for achieving equality, rather than presenting a limitation as reported by CFO theories (Walther, 2011). Although visually impaired older adults in this study said that they used other technologies that also lacked visual cues (e.g. telephones), they noted that it was difficult for them to access information on the telephone screen or dial numbers that were not legible enough for them. Some studies suggest that sighted older people would prefer to communicate on telephone with family and friends who lived within the same geographic location, or use emails to maintain relationships with family and friends who lived faraway in order to save cost of communication (Melenhorst, Rogers, & Caylor, 2001; Hampton & Wellman, 2002; Sayago & Blatt, 2010). This appears not to be the case for visually impaired older people. Participants in this study said that, irrespective of the geographic distance, they preferred the email to the telephone. There was a sense among participants that, by being online, they were able to disconnect themselves from impairment and regain control of the abilities that were lost in physical life. Many participants mentioned that they were able to share the same social cues (textual cues) as others do within the same social space (online environment). They believed that there was no discrimination or difference between a visually impaired and a sighted person online because the lack of visual cues obscured individual differences (Sassenberg & Postmes, 2002).

In constructing trustworthy relationships, control over aspects of communication that require self-disclosure play an important role (Kanayama, 2003). Petronio (2002) argues that people may prefer planned disclosure about potentially stigmatising information because it maximises privacy. In this study, visually impaired older people perceived that they were more in "control" of social cues in CMC than face-to-face and that they had control over the timing of self-disclosure. This enabled them to present their identities in the ways that they desired. The internet was regarded as an exciting place to communicate with different and new people and develop satisfying relationships with others in similar

situations via self-disclosure. Many such relationships became important means of coping with the challenges of vision impairment. This might be consistent with the idea that, when people in a similar situation meet online, a higher level of trust develops from exchanging and sharing experiences, which enables them to engage in self-disclosure and develop trusting relationships (Bakardjieva & Smith, 2001; Pfiel, Panayoitis, & Zaphiris, 2009).

Field observations suggested that visually impaired older people depended largely on cues (and other non-visual cues) to ascertain the physical presence of others before initiating an interaction with them. Such constraints were eliminated online and fostered a sense of control rather than uncertainty. Because the face-to-face environment is largely dominated and controlled by visual cues (Trimboli & Walker, 1987; Beattie, 2004), visually impaired older people described the process of adapting with non-visual cues as stressful and the cause of isolation and social withdrawal. Although they pointed out that access to the internet was often fraught with challenges, once internet access was gained to socialise with others, it liberated them from the "visual cue" impoverished position that they were often relegated to in face-to-face environments when interacting with others.

6.2.1 Adaptation versus compensation

From these findings, visually impaired older people's use of computers and the internet could also be seen in terms of positive adaptations to ageing and vision impairment through selectivity with optimisation and compensation (Baltes & Baltes, 1990). Selection, optimisation and compensation (Baltes & Baltes, 1990) was shown to influence initial identification of computers as being relevant (selection), learning to use the internet (optimisation of computer use) as well as informing coping with the challenges of vision impairment (compensation)**.**

Unlike face-to-face interaction, participants' experiences in CMC showed that, they had greater ability to develop an impression of others strategically and respond to textual cues. This enabled them to exercise greater control over communication processes. In other words, visually impaired older people were able to optimise textual cues selectively in online interpersonal interaction and gain control over communication because interaction in online environments was less reliant on visual cues. According to many participants, while there may be less social information exchange in CMC due to the absence of visual cues,

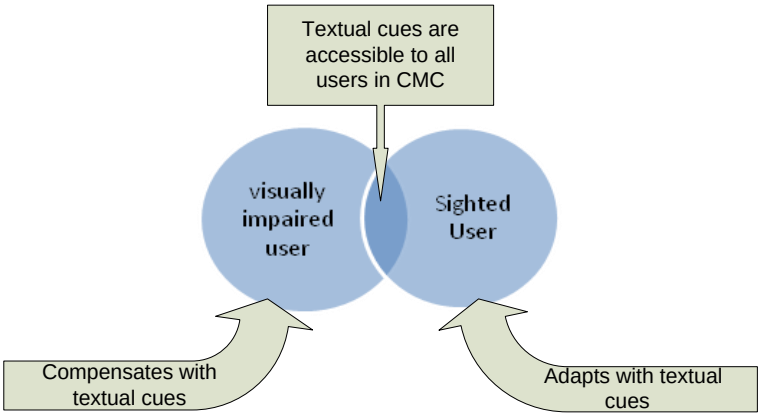
such limitations were no different from their experiences in offline contexts. However, because CMC relied less on visual cues, they were more able to respond according to their own interpretation of textual cues than in face-to-face environment where visual cues could go unnoticed. As a result of this, visually impaired older people in this study were better positioned to cope with the challenges of interaction in online platforms. This suggests that the theme *regaining control* over stressful aspects of communication is linked to the theme *coping with vision impairment.*

Internet use was regarded as a boost for successful psychosocial adjustment to cope with vision impairment and fostered the development of a positive self-concept. Research suggests that an acceptance of the self is associated with successful adjustment to disability (Lopez-Justica, 2006; Birkeland, Natvig, & Haugesund, 2009). Within the context of coping with vision impairment, participants described their ability to use the internet as proof of their resilience and by exploring ways through which it can be used to enhance their independence, they articulated self-acceptance of their situation. The absence of visual cues in CMC was pivotal in establishing control over how participants chose to engage in self-disclosure and how they presented vision disability in creating their identity online. Many visually impaired older people described themselves as "normal people'', capable of engaging in life roles as much as sighted individuals.

While it is often theoretically emphasized by the Cues Filtered Out (CFO) models that the absence of visual cues in CMC makes it ill-suited for developing strong social relationships (Knapp & Daly, 2003; Grant, 2003), findings from this study reveal that visually impaired older people use textual cues to compensate for the lack of visual cues. There seems to be coherence between this finding and Cues Filtered In (CFI) theoretical perspectives of CMC. The Cues Filtered In models argue that, in the absence of visual cues, CMC users adapt the linguistic content (textual cues) to form interpersonal impressions that are necessary to develop social relationships (Walther, 1992; Walther, 1996). However, while findings from the current study suggest that visually impaired older people regard textual cues as compensatory, the CFI model argues that textual cues are adaptive tools. In other words, texts in CMC were used by participants as social information, which enabled them to form an impression of others and develop social relationships in ways that would be otherwise difficult. Some participants said they could for example; evaluate a person's character by their online comments. They held that it was easier than making such evaluations based on non-verbal behaviour in face-to-face contexts. They believed that the words and language

that people used in their online comments could reflect their social personality (Chung & Pennebecker, 2007). In this way, participants were able to judge and predict the behaviour of others whose online comments were suggestive of intolerance to disability, erratic or discourteous. Thus, visually impaired older people are able to "*compensate"* (adjust to overcome a deficiency) for the loss of ability to judge non-verbal behaviour by using textual cues. The diagram below (figure 6.1) illustrates this argument.

Figure 6.1: *Optimisation of textual cues between sighted and visually impaired users*



The figure above illustrates that textual cues are common to both sighted and visually impaired people in CMC, unlike face-to-face where only sighted people have access to visual cues. This analysis suggests that textual cues might play a similar role for visually impaired users in CMC interaction as non-verbal cues for sighted people in the face-to-face context. In essence, visually impaired people do not adapt (because vision is already lost), but rather, they compensate for the loss of ability to perceive visual cues by using textual cues. This is because compensation occurs due to a loss but adaptation does not necessarily involve a loss. These results are in contrast to the conceptualisation of the CFI model which assumes that all users adapt to the absence of visual cues in CMC by using textual cues (Walther & Parks, 2002).

The findings from this study show that CMC theories do not provide a satisfactory explanation for the absence of visual cues online and their impact on communication for

visually impaired users. While sighted users may regard the lack of visual cues in text-based CMC as a limitation, visually impaired older people do not necessarily hold the same opinion because the incorporation of visual cues into CMC would not make a difference to them. If anything, it could potentially make communication as complex as it already is in face-to-face, and re-create their challenges with visual cues.

Many studies and CMC theories (e.g. Cues Filtered Out theories) argue that face-to-face interaction is more efficient and more satisfactory for building and maintaining social ties than computer mediated communications (Daft & Lengel, 1986; Sproull & Kiesler, 1986; Wang *et al.*, 2010). Visually impaired older people in this study agreed that face-to-face interaction is not necessarily better or worse. The observations and interviews suggested that face-to-face communication demanded more effort to build, and social relationships more difficult to maintain, due to the inability to perceive visual cues of others. All participants felt less satisfied with face-to-face socialisation due to their impaired ability to respond to visual cues. They felt that it was easier to connect with others online because they did not have to be notified of their social presence. Nowak, Watt, & Walther (2005) argue that when effort required to communicate in a medium is relatively onerous, the more difficult medium may be perceived as less satisfactory, but still useful. This is consistent with the perception of visually impaired older people on the interplay between the difficulty experienced offline and the ease of communication that CMC afforded them. Although participants were often inundated in face-to-face environments with visual cues that were largely inscrutable, face-to-face communication was nevertheless regarded as an invaluable medium of socialisation to develop trustworthy relationships. This finding echoes the argument that regardless of technological advancements, there is no replacement for face-to-face contacts (Duke, 2001)

Findings demonstrate that, for interaction goals such as building trust for an online acquaintance, CMC interaction required as much effort and attention as face-to-face. Although participants were indifferent to the facelessness of the media for socialisation, they were nevertheless wary of the potential for the anonymity of CMC to be used for deception by others who might have bad intentions. In this study, as visually impaired older people were aware of such inherent risks, they either devoted a lot of attention to avoiding such risks by assessing textual cues or they simply avoided making new friends online. Overall, these findings suggest that visually impaired older people did not regard CMC as a

substitute for face-to-face contacts despite the difficulties associated with offline communication; rather, it was regarded as a means to establish face-to-face contacts and compensatory tool to overcome the challenges of socialisation that were frequently experienced in physical contexts.

6.3 Social context of internet use among participants

Visually impaired older people in this study construed the internet as a tool with which to navigate their way into social and psychological resources that sustained their well-being. The coping strategies gained via interacting with others with the same disability were perceived as vital elements of their well-being. In the face of adversity, older people maintain their health and well-being via psychosocial adjustments which define their resilience (Zautra, Hall, & Murray, 2010). In adverse life events, resilience has been shown to promote mental health and well-being through contextually defined psychosocial processes (Carver, 1998; Seery, Holman, & Silver, 2010; Seery, 2011). Positive behavioural adaptation pathways which were used by participants to promote their resilience included altruism and empathy. The feeling of responsibility for the welfare of others in the same adversity and the willingness to render support was a source of pronounced awareness of their challenges. Such pro-social behaviour and altruism have been cited as characteristics of socially competent individuals (Charney, 2004; Southwick, Vythilingam, & Charney, 2005).

As shown in the findings, perceived elements of well-being included both psychological and social aspects of socialisation that were perceived as central to the theme on having a sense of *belonging, and acceptance of self and others.* Well-being was also fostered through feelings of satisfaction with social functioning and satisfaction in successfully compensating for vision loss. Furthermore, a strong sense of identity as resilient and ICT-competent individuals enabled participants to exude confidence and challenge disempowering socially-ascribed identities. Hollier (2007) contends that "the social model" of disability (in which it is the barriers that prevent people with disabilities from participating that disable them) has rarely been applied to people with sight loss. Visually impaired older people are generally still viewed through the "medical model" (in which the focus is on the impairment) and the discourse is one of a digitally disabled identity (Dobransky & Hargittai, 2006; Gallagher, Murphy, & Fennell, 2012). Participants

challenged the perceptions of visually impaired older people as technologically inept and too old for computer use.

The pitfalls in face-to-face environments showed the advantages of online medium for them. Participants described the difficulties they experienced with grasping the awareness of the social presence of others particularly when verbal cues were missing. The comments of visually impaired older people in this study bring together a compelling justification for their online socialisation. Having access to the internet enhanced their ability to participate in society, stay connected to family, and create dynamic connections with relationships that were important to their well-being.

6.3.1 Building and maintaining social ties

The findings in this study show that, although the internet accommodated the communication needs of visually impaired older adults, to many of them, it was a tool that could enable them to initiate face-to-face social contacts. However, they valued the absence of visual cues on the internet because it afforded them many communicative advantages which made it easier for them to maintain social ties. Visually impaired older people construed the absence of visual cues in CMC as an invaluable advantage because it eliminated much invisible visual information that was often overwhelming and made face-to-face interaction cumbersome. The participants in this study described how the inability to recognise faces made it difficult for them to initiate interaction. However, they regarded the online environment as one where visual cues do not necessarily gain such exaggerated importance because they are not needed to ascertain the identity of the communicating partner. However, it could be argued that, by opting out of the vision dominated environment (offline), the social skills once used spontaneously to initiate communication and develop meaningful relationships in this way could become atrophied. This requires further research.

Due to their inability to perceive visual cues, visually impaired older people may be likely to be misunderstood by others as passive in socialisation, introverted or socially aloof, which could increase their isolation from others (Bennion, Shaw, & Gibson, 2012). Findings from this study shows that the absence of visual cues in CMC enabled them to focus their mental efforts on the topic being discussed rather than focusing on unnecessary visual cues. By having access to the same communication cues as others, they were able to

socialise on an equal footing and develop relational satisfaction which some of them described as instrumental for fighting the feeling of loneliness and social isolation. While many studies argue that the absence of visual cues in CMC is a limitation (Cascio, 2000; Murphy & Coleman, 2004; Powell *et al.*, 2004; Wang *et al.*, 2010), visually impaired older people regard it as helpful. The contents of textual interaction were used to form impressions of others and relationships were developed based on impressions of trustworthiness. New relationships were usually maintained online in a manner which was not intrusive because the loss of visual cues afforded anonymity. In this way, measures to ensure personal safety, security and privacy were believed to be supported by the absence of visual cues in CMC. Participants argued that such measures were less accessible in face-to-face contexts because they could not make eye contact or determine who was watching them. Again, the anonymity afforded by the lack of visual cues in much text-based communication afforded older adults with vision impairment the opportunity to manage aspects of them which might attract prejudice - such as presenting their identity via self-disclosure.

6.3.2 Internet use and offline ties

Participants' comments showed that the impact of internet use on offline social relationships depended greatly on how such relationships were built or maintained online. Visually impaired older people who developed friendships online believed that the successful formation of online trust and rapport was a pre-requisite for the progression of any online relationship to the real world (offline). Being able to interact with family and friends, despite the physical constraints of mobility, visually impaired older people in this study were enabled to keep in touch with family matters and developed stronger interpersonal bonds with them. In addition, the anonymity and lack of visual cues online did not hinder them from developing meaningful relationships online, rather it enabled many of them to suspend judging others until they developed enough trust to meet them. Nevertheless, some participants detected antisocial behaviour by analysing textual cues. In online environments, perhaps the most commonly discussed example of this argument in the context of the current thesis is the phenomenon of "flaming" – that is, online anti-social behaviour (discussed in chapter 3). However, while the Social Identity Deindividuation (SIDE) theory attributes "flaming" to the absence of visual cues in CMC, findings from this study seem to disagree that "flaming" is fostered by the lack of social context cues online. Findings

suggest that, irrespective of the media, what constitutes anti-social behaviour is relative. In other words, what different people regard as insulting language is largely subjective. However, there were individual variations in perspectives regarding insulting comments or intolerance to disability by visually impaired older people.

Meeting people whom they had developed trust in not only added to their offline social networks but also afforded them opportunities to engage in activities of mutual interest. Thus, apart from expanding offline social network of participants, internet use can strengthen social ties offline depending on the emotional value attached to such relationships (Stefanone, Kwon, & Lackaff, 2011). This also shows that in being able to socialise on an equal footing which is devoid of visual cues, participants were able to better maintain a safe social circle and avoid people who were likely to be unfriendly online than offline.

This study shows that the nature of impact of internet use varied among participants and depended on the meaning they attached to their experiences with internet use. For many, it seemed to foster a sense of belonging to the society they live in. Overall, participants acknowledged that advancement in ICT is transforming communication, but they expressed their apprehension about being left behind because their access to the internet was fraught with barriers. Participants believed that, apart from promoting a sense of belonging, the internet could enhance adaptation to vision impairment and also promote the social integration of visually impaired older people (Gallagher, Murphy, & Fennell, 2012). They said that this would only be possible if they were involved in decision-making processes such as designs of ICT and ICT classes for visually impaired people. Successful adaptation to vision impairment via internet use was to a large extent considered by this group as a hallmark of resilience – which promoted their self-esteem.

The facelessness of online communication enabled visually impaired older people to have more control over how they communicated with others and how they developed their desired online identity. This feature of the internet had significant meaning for visually impaired older people in this study. Participants pointed out that building and maintaining social contacts was both a desire and a problem. On the one hand, they were less likely to go out and meet people due to their limitations in mobility and fear of embarrassment associated with not interacting with the intended person. On the other hand, some visually impaired older people seemed to be apprehensive about discrimination against disability

still existing (Bytheway *et al.*, 2008). However, findings from this study suggest that the absence of visual cues online can reduce physical constraints so that visually impaired people can have the opportunity to overcome the barriers associated with socialisation in offline environments.

The benefit of the internet in facilitating communication between people with different disabilities is also highlighted in the findings. Many studies compare the benefits of technology in facilitating communication among discrete categories of disabled people and the dominant able-bodied culture (Goggin & Newell, 2003; Ellis & Kent, 2011). Although there is relatively scarce research on how ICT can enable communication between visually impaired people and others with different impairments, findings reveal how the myriad technological needs of people with different disabilities can be facilitated by text-based CMC. For example, by showing how a participant (Vivian) found that it was convenient to communicate with her daughter who was deaf, the study highlights a largely ignored communicative advantage of the internet in facilitating communication between people with vision impairment and people with hearing impairment. Other means of communication such as telephone or handwritten letter would be difficult between these two groups. Thus, the internet is an invaluable communication tool for groups with sensory disabilities (Simpson, 2009).

Ellis & Kent (2011) argue that there is no single solution to the problem of ICT access for people with disability because communication needs vary across different disabilities. There are on-going debates that differences in technological designs across groups with different disabilities could be stigmatising (Goggin & Newell, 2003; Ellis & Kent, 2011). However, despite conflicting communication needs of people with different kinds of disability, visually impaired older people believe that the text-based communication of CMC offers an inclusive platform for people with different disabilities. In addition, participants believe that the anonymity of CMC leaves no observable signs to aid the detection of disability online. This means that the facelessness of text-based CMC was valued by participants as a medium that can serve as more liberal and unifying grounds for communication than face-to-face. Participants socialised with others without necessarily revealing their disabled identity because the media is faceless.

Although disclosing disability online could make older people vulnerable and anxious about potentially unwanted consequences of disclosure (Chakraborty, Rao, & Uphadhyahy,

2009; Trepte, 2011), participants noted how CMC enabled them to manage self-disclosure in ways that they desired and admired. There were similarities between patterns of self-disclosure in CMC and face-to-face communication. In ordinary everyday life, vision impairment might be unnoticed. In such instances, visually impaired people disclosed vision disability when they perceived that the situation was comfortable or such disclosures were necessary. Similarly, in CMC, the absence of visual cues made such disclosures optional and only necessary when participants deemed it expedient. In other words, they reserved the prerogative to disclose vision disability in some offline instances and also online. There was less feeling of physical and psychological risk as they had more control over the time and cues of interaction in CMC. The opportunity to disconnect and leave the setting when they felt unsafe has been identified as an important determinant for older people to feel safe rather than restricted (Trepte, 2011).

6.4 Transforming stereotypes via constructions of Identity

The current study highlights how the absence of visual cues in textual Computer Mediated Communication (CMC) facilitates, rather than inhibits, communication for visually impaired people. It provided advantages that were unparalleled by face-to-face interactions. Socialising offline with strangers was perceived less favourably by participants than CMC due to the additional effort required to interpret non-verbal cues. Thus, CMC provided the path of least resistance. Because participants felt less subjected to social cues and were less inhibited in their communication, they took comfort in the fact that textual CMC required no form of exchange of visual cues. In this way, findings suggest that the internet is a useful tool for visually impaired older people to deal with communication stress and adversity. Returning to Cues Filtered Out (CFO) theory's notion that the lack of visual cues in CMC inhibits relational communication (Short *et al.,* 1976; Daft & Lengel, 1984; Sproull & Kiesller, 1986), the findings demonstrate that such inferences are overrated and may not be applicable to this group.

People who have been subjected to negative misconceptions about assistive devices believe that vision impairment inhibits the use of ICTs (Shinohara & Wobbrock, 2011). There were indications from the findings that visually impaired older people optimised internet use to change negative stereotypes about the abilities of visually impaired older people. Such erroneous beliefs were reflected in the way Oscar was admired by forum members because they never thought that a visually impaired person could use the internet. Participants

regarded “disablist stereotypes” as disparaging. However, internet use allowed visually impaired older people in this study to articulate their abilities. They presented vision impairment as a fact of life and part of their very being, which did not compromise their confidence. Awareness of their potential was premised on the notion of self-acceptance and not on what others thought they should be. The findings suggest that visually impaired older people are aware of how misconceptions about vision impairment reinforce their exclusion in society. This showed how the effects of impairment are often seen as obstacles rather than an integral part of humanity (Murugumi, 2009). False views and values about disability greatly discount the capabilities of people with disabilities (Huigevort, 2002; Ndummo, 1993). Being sighted is often erroneously believed to be necessary for internet use because current technologies are highly visually oriented (Stone, 2001). According to many participants, such societal misconceptions about the aptitude of visually impaired older people to use modern technologies and social media is in itself disabling. It contradicts their experience of vision impairment and their self-identity as technologically competent users in an ICT advancing world.

Negative attitudes based on stereotypes about disabilities not only leads to restrictions on people with disabilities, but might further exclude them (Shinohara & Wobbrock, 2011; Neves & Amaro, 2012). Ignorance about the skills and strengths of disabled people have been argued to be the greatest obstacle in preventing them from accessing opportunities available from within mainstream society and enjoying other aspects of social participation (Powers, 2008). Hollier (2007) argued that visually impaired older people cannot access valued resources when discriminatory beliefs underlying ICT under-value their capacities. The admiration of Oscar by forum members reflected society’s under-estimation of the ICT proficiency of visually impaired people, and also presented an insight into how stereotypes could be part of the structure underlying the digital divide.

Social integration of visually impaired groups and other groups with disabilities can be fostered by acknowledging their values and capabilities in society (Murugumi, 2009). Addressing such misconceptions could foster the social and technological inclusion of people with disabilities (Shinohara & Wobbrock, 2011). Although changes in policies could improve access to ICT for disabled people, they do not necessarily change entrenched values, and undesirable stereotypes. Seeing that CMC affords a “level playing field” for both sighted and visually impaired people, transforming the mind-set of people can be

developed via positive interrelations in CMC. While some studies report that older people are not keen to learn new technologies (Zagicek, 2001; RNIB, 2013), participants rejected such reports.

6.4.1 Forming identities

The processes through which visually impaired older people constructed their identity online were central to understanding the relationship between internet use and social relations. The conceptual basis on which participants presented their desired identity fits well with the literature on Computer Mediated Communication (CMC). Firstly, identity was demonstrated as a product of "discourse". It was in order to form impressions of themselves, as the Hyperpersonal model postulates (Walther, 1996), produced through relevant discussions which afforded them opportunities to define their personalities and transform stereotypes, rather than an attempt to exaggerate their abilities. The second way in which identity was managed reflected significant control over time in ways that would have been otherwise impossible. According to Walther's Social Information Processing (SIP) theory of CMC (see page 44), timing is an element that inevitably provides resources for the construction and formation of intimacy (Walther, 1992). However, in this case, through control over time for self-disclosure, visually impaired older people presented their self-worth within the patterns of their "time-controlled" disclosures to others. In other words, constructing social identities in a faceless platform was a dynamic process influenced by appropriate timing. This reinforces the argument by Beck and Gernsheim-Beck (2002) that one of the most important hallmarks for social change is the constant enactment of identity. This requires that individuals have access to managing their own identities in relating with others over time.

Merchant (2005) emphasised that digital technologies are part of the process through which we define "who we are" and "how we relate". Findings showed that CMC had significance in the construction of "self" for people with disabilities because it afforded control over self-disclosure. Within the scope of identity formation and social relationships, this study suggested that CMC could serve as a powerful identity resource for visually impaired older adults. Some studies suggest that the ways in which CMC is used to present identities vary among the different population groups (Beavis & Charles, 2005; Carrington & Marsh, 2005). Beavis & Charles (2005) found that the use of computer games and computer-aided

writing served as a resource for adolescents, because it enabled them to experiment with different identities and challenged traditional gender assumptions. Merchant (2005) also discovered how children used digital writing to construct their identity, drawing from their own social life experiences to create their personal narratives that they expressed in their writing. While academics continue to focus on how younger people use ICT to construct their identities, findings from this thesis contribute to the few existing studies on how visually impaired older people express their identity via self-disclosure when building social relationships. CMC provided many participants with a useful medium to interact with others and develop a sense of belonging via self-explicated identities. In creating their desired personalities, they placed emphasis on self-acceptance, which suggested that they did not feel inferior or want to be other than they were. Thus, contrary to some previous studies (Goggin & Newell, 2002; Bowker & Tuffin, 2003; Conrad, Neale, & Charlse, 2010), the lack of visual cues in CMC was not used as a means of escapism.

6.4.2 Compensating identities

Cook (2001) discussed how people with disabilities cope with physical challenges and push themselves to overcome obstacles by taking the identity of "survivor". This compensatory mechanism was employed by participants and reflected in their resilience to surmount obstacles that surrounded internet access and cope with challenges of vision impairment. They built identities that emphasised their resilience. Due to the absence of social context cues, the attention of forum members was shifted away from disability, and focused on online comments. This echoes Epp's (2001) argument that, in such media without visual information, the person, not the disability, becomes the primarily identifiable feature and therefore comes first. Although this could minimise the disability identity (Bowker & Tuffin, 2003), many visually impaired older people placed disability in the foreground of their self-disclosure and identity. According to the disability discourse, the placement of disability in self-acceptance is a valued concept in identity formation and has largely been the result of the shift from the medical to social discourse on disability (Peters & Chimedza, 2000). It is the "reclaiming of the body" from models that denigrate people with disabilities (Peters & Chimedza, 2000, p.248). Many participants focused on it, and emphasised the notion of pride in ageing and disability. This reinforced Omolayo's (2009) finding that, while most older people do not initially wish themselves to be disabled, they can maintain high levels of pride and self-esteem despite their disability. Visually impaired older people

in this study demonstrated that they have this perspective in life that is both affirmative, resilient and can be used positively in building and maintaining social ties.

6.4.3 Common identity

Field observations revealed that visually impaired older people shared a sense of commonality. Resilience in the face of challenges posed by vision impairment was a common feature among participants. They held commonalities based on the experience of belonging to a group, having common disability and sharing coping strategies. They collectively maintained a culture of socialising which produced a sense of belonging within their shared range of vision-disability experiences. Identity formation in reaction to adversity has a wide range of manifestations and exists at both personal and societal levels (Runswick-Cole & Goodley, 2013). Findings showed how people with disabilities could feel disparaged by multiple deviant taboos. In such cases, unfavourable constructions of disability could be reinforced. Self-acceptance in identity formation is central to building social relationships because many individualised identities often seek recognition in communities (Runswick-Cole & Goodley, 2013). Overall, the study demonstrates how such common identities in disability could be formally supported through three major channels, namely: ICT education for visually impaired older people; organisations for and of people with vision disabilities; and communication among people who share similar adversity. While there is still institutional support for the medical outlooks on disability, findings support the identity model of disability, and contribute to the dismantling of stereotypes about people with disabilities.

6.5 Relating the findings to published concepts of social well-being

The findings from this study have many similarities with the dimensions of social well-being conceptualised by Keyes (1998) and Larson (1998). Table 6.1 (page 182) illustrates the corresponding elements of social well-being from both authors that are analogous to identified themes in the current study are highlighted in the same colour and on the same row. For example, Larson's concept of "social adjustment" which relates to performance in social roles and making adjustments necessary for successful adaptation to one's environment is matched with the theme from the current thesis which focuses on "coping with vision impairment''. Thus, they are both highlighted in yellow. Similarly, his concept of "social support" is matched with Keyes's concept of "social contribution" and the theme

from this study which deals with "Developing trustworthy relationships". This is because, in sharing experiences of sight loss and coping strategies, visually impaired older people believed that they gave informational support to others with the same disability, and that such support is a valued contribution to the well-being of others. Sharing advice, guidance and suggestions gained from reliable sources are everyday trust-building strategies that are often used by older people to form relationships in online communities (Righi *et al.,* 2012). Such interactions not only contribute to older people's resilience (Janssen, Van Regenmortel, & Abma, 2011), but also enable them to access emotional support (Huang, 2010).

Table 6.1: *Relating the model to other frameworks of social well-being*

Larson's elements of social well-being	**Keyes's elements of social well-being**	**Thematic concepts from current thesis.**
	Social integration	Promoting a sense of belonging
Social support	Social contribution	Developing trustworthy relationships
	Social acceptance	Acceptance of self and others
	Social actualisation	Regaining control
	Social Coherence	Barriers to socialising online
Social adjustment		Compensating for vision impairment

.

The reason for this analogy is because the experiences of participants in relation to how they used the internet were found to be largely consistent with the concepts of social well-being described by both authors. However, participants' concern about the operation of the internet and its inadequacies in accommodating their vision disabilities are described in the theme that focused on "Barriers".

Participants pointed out that, unless the problems mitigating their access to the internet were addressed they stood the risk of being socially isolated. Many of them had a sense of separation from the modern ICT world due to the sophistication of devices which tend not to accommodate a spectrum of visual needs. Their sense of inclusion in an ICT-dependent world was depleted by a belief that modern trends of technologies often targeted the higher proportion of users, whom they perceived as mainly younger and sighted users. This, to a

large extent, is consistent with Keyes's argument that social coherence decreases with age due to the dominance of youth culture (Keyes, 1998). He argued that, in the perception of social coherence, healthy people acknowledge their challenges, and are usually keen to make sense of life (Keyes, 1998). This is reflected in the findings from the current study which show that, although participants recognised that there were many challenges for them surrounding internet access, they were resolved by focusing on the positive benefits it could offer to their well-being.

Keyes's concept of social acceptance (Keyes, 1998) is clearly confirmed in participants' experiences with the use of online forums. They believe that on such platforms, all members are accepted as equal, are interesting, have something to offer and have the same need for friendship and social contact. The loss of visual cues in CMC keeps vision mediated societal prejudice against disability at bay because disability is masked online (Bowker & Tuffin, 2003). This consequently fosters the development of social relationships which does not stigmatise the individual based on disability but accepts him/her based on qualities other than physical appearance (Pfiel, Zaphiris & Wilson, 2009). Furthermore, the belief that visually impaired older people can contribute like others boosts their confidence that their participation is valued by other members of the forum. This also resonates with Keyes's concept of social contribution, particularly among participants who were members of internet forums for visually impaired people. As shown in the findings chapter, they shared valuable altruistic social support with others in a similar situation. The support gained in this context can help them to accept their disability with dignity and make social and psychological adjustments (Bhagotra, Sharma & Raina, 2008). These findings are consistent with Keyes's argument that, when social acceptance is unconditionally received, it imbues more confidence to socialise with others and promotes a sense of belonging.

Larson (1993) argued that social adjustment is a vital element of well-being because adjusting to one's environment, which it entails, can facilitate performance in social roles and the development of relationships. The adjustments that can be made within this context are to a large extent captured by the theme "Compensating for vision impairment". Difficulties with making adjustments to functional loss as a result of vision impairment can cause feelings of frustration at having to be overly reliant on support from others (Percival & Hanson, 2005). A visually impaired person who is unable to make necessary adjustments to adapt or compensate for such losses may go through psychological symptoms such as anxiety, stress, and major depression which may ultimately affect their ability to socialise

(Houde, 2007). The implication of these processes is a perception of being socially isolated and having a diminished sense of belonging. Visually impaired older people in this study, envisage that they and other people with disabilities can benefit from internet use and actualise their potentials if internet access is enhanced. Keyes (1998) noted that individuals who have independence attempt to maintain it when they are faced with unpredictable and traumatic life events. For older people with vision impairment, this study has revealed that they optimised skills in using the internet in order to compensate for vision loss and their shortcomings in face-to-face interaction, and to be as independent as possible. Other ways in which participants made adjustments were by relying on senses other than sight. This is documented in the literature. According to Milligan, a blind activist:

> "*It is possible that blind people tend to utilize other senses more than sighted people to explore their immediate environment and that they actually feel more in continuity with, more a part of, their surrounding*" (Milligan cited in Magee & Millan, 1995, p.21)

Some of the visually impaired older people I spoke with seemed to be reserved about sharing how they socialised by relying on senses other than sight. I wondered whether their reservation was in order to dispel compensatory stereotypes of visually impaired people being more "superhuman" with their other senses (Magee & Millan, 1995). However, there were a few instances when participants narrated their experiences in offline settings which could have caused discomfiting reactions because they used other senses. Again, reflecting on Regina's story of her encounter with the stranger whose voice sounded like mine, such attention to non-visual cues may be likened to practices that sighted people tend to use for example, when navigating a dark room. Her account demonstrated that although visually impaired people often recognise others by distinguishing their non-visual characteristics and interpreting cues which may otherwise have been perceived with vision (Allen, 2004b; Cook, 1992), such an adaptation strategy could sometimes lead to a wrong inference. However, she punctuated her story with humour and chuckled. On reflection, I felt that recounting such experience could have easily provoked quite an upsetting feeling within her, even though it did not seem to. I also shared the same thought about Oscar's account of how he missed the bus. The stories tended to reveal how some participants coped with embarrassing situations.

Laughter also seemed to provide emotional relief and worked to ease tension from challenging computer related tasks in the classes. In reflecting on her research, Sclavi (1994) argues that if sympathy is conveyed each time a tragic tale was recounted, then the tales would not be told so often. I observed that participants perceived humour as a more acceptable disposition, perhaps because it could subvert notions of pity. Participants' use of laughter suggested that humour was a useful coping strategy – a remarkable "social adjustment". To a large extent, this social process influenced my positionality. I presented myself as a potential object of humour to facilitate integration into the humoured expectations of the participants. I regarded my personal attempts at humour as a representation of my sociability toward participants because I aimed to conduct myself in a manner which would encourage familiarity. This enabled me to convey myself as someone who was not aloof, but someone who could be teased easily. Sclavi (1994) recommends this approach as an invaluable strategy to build rapport with research participants. There were instances when I laughed particularly heartily because I was conscious that participants could not see a smile or other visual acknowledgements. It was also a way for me to enhance the non-visual communicative process, and also, to signal that I was in their midst.

6.6 Comparing findings with CMC theories

The media richness theory (Daft & Lengel, 1984) argues that the richness of a medium is determined by its capacity to transmit multiple cues and thus considered face-to-face communication as richest medium for communication. However, findings suggest that the ease of use and how the medium meets the communication needs of the user are important factors that determine what medium is appropriate for what purpose. Thus, despite being poorly rated in the hierarchy of media richness by the MRT (Daft & Lengel, 1986), email was highly valued by visually impaired older people. This implies that the relationship between media richness and its appropriateness for communication may not necessarily be same for visually impaired people as it might be for sighted people. A medium that is mainly visual or rich in visual cues (e.g. TV, printed materials, face-to-face communication) may be associated with higher perceptions of communicative challenges for this group. There seems to be a shift in leisure from watching TV to the social use of internet such as emails and forums among visually impaired older adults because watching TV is more visually oriented. This was reflected in Fred's comment when he said:

> *"If it really came to a choice between keeping the computer going with the internet connection or keeping my television going, if it was my choice, I'll dump television and keep my computer. I wouldn't do without internet connection". [Fred]*

Previous studies have noted that it is often better to eliminate or reduce visual cues due to privacy (Otondo *et al.,* 2008). This shows that different users can perceive the same medium differently, suggesting that a more sophisticated understanding of "what medium is appropriate for whom" or "superior to the other" by whose preference is needed. Overall, findings contend that existing theoretical perspectives of CMC concerning how social relationships are built and maintained online lack specificity about what processes determine users' preferences or media choice, and the dynamics of relational interaction.

When internet users attempt to socialise with others whom they cannot see, they form impressions that help them to reduce uncertainty (Berger & Calabrese, 1975). Within the context of CMC, 'Social Information Processing' theory (SIP) argues that such users will make use of the available cues to socialise (Walther, 1992; Tidwell & Walther, 2002). While empirical evidence abound for SIP (Walther & Parks, 2002), the current thesis is among the few to provide evidence for SIP in an everyday setting consisting of visually impaired users. Findings from this study show that, when socialising online, participants evaluated aspects of messages such as content and meaning to form an impression of their communicating partners. Similarly, in an offline environment, because their vision was impaired, they often assessed non-visual aspects of their communicating partners such as voices or tone. This is in agreement with SIP's formulation that in the absence of visual cues, the remaining cues become more salient. Thus, in compensating for vision impairment, visually impaired people not only apply SIP theory online, but also in offline contexts. Previous experimental studies of SIP focus to a large extent on the manipulation of different cues.

A unique contribution of this study's extension of SIP theory is that it demonstrates how these alternative sources of social information are processed by visually impaired people in online and offline environments when socialising. The study shows that, in some ways, the communications of visually impaired older people are similar to those of any individual communicating on the internet. They coped with the loss of visual cues offline and online

by using paralingual cues (such as tone of voice, rhythm, pitch and volume) and textual cues respectively. By compensating with these cues, they became able to reduce uncertainties and build trustworthy relationships. Due to these findings, the research challenges the assumptions of CMC theories. Firstly, SIP theory holds that the formation of social relationships in CMC occurs gradually and systematically (Walther, 2002). Findings from this study contrastingly suggest that the processes involved in developing social relationships were perceived to be faster and facilitated due to perceived control over communication cues. Participants were able to exchange social cues with others and expand sociability beyond physically defined boundaries of vision disability. The process of intimacy is sometimes facilitated in CMC because the non-verbal gestures in physical life situations are not strictly observed online (Weisgerber, 2000). When body language was used to replace words in face-to-face settings, participants often felt isolated. In text based CMC, all users are compelled to convey such gestures via texts (Walther, 1996). In this way, visually impaired older people perceived the textual media as more inclusive. Due to these dynamics of easier communication in CMC relative to offline contexts, participants were able to develop rapport with others faster, and they facilitated the trust formation process. Opportunities to build and develop social relationships that were often missed in face-to-face contact due to a loss of visual cues (such as not recognising an acquaintance and starting a conversation) were not easily lost in CMC. Thus, while SIP theory states that it takes users longer to attain the same level of intimacy as relationships developed in face-to-face contexts, findings suggest otherwise.

6.7 Chapter summary

While the challenges of vision impairment and loss of visual cues offline presented participants with difficulties in building and maintaining social ties, the internet enabled them to overcome some challenges. Internet use can enhance the ability of older people with vision impairment to explore accessible ways of coping with the challenges of daily and social life. This shows that having internet access is integral to their social life and can help them operate within a socially-valued cultural space, live a competent life, and be more enabled to live fulfilling lives.

Participants used the internet not only to engage in the social world in ways that would have been otherwise difficult, but also as a useful tool in adapting to activities which were

stymied by vision impairment. The lack of visual cues in the virtual world (online), which is contextualised as a limitation by some scholars, was thus construed as an advantage that guaranteed freedom from the visually dominating physical world (offline). The "inequality" in perception of visual cues that exists offline was largely eliminated online thus enabling visually impaired people to participate in a "level-playing field".

Chapter Seven- Conclusions and Recommendations

7.1 Relevance of findings

This study set out to investigate how CMC is used by visually impaired older adults to build and maintain social relationships and how the internet fits into their lives. The study also explored how aspects of their social well-being might be affected by internet use. Findings show that the absence of visual cues online fits into their communication strategies and enables them to socialise without stress. By focusing on visually impaired older people and distinguishing them from other users, the study shows the practicality of drawing a comparison between them and sighted users, particularly in articulating the context of socialising online without visual cues. These findings will promote a better understanding of the perspectives of visually impaired older people on the potential impacts of internet use on their social networks and well-being.

Evidently, the absence of visual cues in CMC holds different meanings from a sighted user perspective when compared with the perspectives of visually impaired users. Although the absence of visual cues could contribute towards making visually impaired users more at ease when socialising online than in face-to-face contexts, it is not necessarily suggested that visually impaired people do not like to see members of their social network face-to-face from time to time. It suggests that, within online communication, people with vision impairment can surpass the limitations presented in face-to-face situations and compensate for sight loss through internet use. While participants acknowledged that face-to-face interaction was conventional, they nevertheless contended that opportunities for effective offline interactions were limited due to their inability to perceive visual cues. Vision impairment often prevented them from incorporating subtly nuanced cues into their communication processes and responding appropriately. In the light of these findings, the study demonstrates that internet use affords this user group the opportunity to interact and socialise with others in ways that are not readily possible in face-to-face contexts.

7.2 Contribution of findings to CMC theories

This study adds to CMC theory by integrating needs that, to date, have not been considered in this way. A common weakness with the processes of socialisation among participants

was that they lacked access to visual cues in face-to-face situations. From the findings, it is possible to argue that theorisation based on the use of visual cues is exclusive because visually impaired people cannot perceive visual cues. Such shortcomings apparently influenced their perceptions about internet use for socialisation and its perceived communicative advantages. In addition, it is evident from the findings that how people use the internet and the impact of CMC on users is not universal; rather, it is interwoven with users' characteristics and communication behaviour. This seems to echo Bubas *et al.'s* (2003, p.54) argument that:

> "*Various theoretical approaches have been applied to account for the diverse phenomena related to interpersonal interaction, relationship development and group communication by technologically-based systems and the internet. However, some overviews of the existing CMC theories have found them to be more descriptive than prescriptive in terms of effective communicative behaviour online and more concerned with the characteristics of the media themselves than about variables like users' motives, communication style, context, or the degree of their participation in interaction"*

In essence, the impact of technology is largely determined by a wide range of social, and (perhaps) physical and physiological features (e.g. disabilities). It is quite understandable that there is often a temptation to generalise based on prevailing assumptions – in this context, that users are sighted and that they will therefore perceive face-to-face interaction as better than CMC. Such generalisations present a danger for researchers who might lose sight of the heterogeneity of user groups and overplay the effects of the difference between face-to-face communication and CMC on the basis of visual cues. Another reason for this is because there is a scarcity of studies on how visually impaired people use ICT. By concluding that face-to-face communication is superior to CMC, there seems to be a tendency not to recognise areas of typical overlap and distinctiveness in ICT use between the visually impaired population and the sighted population.

The exploration of socialisation processes in the daily lives of participants reveals the marked challenges of their inability to access visual cues. Such challenges are replicated online for sighted users and form the basis for the repudiation of virtual media by CMC theories from the perspectives of sighted users. Findings in this study suggest that

participants were already used to building and maintaining social ties without visual cues, and therefore, they were indifferent to its absence in CMC. If anything, their comments suggest that it relieved them from the intricate difficulties of socialisation that were often mediated by visual cues in face-to-face contexts. Thus, to assume that face-to-face interaction is superior because it is rich in visual cues, while interaction in CMC is inferior to face-to-face communication due to the absence of visual cues, is to commit an error that is described from a social psychological perspective as a "fundamental attribution error" (Ross, 1977): in this case, over-valuing explanations for the observed preference for face-to-face interaction among the sighted population while under-valuing situational explanation for such preference (i.e. sighted users prefer face-to-face interaction because they can perceive visual cues). As an analogy, when we communicate over the telephone or emails, visual information could be lost due to the absence of visual cues. Thus, the choice of telephone communication over email might occur as a matter of personal preferences or situational factors. This analogy is similar to participants' views on whether communication in face-to-face is more social because it affords the exchange of visual cues. In other words, as far as participants in this study were concerned, the absence of social context cues in face-to-face interaction and CMC did not make any of them superior on the basis of transmissible visual cues. Therefore, the basis of CMC theories on the argument that face-to-face communication is superior to online communication because it can transmit visual cues is to overplay the salience of the sighted user, which, in itself, is a classic demonstration of fundamental attribution error.

7.3 Implications of findings

These findings highlight some points of attention for policy, theory and practice. The findings have implications for broader issues that may steer the use of Information Communication Technologies (ICTs) among visually impaired older people in more pro-social directions and enhance their ability to cope with the challenges of vision impairment. The lack of ability to perceive visual cues may exacerbate feelings of loneliness among visually impaired older people and cause relationship-related challenges (Wang & Boener, 2008). While communication technology can be used to reduce isolation, many visually impaired older people lack access to such technologies (RNIB, 2013). Thus, ICT practitioners are better placed to use these findings as a resource to inform strategies that aim to bridge the digital divide. It is also recommended for policy makers that, where ICT

is promoted to combat social exclusion, efforts should be directed at ensuring accessible technologies for this group. For example, technologies that mainly support a shared visual environment may be more challenging and complex for this group. Findings also suggest that there is a need to explain the underlying preferences for various media on the basis of how the features of such media accommodate individual communication strategies, rather than a uniform conceptualisation of theories from sighted users' perspectives.

7.3.1 Implications for theory

These findings undermine the notion that Computer Mediated Communication (CMC) theories are sufficient to explain participants' opposing views to widely acclaimed theories on the superiority of face-to-face interaction over CMC on the basis of visual cues. Within the scope of relational interaction online, CMC theories are poorly placed to account for the difference in preferences of face-to-face or CMC between sighted and visually impaired users. This is largely because, although CMC theories are contextually different (e.g. Cues Filtered Out & Cues Filtered In), a key argument common to all CMC theoretical perspectives is that face-to-face communication is rich in visual information, and technically, it facilitates the exchange of non-verbal cues, which plays key role in the formation of social relationships (see chapter three). This argument is often presented as a standard by which interaction and development of relationships in computer mediated communication is compared with face-to-face contexts. From the findings of this study, it is evident that theoretical perspectives of CMC can be made more robust if there is also a consideration of user characteristics alongside media features.

From these findings, it can be argued that CMC theories of interpersonal relationships have flourished on the scope of studies which presented the visual cues in face-to-face environments as a standard by which socialisation in CMC is judged (Coopman, 2009). This tends to overemphasise the sighted users' offline experiences as ultimate, while judging text-based CMC as impersonal because it cannot support the exchange of non-verbal cues between communicators. Many participants believe that visually impaired older people face more challenges when socialising offline than sighted people due to their loss of access to visual information. The ease with which visually impaired older people build and maintain social ties online was, in this context, described by participants as in sharp contrast to the challenges that they struggled with in offline scenarios. This suggests that

the media characteristics, as well as the abilities of the user, both determine how personal a medium is, rather than simply the medium's ability to convey visual cues.

Some studies have reported that individuals who have deficits in their social skills or poor communication skills in face-to-face situations and those who experience disruptive communication related anxieties were more likely to say that that they preferred online interpersonal interaction than face-to-face interaction (Mckenna *et al.,* 2002; Caplan, 2003; Mazalin & Moore, 2004; Ward & Tracey, 2004). In the same vein as such conclusions, visually impaired older people in this study reported that they regarded online interaction as more socially rewarding, not because they lacked social skills, but rather they preferred it because they felt more comfortable with the ease of communicating afforded by the absence of visual cues in CMC and the control over aspects of communication that would otherwise be mediated by visual cues.

7.3.2 Implications for policy and practice

In the past, there have been many policies that advocate internet use for older people in attempts to tackle the problems of social isolation and loneliness (Findlay, 2003). This study recommends that such policies recognise that visually impaired older people will not use the internet if it does not fit into their daily or social lives, or meet their communication needs. Policies should therefore accommodate interventions that will enable visually impaired older people to adopt the internet based on their needs. In the current study, participants who could not use social network sites due to web-layouts or colours that were not user-friendly, simply stuck to emails and online forums. Many of them determined what application suited their communication needs and optimised such tools for their personal benefit. Many intervention strategies, such as digital inclusion programmes that encourage the uptake of internet use among older adults, are often designed with a predetermined curriculum (Tsatsou, Higgs, & Stafford, 2011). Designing digital inclusion programmes in such overly centralised manner may run the risk of denying visually impaired older people the much-needed opportunity to adapt internet use to their own circumstances. In other words, a predetermined technical approach may not fit the priorities of target populations and would achieve little success in bridging the digital divide.

Findings also raise interesting issues with implications for the role of CMC theories in the widening of the digital divide with the visually impaired user group. For example, many

new technologies seem quite amenable to the theoretical position of CMC theories, which confer superiority on face-to-face communication because it supports visual information. In this context, recent advances in social media seem to focus on replicating the face-to-face experience in communication systems (e.g. webcams, avatars, voip videos, and touch screen in the absence of buttons). The designs of Android devices (such as tablet computers, Kindle, smartphones etc.) reflect that visually impaired people are not given sufficient consideration because they require visual cues to operate. Usability for visually impaired people is clearly neglected because sighted users are the dominant market. While such technological advances rely largely on visual information that may be conveyed through CMC, they practically re-invent the difficulties of face-to-face communication for the visually impaired group and further frustrate efforts to bridge the digital divide. This was particularly illustrated in some (previously cited) quotes from participants' comments:

> *"You just got that touch screen things now...so my concern is if it all goes to touch things, I can't see and I've got arthritis in my hands and I find it hard to do the touch thing. You all happen to forget those who have difficulty in using hands, how would that relate to those palms with hands that don't always...it took me an hour to get that up. I couldn't feel the keys because as you get older they feeling is not as good but I find that very difficult" [Samantha]*

> *"The modern day technology with difficult access to visually impaired people isn't really improving our lives and lots of technology is making it much more difficult" [Vivian]*

In this way, the findings have implications for inclusive designs because research on technology designs are largely informed by what happens in face-to-face contexts (Walther, 2011). This is because inclusive designs often focus on discovering a user's needs and preferences, and evaluating what features can optimally address those criteria (Walther, 2011). For example, while some studies have established that sharing photos on social network sites are as effective for building social relationships as sharing visual information in face-to-face (Postmes, 2003; Wu *et al.*, 2011), many participants argued that such interpersonal processes of socialisation in CMC are yet to be accessible to them because assistive devices that provide access to such applications have not been developed. Thus, social network sites are not fully in use by this group.

Overall, analysing the dynamics of online interpersonal behaviour from a visual cue perspective without considering the heterogeneity of users in respect of their visual acuities, might lead to misleading generalisations. Considering offline contexts that exhibit patterns of constraint in access to visual cues could capture more broadly the dynamics of socialisation among those who are "exceptions to the rule" (i.e. visually impaired) in order to inform the modeling of inclusive technology.

Findings also have implications for use of ICT in delivering health care, such as telemedicine care services for older people. Interfaces of many mobile phones are not always suitable for visually impaired older people to maintain consultation relationships with their eye-care providers. In their conventional forms, textual messages are completely inaccessible to many people with vision impairment. Converting textual messages on phone to speech format can help to resolve accessibility challenges for visually impaired older people. Furthermore, while video interface telehealth systems can eliminate travels to hospitals or clinics and provide prompts for medical appointments, its effectiveness might be limited since it is heavily reliant on visual cues. Designing healthcare systems for visually impaired older people in a variety of ways that emphasise textual media more than visual interfaces might be more beneficial. Failure to enhance accessibility to such communication media via these considerations will most likely increase the reliance of visually impaired older people on family members, friends or caregivers to operate or assist in operating the hardware. Because many visually impaired older people aim to regain control and retain their independence, such reliance may compromise their sense of independence. In addition, such reliance may become a source of greater burden for family and caregivers who provide care.

Apart from having the opportunity to use ICT, the willingness of older people to adopt ICT depends on its relevance to their lives (Selwyn *et al.,* 2004). In this study, participants were typically keen to embrace internet use in ways that would enhance their capability to cope with vision impairment. They constructed its meaning in relation to the opportunity that it afforded them to facilitate independent living and alleviate feelings of social isolation. Visually impaired older people explored and interpreted ICT based on their needs for social relationships and coping with vision impairment. In essence, they determined which applications they needed and adopted them to the benefit of their personal and social well-being.

Lastly, findings suggest the crucial role of vision impairment centres in this quest. Apart from creating a collective social space for visually impaired people to explore and interpret ICT based on their needs, they can address other artificial barriers (such as cost of assistive devices). Participants who could not afford the costs of assistive devices had access to them at the centre. Thus, vision impairment centres not only have the potential to enhance the literacy skills of participants, but also to play an important role in enabling visually impaired older people to use ICT within both technical and social contexts. For example, the technical aspects of the CMC appropriation process could focus on the provision of opportunities to adapt its use based on vision disability needs (such as promoting skills to use assistive devices for reading, writing mails, etc.), while the social aspect of the appropriation process highlights its role in integrating opportunities for use of such technologies into social, economic and cultural structures. The social space provided by ICT programs enabled visually impaired older people to meet on a common platform and discuss issues that were relevant to their daily lives. Thus, findings suggest that the impact of internet use on the social well-being of participants is also influenced by the positive support rendered by intermediary organisations. Such support provided and enhanced opportunities for meaningful social networks, not only among participants and their peers but also with the younger generation of visually impaired people and sighted people who assisted them as volunteers. In summary, the following recommendations are made for policy based on these findings:

- In order to promote the social integration of visually impaired older people, there is a need to ensure that inclusive technologies that can enhance their internet access are created. In this way, technological approaches to tackle the digital divide should be built on theoretical advances that are inclusive. In many areas of the world, technological advances draw too heavily on theories that are largely inapplicable to disabled groups. As argued by the current study, many CMC theories are derived from experiments and experiences of sighted users. There is no indication in the literature to suggest that experiments that led to the development of CMC theories included users with disabilities. There is a need to involve visually impaired users as much as sighted users in all ramifications of theoretical developments in CMC.

- These findings are important because the impact of vision impairment on social relationships is an under-researched area in vision rehabilitation (Wang & Boener, 2008; Bambara *et al.*, 2010). The impact of vision impairment on social relationships ought to be an integral and important part of vision rehabilitation program for older people (Wang & Boener, 2008). Exploring ways to enhance the adoption of internet use by visually impaired older adults seems not only a strategic effort to bridge the digital divide, but also a holistic avenue to address both functional and social challenges of daily living. How such efforts can be guided to enhance specific components of social well-being of older adults with vision impairment is also highlighted in the findings. When assessing specific areas of rehabilitation needs (e.g. reading, writing, socialising etc.), eye-care professionals could investigate how such challenges could be compensated for, and whether such compensatory strategies could restore activities that foster building and maintaining social relationships. Rehabilitation professionals could also explore ways of helping the person re-engage with others in online forums that are dedicated to their interests. Articulating their activities of interest with others in a similar situation (online) could help them make social connections, fight loneliness and share ways to cope with relinquished activities of pleasure.

7.3.3 Implications for design

As the value of ethnographical studies in Human Computer Interaction (HCI) does not rely only on their implications for design (Dourish, 2006), it is important to draw tentative examples of how older people's experiences with technology can enable researchers and designers identify how to build better technologies. A good approach is to design inclusive technologies for older people with disabilities. The apparent advantages of tailoring ICTs to meet their special needs are not evident in the lag of such technologies behind the ones used by others without disabilities (Vanderheiden, 2008). Findings reveal the poor uptake of touch screen technologies by visually impaired older people. The findings also showed that visually impaired older people's consistent use of keyboard rather than the mouse, and how they considered this as a normal behaviour. Although participants were old, these findings suggest that they do not want to be regarded as different. Secondly, commands that might be regarded as excessive or requiring visual precision can be conducted via keyboard shortcuts. The use of such keyboard shortcuts could also enable visually impaired older

people to improve their dexterity of computer use (Sayago & Blat, 2013) and reduce complexity. Vision oriented user interfaces, and more recent developments on haptic technologies could be more inclusive in their design approaches. For instance, rather than making screen surfaces undifferentiated, which could lead to digital exclusion of visually impaired users who depend on touch typing, developing inbuilt options for surface bumps (alphabets or Braille formats) could foster inclusion.

The inability to take notes made learning difficult for visually impaired older people at the NSBP centre. Note taking is not an exclusive practice among older adult learners of computer use. Supporting it in user interfaces and enabling access to the notes during use of the computer could enhance inclusion. Designs to facilitate note taking as add-ons to existing text-to-speech tools should be formulated. Findings reveal that visually impaired older people put personal diaries and autobiographic documents into social use by sharing them with family and friends. These components of computer mediated communication could open up more opportunities for designs supports and enriches computer mediated interaction between visually impaired older people and members of their social networks.

Apart from vision impairment, factors such as ICT experiences and overall skills with technology can have a clear impact on how older people use CMC (Turner, Turner, & Walle, 2007). Considering CMC issues beyond such factors, rather from lived experiences, means regarding older adults as people who determine how they use technology (Sayago & Blat, 2013). In consonance with the conclusion made by Hanson (2010) in her research, which explored older people's adoption of technology, the current thesis considers that research on older people with disabilities should focus on their strengths, rather than their weaknesses. This would result in a more positive view of disabilities.

In addition, this study focused on groups of visually impaired older people who have taken the step to (learn to) use CMC, and apply it to their daily lives. Thus, findings may not explicate for how other groups of older people use CMC. However, findings might contribute to existing body of research on Human Computer Interaction (HCI). This include research areas that focus on sustaining older adults' use of ICT (Sloan *et al.,* 2010) or engaging them in ICT (Coleman *et al.,* 2010), and capturing their day-to-day experiences or use of ICT (Turner *et al.,* 2007). Findings from this thesis stress the importance of understanding how visually impaired older people perceive evolution and advancements in technology and the role of such advancements in the digital divide. Visually impaired older

people decide how they appropriate computer applications and functions. The current research has revealed that a large number of older people with vision impairment, through textual CMC, employed strategies to effectively overcome challenges of perceiving visual information, unlike other difficulties related to cognitive decline and remembering steps, which required other strategies (e.g. taking notes). This result triggers speculative discussions on ICT use when today's younger adults grow older with vision impairment. They will likely develop strategies to enable them to cope with, and overcome difficulties in taking notes, because they will build on their experiences of using contemporary ICT. However, due to constant and rapid evolution of technology, the next generation might also face challenges of complex modifications or excessive functions. It is possible that they will develop the strategies to overcome them as a result of their experience with use of ICT.

7.4 Limitations of the study

The current study has several limitations which can be overcome in future research. Firstly, the study did not explore how the different types of vision impairment could have played a role in participants' ability to use the internet and how they socialised with peers. It is possible that the presentation of different kinds of vision impairment or the subjective severity of vision impairment may influence how participants respond to the dynamics of internet use and socialisation. However, it is unknown in the existing literature how and to what extent different types of vision impairment may influence research results.

Secondly, it is important to note that the study setting may have influenced the findings of this research. This is because the gatekeeper organisation (NSBP) actively encouraged and organised offline events among members. This was a practical way by the organisation to facilitate socialisation among participants. Such avenues for socialisation enabled visually impaired older people to develop social relationships among themselves. Many of such activities among members were often extended from face-to-face contexts to online platforms by exchanging emails. Arguably, offline social events could have contributed to the motivating factors to use the internet in a bid to keep in touch with friends from the centre. However, the current study did not delineate the influence of such institutional factors and how it might have played a role in the lives of participants. The study did not investigate to what extent such dynamics might have influenced participants' motivation to socialise online. This is because there could be a tendency for them to want to use the internet merely by seeing their peers using it.

The benefits of CMC are quite obvious for this group. Renaud *et al.* (2006) argued that recipients of email are disproportionately loaded with stress in using it over spontaneous feedback technologies such as the telephone. Their argument holds that the recipients of email often divide their attention between email and other tasks. In other words, recipients have to constantly monitor their emails in order to live up to the senders' expectations by replying the message in an acceptable timescale. The current study did not investigate how participants' preference for emails could have been influenced by the fact that they had ample free time since many of them were housebound older adults. Lastly, although social relationships and interaction are two-way processes, the current study did not investigate both sides of social interactions: that is, the visually impaired person and their communication partners, to assess the impact of internet use on such relationships. This may help obtain richer data and grasp a better evaluation of how the use of internet has impacted on the strength of such ties.

Findings from this study can open new windows for visually impaired older adults in a rapidly advancing ICT world, so that aspects of internet access that they prioritise with respect to social relationships and adaptation to vision impairment can be better understood. Findings from this study also contribute to knowledge about the social context of internet use among visually impaired older persons so that ICT experts can consider these groups in the development of technologies which they believe will contribute to their access. The understanding created by this study might contribute towards efforts to bridge the digital divide. This can be made possible by specifically addressing communication needs of visually impaired older people, which they consider goals that can be met via internet use.

7.5 Recommendations for future research

Besides the contributions to the studies on internet use by people with sensory disabilities, this study may offer some insights on areas needing further exploration in future studies.

Vision impairment affects older people differently, depending on its severity. It may also pose different challenges for social interaction. The challenges manifest in different ways, all of which reflect the issues that are consequences of grappling with inconsistent, discreet and largely unverified fragments of visual information. In previous studies, there has not been much emphasis on how visually impaired older people use ICTs to cope with communication in the dominantly sighted culture. People with vision impairment do not

only build or share contact with one another; they also have contact with others from different disabled groups (e.g. people with hearing impairments, speech impairments etc.). Some studies explain the benefits of ICT in enhancing communication between discreet categories of people with disabilities (Ellis & Kent, 2011; Goggin & Newell, 2003). However, because many such studies contextualise disability as a homogenous concept, there is usually less focus on how specific groups with specific disabilities cope with socialisation within and outside their groups (Best & Butler, 2012). While internet and virtual words can become accessible across groups of different users from different subdivisions of disability, there is little insight into the dynamics, processes and characteristics of CMC which facilitate interpersonal communication between these divergent groups. In discussing how people with disability can be integrated into society, via universal designs, Ellis & Kent (2011) acknowledge that individuals with different disabilities have divergent ICT needs. What might be considered appropriate for a population group with one disability may not necessarily be suitable or useful for a different group of people. This does not suggest that it is entirely impossible for technology to be completely integrative; rather there is need to understand the communication needs peculiar to each group for an integrative strategy to work effectively.

There is limited focus on the dynamics of social interaction and the difficulties of socialisation between visually impaired people and groups with divergent disabilities (Best & Butler, 2012), and conflicting communication needs. Because many studies focus on how visually impaired people communicate with sighted people, Best & Butler (2012) argue that this limited focus inadvertently emphasises the inordinate attention on sighted individuals because it assumes that communication is always between a visually impaired person and a sighted individual.

The current study has shown how internet use affords people with vision impairment an integrative and egalitarian space to socialise without encountering stress and effort of a dominant sighted world. Future studies could explore the advantages of the internet across users with different disabilities, such as between visually impaired users and users with hearing impairment. The following points highlight recommendations for future studies:

- Sighted and visually impaired people engage in similar online activities but certain activities may contribute to the well-being of visually impaired people more. For example, although both visually impaired people and sighted people engage in

building and maintaining social ties online, these activities may be more meaningful to the well-being of visually impaired persons with mobility problems. In addition, other aspects of internet use that could promote well-being vis-a-vis enhancing independent living and promoting online safety are worthy of further exploration in future studies.

- Although many studies already argue that the internet is a useful tool for developing interpersonal relationships (Hu *et al.*, 2004), while some participants were enthusiastic about developing online friends, others were not interested, despite living alone and admitting that they have few people they socialised with. Thus, future studies in this field could investigate further what motivates some people to socialise online more than others.

- As online activities of interests varied markedly among participants, opportunities to develop relationships were not the same for all participants. Future studies could explore how different online activities stimulate interest for the development of social ties among visually impaired older people.

- The dominant cognitive-oriented nature of internet use for this group encourages memorisation because participants cannot take lesson notes. There is evidence from many studies which suggests that computer use can enhance cognitive function and reduce the risk of cognitive decline associated with ageing (Tun & Lachman, 2010; William & Kemper, 2010). Activities that stimulate memory have the potential to promote mental health and social well-being (Sledgers, Boxtell, & Jolles, 2008). Many participants in this study relied on memory to remember their computer lessons. They also developed their cognition when socialising offline by memorising the different voices of every family member and friend, and peers at the computer classes were mainly identified because they memorised the pitch and tone of their voices. Future studies could explore how these mental exercises which participants have adapted for meaningful socialisation (learning to use the internet by heart without taking notes and memorising voices in lieu of faces) could promote mental well-being and enhance cognitive function among visually impaired older people.

In summary and conclusion, this study set out to investigate the personal significance of internet use to visually impaired older people. To achieve this, the study explored how CMC is used to build and maintain social ties and its perceived impact on their well-being. The findings from this study show that participants regarded CMC as a level playing field for socialisation and communication because the lack of visual cues online made communication easier than in face-to-face contexts. There was no sense of obligation to some demands and constraints of reciprocating social cues. Thus, participants felt that they were at parity with sighted people. Because CMC was free of visual cues that were often within the limitations of vision impairment, the dynamics of building social relationships were enhanced by a better control over aspects of developing trustworthy relationships. Such aspects included self-disclosure and using textual cues to form an impression of others. The findings also suggest that visually impaired older people adapted online self-disclosure for identity reconstruction. In this way, the appropriation of self-disclosure by participants showed potential for its de-stigmatisation effect, challenging misconceptions about the proficiencies of visually impaired older people as competent users of new technologies. They disclosed vision disability after building a network of friends online. Revealing vision impairment to an established and supportive network influenced the way the disclosure was viewed by others and had far-reaching consequences for changing held misconceptions about vision disability.

The findings contradict generally held views that face-to-face is superior to CMC. The study suggests that a modification of CMC theories is necessary for them to fit in well with how user characteristics and personalities determine preferences for face-to-face communication over CMC. Thus, the findings reflect the need for CMC theories to include components about how user characteristics and situation could more easily determine media preference or perceived superiority, rather than simply conferring superiority or generalised preference on visual-cue rich media.

Participants' experiences of face-to-face interaction contrasted with the adherence of CMC theories to the importance of visual cues for relational function. Existing theories have been based on the implicit assumption that the absence of visual cues in CMC is of equal importance to all users (Peter, Valkenburgh, & Schouten, 2007). This study is the first to challenge this homogeneous assumption from the informed views and experiences of visually impaired older people. According to visually impaired older people in this study,

the absence of visual cues in CMC does not necessarily mean the absence of sociability

Word Count: 80,547

APPENDICES

Appendix A.

INTERVIEW SCHEDULE

Participant Demographics.

Name

Age

Gender

Cause of Vision Impairment (if Known)

Age at Vision Loss

Previous experience of internet use (before sight loss)

RESEARCH QUESTIONS / INTERVIEW QUESTIONS

***1. How do older adults with vision impairment to build or maintain social ties? (Prompts to ascertain nature of internet use for social purposes*.)**

- Do you keep contact with anyone (family/friend) using the internet? (Such as with the use of e-mails, skype, facebook, twitter or other social network sites) – if Yes, how?
- How often do you do so? (explain/give reasons)
- Who are those you contact most? (what is your relationship with them?)
- What is/are your reason(s) for communicating with them online?
- What is/are your reasons for preferring to use the internet rather than other means of communication?
- For how long have you kept online contact with them? (Are there any new contacts? Did you meet them online? If yes, how?)

2. ***What role does internet use have in redefining their Social Networks?***

(Possible prompts to explore Impact on relationships online and offline)

- Do you think using the internet affects the time you spend with your family/friends in any way? (Please explain further)
- Compare how much social engagements you make now (online and offline) to what it used to be before you started using the internet. Do you think there is any difference? Can the difference be attributed to internet use?
- Do you think your using the internet has an impact on the number of people you contact in-person? If yes, How?
- How will you describe the quality of your relationships (with people you keep contacts with online) now and before? If there is any perceived difference in the quality of relationships, how much of this do you think could be attributed to internet use? (explain/why?)
- Do you think using the internet has had impacts on your social relationships? How? Can you share any experience?
- Are there some social activities (with other people) you sometimes give up to enable you use the internet? If yes, what are they and how often?
- How would you describe the quality of social relationships you have with people whom you contact online and those whom you don't? Is there any difference? Do you feel the difference is because you contact them online?
- With continued internet use, how do you think your socialisation may be affected in the future? (What are your social aspirations with internet use?

3. ***What is the impact of using the internet on the Social Well-Being of Visually impaired older adults?***

- Do you gain any form of support from your online contacts? If yes, what kind of support are they?
- How satisfied are you with the quality of relationships you keep online?
- What are the reasons for your level of satisfaction?

- What impact do you think your experience with use of internet to keep social contacts have on your social well-being?
- What other personal benefits do you feel you derive from making such social contacts online?

Appendix B

Invitation Letter

I wish to invite you to participate in a research study. The purpose of the research study and what it would entail are described on the next page.

Please take time to read the information carefully and ask questions where you feel you need further details.

Your participation would be appreciated but please take time to decide whether or not you would like to participate.

Thank you

Patrick Okonji, (Principal investigator.)

Appendix C

Research Participants' Information Sheet

Study Title: Internet Use and Social well-being among Visually Impaired Older Adults.

Invitation Paragraph

In recent times, the Internet has become increasingly important in the lives of older adults. Many older adults use the internet to keep social contacts by communicating with family and friends online. Because older people with vision disabilities use the internet less than other users, information about how they use the internet is scarce.

Some studies have stated that Internet use has impact on people's social well-being. However, little is known about how, why or to what extend this might be the case. I would like you to take a few minutes to read this information sheet before making up your mind about whether or not you would like to help us with our research.

What is the purpose of the study?

The purpose of this study is to find out how older people with visual impairment use the Internet to build or maintain social ties as well as its impact on their social well-being.

Do I have to take part?

Your participation is voluntary. It's up to you to decide whether to participate or not. If you agree to take part, you will be asked to sign a consent form or provide a recorded verbal consent. You are free to withdraw at any time without giving a reason. This would not affect the standard of services you receive at the NSBP. To withdraw, simply contact the primary investigator by phone or e-mail. Contact details of the primary investigator are provided on the last page of this information sheet. Please remember you do not have to give reasons.

Why have I been chosen?

You have been chosen because you access Internet services at the Newcastle Society for Blind People and you are 60 years of age or over. We believe you can help us understand how the Internet could be used to improve the social well-being of older people with visual impairments.

What will happen if I take part?

If you are happy to participate in the study, or would like further information, please contact me. I will then contact you to arrange to meet up, talk through the study some more, and get your formal consent to participate in the study (either by signing the consent form or by audio recorded consent). Arrangements will be made for an interview with you at the most convenient time for you. The interview will be a face-to-face interview at a comfortable interview room within the NSBP (preferably) or any other location you deem convenient. This should take less than an hour. Interviews will be audio taped, with your permission, and stored anonymously and thus will not be associated with your name.

What are the possible disadvantages and risks of taking part?

There should be no disadvantages or risks to taking part. The Internet services and facilities you are entitled to at the NSBP will be unaffected by your taking part or not. No personal details relating to youwill be recorded anywhere. Only members of the research team will have access to the information you provide us with. The staff of NSBP will not have access to the information you provide.

What are the possible benefits of taking part?

Whilst there may be no personal benefits to your participation in this study, the information and answers you provide can contribute to an understanding of the well-being benefits the Internet has on older adult users with vision impairment. This may help the NSBP to tailor or develop their services in the future.

Will my taking part in the study be kept confidential?

All information you provide to us will be kept confidential. Only members of the research team will have access to it. Your audio taped responses and other collected data will comply with the principles of the Data Protection Act of 1998. Under no circumstance will identifiable responses be provided to any third party. Information emanating from the evaluation will only be made public in a completely un-attributable format to ensure that no participant is identified.

What happens to the results of the research?

The results of the research will be used as part of a doctorate thesis and may be published in scientific journals or presented at conferences.

Who is organising the research?

The research is organised and funded by the Department of Public Health under the school of Community, Health and Education at Northumbria University, Newcastle.

What happens if I do not want to continue with the study after I have given my consent?

You can refuse to participate or withdraw from the study at anytime without giving a reason. If you withdraw from the study, we will destroy all interviews held with you and there will be no traceable record of your participation. For practical reasons, once the record of your interview has been analysed along with that of other participants (approximately two weeks after the interview), it will be impossible to withdraw it from the study.

What if there is a problem?

If you have a concern about any aspect of the study, please contact the primary investigator whose contact is provided below.

Patrick Okonji : Tel: 07550239559

e-mail: patrick.okonji@northumbria.ac.uk

If you have a genuine worry or complain, please contact the principal supervisor:

Prof. Mima Cattan : Tel: 0191 215 6484.

e-mail: mima.cattan@northumbria.ac.uk

OR

The Supervisor: Dr. Monique Lhussier: Tel: 0191 215 6036

e-mail: monique.lhussier@northumbria.ac.uk

If you have further questions now or during your interview, please do not hesitate to get in touch.

Thank you for reading this information booklet.

Appendix D

Consent Form

Study Title: Internet Use and Social Well-Being among Visually Impaired Older Adults.

Please tick **YES/ NO** box

	Y	N
1. I have read and understand the information sheet for above study and have had the opportunity to ask questions.	☐	☐
2. I understand that my participation is voluntary and that I am free to withdraw at anytime without giving reason.	☐	☐
3. I agree to take part in the above study and to the Interview being audio recorded	☐	☐
4.I agree that the researcher may contact me.	☐	☐

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Participant Date Signature

---------- ---------- ----------

Researcher Date Signature

Appendix E

Glossary of acronyms and abbreviations

CCTV - Closed-Circuit Television

CFI - Cues Filtered In

CFO - Cues Filtered out

CMC - Computer Mediated Communication

EDS - European Disability strategy

EFTA - European Free Trade Areas

EU - European Union

EHRC - Equality and Human Rights Commission

IAPB - International Agency for prevention of Blindness

ICT - Information Communication Technology

IPA - Interpretive Phenomenological Analysis

ISM - Information Society and Media

IT - Information Technology

IWS – Internet World Statistics

MRT - Media Richness Theory

NSBP - Newcastle Society for Blind People

OCR - Optical Character Recognition

RMD - Riga Ministerial Declaration

RNIB - Royal National Institute for the Blind

SIDE – Social Identity Deindividuation Theory

SIP - Social Information Processing

SOC - Selection Optimisation and Compensation

SPT - Social Presence Theory

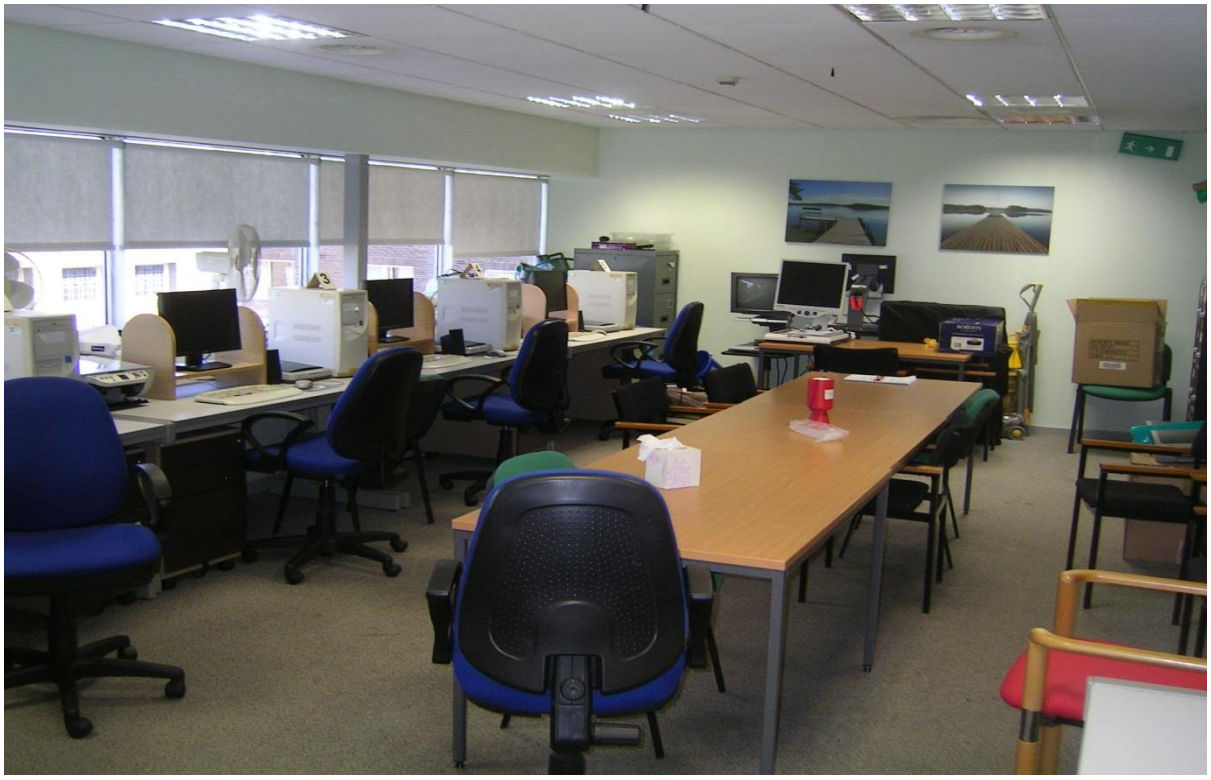
TPT- Thomas Pocklington Trust

UN - United Nations

WHO - World Health Organisation.

Appendix F

The Café



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