

Empowerment and Enablement through Digital Technology in the Generation of the Digital Age

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Abstract

As more and more of the business of society is transferred and conducted online, older adults frequently find themselves without the skills to participate effectively. This is frequently confounded by limited physical mobility and a decrease in their social network and contact. This paper examines the lived reality of that process and how digital technology could be used to enhance the life activity of older adults and their wellbeing by increasing their social network. Seventeen older adults (10 female, 7 male Mage = 71.67, SDage = 10.05) participated in two focus groups that each lasted approximately 90 minutes. Interpretative Phenomenological Analysis yielded two main themes: Digital technology serving as a tool to disempower and empower. Findings support evidence of a digital divide and how that divide is evolving from the ideographic perspective of digitally-engaged older adults and for society. Discussions also surround barriers to digital technology use for older adults, the codification of digital technology use within society, and how older adults use digital technology in a facilitative and inclusive way to empower themselves and protect them from negative effects of the digital divide.

Keywords: Social inclusion; Older adults; Digital divide; Digital by default; Civic Participation

Introduction

The increase in the relative proportion of older adults in the UK (Cracknell, 2010), has resulted in both enhancing older adults' social inclusion and promoting social and community connectiveness to be identified as crucial agendas by the government and numerous stakeholders (e.g., Dilnot, 2011). Behind this impetus to enhance social inclusion is the recognition that we live in a changing society with many services and resources accessible only through digital means as a mechanism to meet funding shortfalls (Lam & Lee, 2006; McMellon & Schiffman, 2012). Although older adults represent a growing group of technology users (Vroman, Arthanat, & Lysack, 2015), the ever evolving nature of technology means that individuals need ever increasing levels of digital literacy to maintain their sense of inclusion. Therefore, gaining a greater understanding of the lived experience of older adults' technology use will facilitate the implementation of such approaches. The present study addressed this issue through conducting two focus groups with older adults and using Interpretive Phenomenological Analysis (IPA) to explore their experiences.

How do older adults engage with digital technology?

Vroman et al. (2015) proposed a socio-ecological model of older adults' digital technology use. At the centre of the model is the individual with their unique characteristics including their attitudes to digital technology, their needs, and their capacity to use digital technology which aligns to using technology to maintain social contacts. The next level of technology use is as a tool for carrying out day-to-day activities. The final level represents the most sophisticated level of digital connection with the individual making connections with their broader community which are not restricted by geographical boundaries. The theoretical model proposed by Vroman et al. is developed from quantitative analyses which

may fail to fully encapsulate older adults' experiences. Specifically, older adults are a disparate and heterogeneous group with regards to their digital technology use because their past employment, motivation, and existing knowledge varies (Lee & Coughlin, 2014). Further, although some older adults have actively embraced digital technology use, others are more reluctant resulting in an emerging digital divide (Carvalho et al., 2012). However, research examining this digital divide has typically reflected impacts at the micro (individual) rather than the macro (societal) level and it remains unclear whether older adults' perceive and experience this divide. Consequently, the present research explored with older adults issues aligned to how they engage with digital technology.

Benefits of technology use for older adults

Whilst the increasing digitalisation of society has been identified as a risk factor for reducing social inclusion and weakening social ties, because of the potential reduction in face-to-face contact that it affords (Chen, 2013), digital technologies may offer one mechanism to enhance social inclusion in older adults. For example, older adults with limited mobility can use digital technology to maintain their social networks and ultimately facilitate their wellbeing (Choi & DiNitto, 2013; Winstead et al., 2013). Greater computer knowledge can also serve to empower by allowing older adults to be more independent, maintain their social networks, and enhance their knowledge of health issues (Karavidas, Lim, & Katsikas, 2005; Heart & Calderon, 2013). Time spent constructively also reduces feelings of loneliness (Pettigrew & Roberts, 2008) and prevents cognitive decline (Tun & Lachman, 2010). In support of these arguments, recent quasi-experimental research has reported that internet training significantly reduces loneliness, a proxy of social isolation, in older adults (Blažun, Saranto, & Rissanen, 2012; Fokkema & Knipscheer, 2007; Shapira, Barak, & Gal, 2007). However, not all studies have reported a comparable enhancement of perceived social inclusion (e.g., White et al., 2002) prompting critics to argue that the reported enhanced social inclusion occurred as a training/support effect rather than because of the digital technology per se (Dickinson & Gregor, 2006). Together, these studies suggest that it may be the activities that older adults engage in when using digital technology that facilitated social inclusion and empowerment. The current study aimed to gain further insight into these issues through a qualitative exploration of older adults' experiences of digital technology use and their perceptions of wellbeing.

Empirical evidence reports that although older adults tend to predominately use the internet for communication and information seeking purposes (Erickson & Johnson, 2011), a sense of social inclusion was found to be fostered when older adults spent more time using the internet (McMellon & Schiffman, 2002; Sum, Mathews, Hughes, & Campbell, 2008). Also, those older adults who spent more time using the internet often had a larger computer mediated social network and, this in turn, promoted feelings of connectiveness (Nahm, Resnick, & Mills, 2003). Similarly and more recently, older adults who reported that they frequently used the internet also reported that they rarely felt lonely and isolated whereas those that rarely used the internet reported that they often felt lonely and isolated (Mason, Sinclair, & Berry, 2012). Moreover, similar results have been reported in older adults in assisted and independent living communities: increased internet

use is associated with reduced loneliness and increased social contact (Cotton, Anderson, & McCulloch, 2013). Using the internet and digital technology as a means of communication may allow older adults to compensate for potential mobility loss and lifestyle changes associated with ageing (McMellon & Schiffman, 2002) and foster a sense of empowerment. From a theoretical perspective, how older adults communicate online may also impact on their sense of social connectiveness and social inclusion. According to the media richness theory (Daft & Lengel 1986; Daft, Lengel, & Trevino, 1987), the richer the communication medium in terms of the available social cues, the more effective the communication. For example, when communicating face-to-face, individuals are able to use words, vocal cues, and non-verbal behaviours to communicate factual and social information in a quick and unambiguous manner (Dennis & Kinney, 1998). Therefore, a Skype communication with a web camera enabled would be more effective and 'rich' than a Skype communication without a web camera.

Attitudes to digital technology

Another likely contributor to the psychosocial benefits of older adults' digital technology use is their underlying motives for engaging with technology. Through exploring evaluations of the benefits and uses of digital technology with older adults, insights can be gained as to what the enablers or barriers are to access the many benefits. For example, older adults who use the internet to communicate with others reported lower levels of social loneliness (Sum et al., 2008). One possible explanation for the increased wellbeing due to computer-mediated social support is the likelihood of interacting with someone with similar life experiences who may be more accessible in the digital world (Pfiel, Zaphiris, & Wilson, 2009). Moreover, giving and receiving support through digital means enhances a sense of connectiveness and wellbeing (Thomas, 2010). An alternative explanation is provided by the hyperpersonal model (Walther, 1996), which proposes that it is possible to have social relationships characterised by high levels of intimacy through computer mediated communication because of characteristics of those communicating. Specifically, self-presentation of the sender, over attribution of similarity of the sender, asynchronous channel use, and self-fulfilling feedback prophecy enhance intimacy.

Aligned with motivation for using technology, an individual's sense of self-efficacy also bears on their technology use and their acceptance of digital technology (Igarria & Iivari, 1995). Specifically, an individual's belief in their capabilities to perform certain tasks and to organise information such that they can produce positive outcomes influences how they perceive and subsequently use technology (Hsu & Chiu, 2004). In support of this proposition, studies with adults across the life-span have consistently found that a greater sense of self-efficacy is associated with greater technology use (e.g., Eastin & LaRose, 2000; Karavidas et al., 2005). Further, a greater sense of self-efficacy specifically for the internet is associated with greater internet use (Lam & Lee, 2006; Salanova et al., 2000). Additionally, research has focussed on capturing and quantifying behaviours and phenomena throughout the life-span (Weil & Rosen, 1995). Therefore, when considering the benefits of digital technology for enhancing older adults' social inclusion and social connectivity, it is important to acknowledge older adults' perceptions of the abilities to complete the required tasks rather than simply their

knowledge of particular tasks. For example, older adults who perceived social networking websites as easy to use and useful are more likely to use them (Bruan, 2013). However, Dickson and Gregor (2006) caution against misattribution of causality and generalisation of findings in such studies because the participants tend to be self-selected and experienced computer users.

The current study

It is clear from the preceding discussions that digital and social care agendas set by stakeholder groups need to meet the needs for older adults to maintain their sense of inclusion through increasing their digital literacy, especially when information and services are migrating to exclusively digital access (Barnard, Bradley, Hodgson, & Lloyd, 2013). Within the context of an ageing society, planning for social resilience in this way has been a focus of the literature both in the US, UK, and other countries and is crucial to future proofing our public services and current levels of support (McMellon & Schiffman, 2012; Gatto & Tak, 2008; Lam & Lee, 2006). Recent studies have used quantitative survey methods to examine older adults' experiences of technology use (e.g., Vroman et al., 2015); however, to gain a deeper insight and understanding focus groups were conducted in the current study. Gaining a further insight into older adults' experiences of digital technology through the use of qualitative methods and IPA is particularly pertinent because, according to Barnard et al. (2013), technology use will be greatest when the experience extends beyond functionality and acceptance to an emotional response. Having outlined the competing theories and explanations of social contact and technology use, the main focus of this paper was to gain an understanding of the experiences of older adults. Therefore, the research explored:

1. How older adults use digital technology,
2. The impact of digital technology on older adults' wellbeing, and
3. Older adults' attitudes towards digital technology.

Materials and Method

IPA responds to the meaning making nature of the research questions and, therefore, was selected as the most appropriate method for this research. As an analytical technique, IPA is idiographic, exploring an individual's perception of a phenomenon as opposed to producing an objective record of the event or state itself. It involves detailed analysis of similar cases to try and understand lived experiences and how those people make sense of their experiences, and the meanings these experiences have for the person. At the same time, while trying to get close to the participant's personal world, IPA acknowledges that no one outside of any experience can ever do this directly or completely. So it acknowledges that there is an element of the analysis that is dependent on the researcher's own conception of the data; and that this interpretative activity is needed to make sense of the other person's personal world. Using this method ensures the lived experiences of older adults were explored. The debate surrounding the use of ideographic methods such as IPA with a group data

collection method such as focus groups is captured well in Palmer, Larkin, De Visser, and Fadden (2010). Whilst engaging in the analytic process we remained cognisant of the protocol developed and presented within that paper.

Participants

To gain a range of insight into older adults' lived experiences of technology, two focus groups took place with older adults who attended digital inclusion classes. The first focus group contained 10 people aged between 55 and 80 with a mean age of 68.7. The second focus group contained 7 people aged between 54 and 85 with a mean age of 81 (10 female, 7 male). The recruitment of participants was consistent with best practice identified by Smith and Osborn (2003) such that purposive sampling was implemented to ensure that a closely defined group were selected. Participants were recruited through a regional Age UK who purposively recruited older adults who have previously attended digital inclusion classes. These are a suite of classes based around different levels of knowledge, familiarity, interest, and function of digital technology.

Procedure

Data was collected through two focus groups (each lasting approximately an hour and a half). The two focus groups aimed to cover the participants' awareness and usage of digital technology (e.g., "Please could you describe what digital technology you are aware of? Can you tell us about the digital technologies that you use most frequently?"), the impact of digital technology on the participants' wellbeing (e.g., "Could you now tell us what you consider to be the effects of digital technology more generally for your wellbeing?"), and the technical and non-technical gains of attending a digital inclusion class ("Could you tell us what you feel you gained from the digital inclusion group?"). Our research funding was secured in collaboration with the regional Age UK. The organisation approached individuals who had attended at least one digital inclusion class, passing on an invitation to take part in the research at a pre-arranged time on the premises where the digital inclusion classes had taken place. This was to ensure that participants could gain access to the focus groups considering possible physical barriers with the target population such as access and transport.

The focus groups were facilitated by all three researchers. One researcher took the lead in facilitating the discussions, another took on the role as note taker using a flipchart; this was to aid the discussions so that review and reflection questions could be asked towards the end of the focus groups using those notes as discussion aids. The discussions were digitally recorded and then transcribed verbatim. Timing of pauses are denoted by brackets around the length of pause in seconds.

The iterative IPA analytic process was followed (see Smith & Osborn, 2003) with one researcher taking the lead on the analysis and the other two researchers then reviewing the analysis to check for process and academic rigour. Briefly, to promote familiarity with the discourse, the transcripts were read a number of times then associations, connections, and initial interpretations were noted. Next emerging theme titles were developed and then connections were recorded between themes. From the clustering of these subordinate themes, superordinate

themes were constructed. Throughout this process, the transcripts were continually referred to, ensuring that they reflected what the participants had said. In line with the approach by Smith and Osborn, these descriptive and interpretive steps ensured that the double hermeneutic within interpretative phenomenological analysis was achieved.

In order to establish a common term of reference for the analysis and discussion, participants defined digital technology most frequently as computers and phones (including land, mobile, and smart phones). However, they also regarded Skype, Facebook, kindles, iPads, televisions, twitter, printers, and emails as technology. Consequently, the participants defined digital technology as activities performed rather than as computer functions, tasks, and programmes as per the trend in previous literature (e.g., Olson et al., 2011). This participant-generated definition of technology will be the activities and items we refer to when we discuss Digital Technology (DT) throughout the following analysis.

Results

The IPA yielded two superordinate themes from the data: DT as a tool to 1) Disempower and to 2) Empower. Within these themes are clusters of talk expressing the barriers, negative consequences, and debilitating impacts of DT on individuals (disempowerment) and their perception of the wider community and empowering aspects of digital technology.

Disempowerment

DT itself was perceived as a barrier with apprehension of the language and perceived complexity of the technology. This limited the confidence and interest participants had to engage with different forms and uses of DT. Once this initial barrier had been removed or overcome, confidence and interest increased, skills developed and this led to a greater interest in DT and its uses. This is captured in the excerpt below:

“So it’s building an enthusiasm and an understanding, realising things aren’t so hard, they’re quite simple (0.7) and computers now are simple, they’ve got graphics that lead you through everything” Snowy, Focus Group 2.

Data described the initial barrier of fear. For some older adults the apprehension grew which stopped them from seeking knowledge and skills in order to engage with DT:

“Well it’s fear that’s the problem with most older people isn’t it” Snowy, Focus Group 2.

The participants were selected from a digitally-aware group of older adults and this facilitated the discussion to further examine what they thought the structure of this fear was and how to remove it. The talk was clear that this fear related to the economic consequences of breaking or harming new expensive equipment. The participants shared in their talk that this was a self-limiting factor which dissolved once they understood that computer structures are high in resilience

and low in sensitivity. This was further removed once participants experimented in a supported or safe environment and learnt that the technology would not be easy to destroy:

"But I think that's, I think that's one of the thing, why I mention it, I say I think that's what puts off a lot of people they are frightened that if it goes wrong you know, what will they do" Sparky, Focus Group 2.

Data suggested that once their initial fear of breaking the technology was overcome or removed, this was then replaced with a new fear associated with security and the vulnerability of both themselves and the technology. This fear was anchored to a breach in the protection of both technology itself and of their personal data. The fear of a breach in security harming the technology was expressed by the fear of a 'blue screen of death' or a destructive worm. This was anchored to the fear for themselves, where concern that their personal data or details would be captured (identity, bank detail theft) and manipulated. These fears were very real and prohibitive for the older adults as they felt reasonably helpless to protect, identify, and resolve the issue if this happened. They were, however, able to use their previous experience of overcoming fears of new technology to address their fear of evolving digital technology:

"I think if somebody would tell me more about them, and explain to me, okay what they are and what, what function they, they they serve. Then I, I might, I would be interested, but at the moment I don't know enough about them to be able to use them" Foxglove, Focus Group 2.

These appreciations of how they feel comfortable learning about new technology was common talk amongst the older adults. As can be seen by the excerpt above, if they were to use the technology to enhance their social network and increase their social connectedness, they first need evidence of how the new DT would enable this in a safe and supported way.

Negatives of Digital Technology for Older Adults

Participants talk focussed on their identification and lived experience of a digital divide whereby those older adults without DT are unable to access information nor are they able to participate in certain communities and activities. This is seen by participants as a cumulative, self-propelling spiral of isolation whereby the digitally rich continue to become included and the digitally poor continue to become isolated within a culture where more of society's business and culture is conducted through technology. This digital divide is propelled by other supporting aspects such as limited mobility, limited knowledge of social activities, and limited methods of connecting with others and therefore the divide continues to grow.

"If you, if you can't use a computer these days it's like being, not being able to sort of read or write 50 years ago (0.9) urm, I think one has to be computer literate" 2606, Focus Group 2.

This limiting aspect of digital illiteracy was widely spoken about by participants and was a real concern they held about their peer group specifically. Their concerns involved people who had not developed digital skills consequently being

at risk of being excluded from participating in society at both the macro and micro level, as demonstrated by the excerpt below:

"This is a summer edition of AgeUK, if you look through there, there are seven cases where they could tell you to get more information, and the only way you could get it is to use your computer. They will, no alternatives, no address, no phone number, but (0.2) go to this website, and that's at AgeUK" Sparky, Focus Group 2.

The inability to participate fully in society was coupled with their concern that the age of their peer group meant it is essential to have access to these opportunities in order to maintain their health and wellbeing:

"The older you get the more (0.4) isolated you can become, you desperately, not desperately that's the wrong word, you, you've got to maintain your (0.7) social contacts otherwise you do just get overlooked and isolated" Charlotte, Focus Group 1.

The talk clearly suggested that digital participation can not only provide information for older adults to participate in society, but that they can also sustain social contacts. The benefits of computer-mediated social networks and social connectedness were apparent to a participant group experiencing mobility loss and lifestyle changes relating to ageing. It was clear in the talk that participants felt digital contact on its own was not sufficient, it had to be coupled with face-to-face social contact. However, the effect that this digital divide had on older adults who were not interested in DT was a moral and social concern for them.

Negatives of Digital Technology for Younger Adults

Divides were also expressed in the data relating to technology as deskilling younger generations; not only in terms of written communication, but also in their ability to problem solve and their capacity to be on their own, as can be seen in the following excerpts:

"People uh don't seem now to take responsibility for their own decisions...you had a problem and you had to sort it out because it be difficult to make a phone call" Sparky, Focus Group 2.

"People now seem to be getting very almost scared of being unable to come in come and contact other folk, they-they don't like being on their own, they always feel like they like to be able to talk to somebody" Sparky, Focus Group 2.

This was a real concern for participants as they saw the process of independence and self-reliance being eroded away within the younger generations. They were clear to attribute this to the constant contact that DT facilitated and the culture of constancy surrounding new mobile devices. Constantly having it turned on, constantly being available, and constantly making connections with others. This was seen as eroding an individual's ability to be reliant on their own skill set or be comfortable in their own company without interruption; instead feeling the need to text, message, or speak with another person. This was seen as having an exacerbating consequence of preventing self-reliance and experiential learning

within problem-solving situations, which in turn resulted in more contact in those situations and a further decrease in resourcefulness. This all culminated in a gravitas away from independence.

This concern that younger generations were dependent on the feeling of being constantly and instantly connected to others also had a direct impact on participants. Their talk identified younger people's use of DT as being intrusive on the community as boundaries and etiquette have shifted:

"Well there's no etiquette, no no nobody doesn't, like you say there's no rules on on when they should and shouldn't use (1.0) you know not shouldn't use them"
Pip, Focus Group 1.

"Very intrusive with all the technology" Lakes, Focus Group 2.

The quantity and style of the use of DT by younger people has broken through traditional past courtesies and cultural norms of polite behaviour. Participants discussed telephone conversations in situations where another person interrupting in a face-to-face situation would not be socially accepted. For example, they spoke of witnessing texting or web activity at public dinner tables or people paying in a shop whilst responding to another person through text, messaging, or calls. Participants compared this with a traditional house phone or a face-to-face contact and concluded that previous social norms dictate that the person would wait until they had finished the task at hand and then speak with that person. The amount of DT within public shared spaces such as shops, parks, and buses means that they are interrupted by other people's conversations and technological sounds (buzzing, annotated sounds, and alert tones). Data suggested that this was viewed by participants as an encroachment on their lives as they might ensure that their DT did not unduly interrupt their own lives, but other people's DT usage was intrusive. Participants reflected on their struggle to negotiate the application of the codification, norms, and expectations anchored in traditional social interactions with the new methods of social interaction through DT.

Empowerment

Digital Technology as inclusive and facilitating

Withstanding the disempowerment that DT brings, DT was conversely also defined as being a life facilitator. Through enabling hobbies, social contact, and everyday tasks, DT facilitated more enjoyment, support, and flexibility in to the lives of participants. This in turn supports social inclusion by enabling social connectedness, computer mediated social networks, and also opens up opportunities to introduce more enabling uses of DT (contributing to the phenomena of the digital divide outlined in previous discussions of this paper).

Facilitation of everyday tasks was clearly identified as a strength of DT within our participant group:

"It gives you an option to to go on and, and do still continue to do things if you (1.0) you know, if you can't get out of the house even if it's just renewing your (0.4) library books or stuff like that" Minni, Focus Group 1.

"I mean I couldn't manage without, I couldn't live where I live without, especially in winter" Charlotte, Focus Group 1.

Their use of DT clearly enables these older adults to overcome physical barriers such as distance, personal mobility, limitations of time, prohibitive weather conditions, and the move from physical to online access to opportunities. All of these challenging factors can be addressed through the use of DT which reflects the positive position within the digital divide. The 'double bubble' of both reducing geographic distances and limiting the effect of being unable to achieve tasks such as driving or walking is delivered by DT use and enables older adults to continue to participate in social, cultural, and civic activities. This ensures their independence and maintains their role as a stakeholder in society. This becomes highly relevant for participants as they discuss the migration from written records and physical methods of participation (for example attendance within a group at a geographical location) within societal activities, to online records, and methods of participation. Having the skills to follow this migration in order to continue their contribution to those activities is seen as an essential need.

"I would not like to go back to a life without a computer" Sparky, Focus Group 2.

Complementing the stakeholder benefits of DT use, the facilitation of social activities also brings a wealth of advantages. By enabling hobbies and activities yielding enjoyment or pleasure, DT facilitates positive feelings which in turn contribute to increased levels of wellbeing. Alongside the societal participation outlined above, this contribution to wellbeing can support the social inclusion of older adults.

The data identified DT as a facilitator for social contact with others, enabled through additional contributions to participants' wider social lives and also through encouraging interaction with other people. This computer mediated social network and social connectedness compensates for the loss of mobility and lifestyle changes that are synonymous with ageing. Although the positive impact of this contact was evident, this could have been enabled through the quality, quantity, complexity, or nature of the contact.

"But now I can talk to my daughter in Holland and see the Grandchildren and the other rel-, relations over there. So you know it's lovely to see my granddaughters birthday, second birthday" Charlotte, Focus Group 1.

This participation in social contact supports their relationships and reduces loneliness. As stated within the subtheme of disempowerment, the talk was clear that this could not replace face to face contact. However, the two different mediums could combine to potentially reduce isolation and loneliness in older adults. As evidenced through the excerpt above, this could be achieved through facilitating maintenance of existing relationships that had been disrupted by geographical location. Therefore, the outcome for the participants is that their use of DT contributes to the meeting of their social needs, therefore reducing loneliness.

Discussion

Through the use of IPA, the research aimed to gain an experiential account of older adults' use of, and attitudes towards, digital technology and the impact of digital technology use on their wellbeing. The older adults participating in this research have highlighted both the empowering and disempowering nature of digital technology. Their talk focussed on the digital divide; how the use of digital technology not only facilitates, encourages and supports their wellbeing, but it can also increase isolation and loss of access to participation in democracy/civic duty within their community. These findings meaningfully inform the agendas set by stakeholder groups to plan for social inclusion whilst future proofing public services (Gatto & Tak, 2008; Lam & Lee, 2006; McMellon & Schiffman, 2012). Promotion of social inclusion, networks, contact, connectedness, and participation in society are key to designing in social resilience. If stakeholder groups were to use technology to enhance social resilience, they first need a strong evidence base to indicate the current use of, impact by, and attitudes to digital technology by older adults.

Older adults' digital technology use

Whilst the current use of digital technology by individuals was considered extensively in the data, the current use of digital technology by industry and the civic was also a concern raised by participants. As stakeholder groups (such as government, the National Health Service, private industry servicing older adult's needs) are challenged to create savings to meet funding shortfalls, they are increasingly putting a lot of their activity and points of contact for service users in their virtual resources (Lam & Lee, 2006; McMellon & Schiffman, 2012). This can have the benefit of individuals being empowered through technology in order to gain more control over their health and their health records (for example McMellon and Schiffman explored this phenomena in relation to the National Health Service and online data, comparing the UK and US), it can also have detrimental consequences of disempowerment and exclusion. The digital divide is growing consideration both within academic literature and practitioners (e.g., Carvalho et al., 2012). However, this has mostly been concerned with the amount and nature of technology and with an emphasis on the psychological impacts on the individual.

Within debates surrounding the digital divide psychological research has generally focussed on how digital technology can compensate for loss of mobility and lifestyle changes associated with ageing (e.g., McMellon & Schiffman, 2002), or it has attempted to quantify the process of disengagement with technology (e.g., Carvalho et al., 2012). Both of these focus on the micro systems within the debate. The findings of this paper offer a unique addition to this debate by highlighting macro systems such as group level impacts. This has been exemplified particularly through findings indicating that older adults are sometimes limited in their ability to continue to meaningfully participate in society (c.f. Vroman et al., 2015). This civic participation was highlighted as an important aspiration in the Pittsburgh project (Institute of Museum and Library Services, 2011) as well as the implementation of 'respectful support' for those populations who have challenges in engaging fully in society, such as older adults. This has been challenged explicitly by other publications such as the white paper "Digital

by Default" (2012). This sets out the intention that investment throughout services should move away from the traditional 'voice by default' (predominantly telephone contact with customers), but through a number of concurrent social media methods. This is echoed in the UK Governmental White Paper as part of the Civil Service Reform Plan. The "Government Digital Strategy and Digital Efficiency" report (2013) sets out the expectation that all governmental transactions should be through digital mediums only unless the individual member of the public is not online. In these cases they will receive support to access the digital transactions. The departments involved in this initiative include HM Revenue and Customs, Department for Transport, Department for Work and Pensions and the Department for Environment Food and Rural Affairs. These two papers illustrate the extent of the clear move to communicate to individuals and with society through digital mediums only. When these are put in context of the aging population who are not digitally active, this actually impacts both at an individual and societal level. Therefore findings from this study have supported previous findings focussing on micro systems, in addition to highlighting the possible impact on macro systems.

The impact of digital technology on individual and societal engagement with technological advancement has been explored within the literature (Gatto & Tale, 2008). However, the lived experience of these impacts (such as the macro and micro systems within the phenomena of the digital divide) has highlighted the wider context of an increasing influence from digital technology on shaping the nature and expression of human behaviours and society (Wagner, Hassanein, & Head, 2010). One clear illustration of this shaping of expression and behaviour is the older adults' struggle to integrate developing codification, norms, and expectations of interactions which arise from new methods of social interaction using digital technology. This mismatch facilitates social disruption, creating barriers to their comfort in integrating in to wider society and multigenerational social situations. It also provides further evidence of the socio-ecological model of older adults' technology use proposed by Vroman et al. (2015). Disruption associated with the conflict arising from such phenomena as the fear of missing out (Przybylski et al., 2013), digital technology etiquette (Forgays, Hyman, & Schreiber, 2014; Lipscomb, Totten, Cook, & Lesch, 2007) informs the psychological impact of how digital technology is used by constituent groups within society, but this does not address the integration of these experiences. Additionally, research has focussed on capturing and quantifying behaviours and phenomena arising through the different technology needs and interactions of young and older adults or global impacts of digital technology (Weil & Rosen, 1995), but their impacts have mainly only been captured within the culture and participation of the group in which they have been studied. They have not identified how these behaviours synthesise across societies and communities at a macro level: this is a unique finding of this paper.

Attitudes towards, and benefits of, digital technology

Following on from the psychological impact on wider society, the other contribution this paper makes to the macro level is to highlight the belief of older adults that one impact is contribution to the deskilling of younger adults relating to their cognitive abilities (see Salomon, Perkins, & Globerson, 1991 for

example). The debate suggests that contrary to the concerns of the older adults (an erosion of an individual's ability to be reliant on their own skill set or be comfortable in their own company without interruption), the way in which younger people are using digital technology is to 'outsource' aspects of cognitive load in order to focus on higher order activities (de Souza, da Silva, da Silva, Roazzi & da Silva Carrilho, 2012; Edmondson & Beale, 2008). The concern of older adults of this possible deskilling was strong within the data, possibly connecting this with a dependency on technology as a social mediator, in turn reducing social contact and effective social skills. It is recognised that this offers empirical insight as to how society is conceptualising this wider debate. This enables literature to effectively engage at the societal level as the use and development of digital technology continues to saturate communities*. The findings of this paper also suggest that this might be an unintended consequence of saturated social connectedness. Debates surrounding the psychological effects of computers on social interactions will therefore be informed by the findings from this paper; contributing to the literatures above and also literatures exploring loneliness and isolation (Chu, 2010; Cody, Dunn, Hoppin, & Wendt, 1999; Dickinson & Gregor, 2006; Hilt & Lipschultz, 2004; Katsikas, Lim, & Katsikas, 2005; Nahm, Resnick, & Mills, 2003; Wright, 2000).

The potential reduction in social isolation and loneliness that digital technology can offer has been clearly evidenced (White & Weatherall, 2000). This paper has added a detailed understanding of the impacts, attitudes, and use of digital technology by older adults to achieve reduced isolation and loneliness and increased wellbeing. The findings have clearly identified that this should not replace face-to-face contact, it is more about complimenting face-to-face contact. This is reflected in other literatures exploring isolation (e.g., Dickinson & Gregor, 2006) and psychological aspects (e.g., Wright, 2000) of computer use. This offers direction for future research to attempt to further understand the nature of the impacts that digital technology has in reducing loneliness and social isolation. This could contribute to our knowledge and policy guidance in the allocation of resources used to enhance quality of social networks and the number of points of social contact (quantity). Both of which are important in promoting and achieving activity through the ageing process to support successful ageing.

At the macro level policy should account for barriers to older adults' digital technology such as addressing the fears associated with the security of the technology and personal data. However, a large number of organisational and societal policies focus on reducing isolation by increasing the use of digital technology; and they advocate this new uptake by outlining benefits to users (e.g. Lawler, 2014). Further, the findings of this paper clearly demonstrate that outlining positives, without addressing the fears will not lead novices to engage or adopt digital technologies. Therefore, in order to achieve inclusion at a macro level, training programmes and policies should be cognisant of the barriers to technology and explicitly address them as a first step, before then going on to outline the positives of digital technology use.

Future directions and limitations

Future directions in this research area could also examine why older adults decide not to engage with digital technology. This would gain further insight in to the

relationship between older adults' perceptions of digital inclusion, technological confidence, loneliness, and wellbeing (Alpass & Neville, 2003). It would also aid in helping the stakeholder groups to engage meaningfully with older adults to support their development and activity in a virtual space, enabling the older adults to continue to participate in society and the civic. The removing of fear/barriers/distrust in technology could be addressed through any digital skills training (Cattan, White, Bond, & Learmouth, 2005; Lagana, 2008) which will in turn reduce loneliness and the digital divide. However, to what extent and what constitutes an effective training method is still debated (Findlay, 2003). In order to inform this debate we have captured and examined our participants' very specific expectations about their optimum learning environment (Betts, Hill & Gardner, 2014). These digital technology users have identified ways in which their peer group could be supported and introduced to digital technology; however, they also value this approach in learning about technology that is new to them as well.

Future research should be mindful that these participants were selected from a digitally-aware group of older adults and this facilitated the discussion. This selection was appropriate for this study as one aspect of our research aims tried to explore how older adults used digital technology, therefore necessitating users of digital technology. Sample sizes when implementing IPA as an analytical tool tend to be small because participants are purposefully recruited, consequently reported sample sizes range from 1 to 30 (see Brocki & Wearden, 2006). Further, small sample sizes retain "IPA's idiographic emphasis whilst embedding any emerging patterns in a rich and detailed context" (Eatough & Smith, 2008; p186). The inductive nature of IPA facilitates researchers to conceptualise their results in the existing literature (Brocki & Wearden, 2006). Consequently the experiential nature of the findings from this paper yielded from the rich data provided by such qualitative approaches (see Barnard et al., 2013) serve as a useful contextual tool for methods of digital skilling contained within the wider literature.

Research exploring the perceptions of older adults who do not use digital technology would be valuable knowledge moving forward to an increasingly online and paperless society. Trying to reach those populations who are offline will become an exponentially increasing challenge as the move to 'digital by default' unfolds. The likely significant impact of the 'digital by default' move on the already active digital divide should also be evaluated by future research activity. Frequently within the wider literature papers (see Kenny & Milne, 2014 as an example) suggest starting off with one device such as the smart phone which then acts as a 'gateway device' to reach those offline, including older adults. The suggested value in this is that it skills them up on mini-computers and social media which in turn could galvanise an interest and skill set. Whilst studies such as these are informative, this paper clearly sets out that the value and evidence of how the new digital technology would enable their lives would need to be articulated first. Then the teaching of skill sets and knowledge should be delivered in a safe and supported manner.

Conclusions

The older adults who participated in the research clearly recognised the value of technology as an empowering entity that could facilitate not only daily activities

but also maintain social relationships whilst successfully overcoming some of the physical and geographical barriers associated with aging. However, whilst many positive aspects of technology were identified, the older adults also recognised that technology can also disempower. In particular, there was a clear recognition that without appropriate skills or measures to tackle the fear associated with technology use, the digital divide is likely to widen as more services migrate to the virtual world. Further, the widening of the digital divide is also likely to increase social isolation and reduce access to key services as more of society and the business of society moves exclusively online. Consequently, as digital technology impacts at the micro and macro level with regard to inclusion, policy should account for barriers to older adults' digital technology use.

Footnote

* In order to respond to this debate point and contribute to the impact of this research area, the authors of this paper did communicate the wider research findings regarding cognitive outsourcing back to the digital technology group as a debate point for their meeting.

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