

# Older Adults and Digital Participation: Challenges, Opportunities and Future Directions

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## ABSTRACT

Older people who have access to meaningful social networks and who actively participate in social activities benefit from enhanced wellbeing. As people approach advanced old age, however, their opportunities to engage in these activities often diminish. Increasing frailty and deteriorating health can impair mobility, keeping people confined to their homes. This paper draws on the authors' combined experiences conducting two research projects that aimed to promote older adults' social participation through the use of new technologies. The paper describes key challenges faced in this research and outlines strategies that will be used in our future work in this area. Our experiences suggest that technology "champions" play an important role in guiding older adults as they learn to use new technology. We outline an approach that aims to enable older adults to play this role as they support each other in exploring new technologies.

## Author Keywords

Social technologies; social isolation; digital participation

## ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

## INTRODUCTION

Currently there is great interest in the opportunities that new technologies provide for supporting and enabling older adults. This is due, in part, to ageing becoming a central societal concern: we are moving into a so-called "ageing society," with the proportion of people living into advanced old age continuing to grow. Therefore, much of the interest in technology and ageing focuses on the use of technologies to support the care and monitoring of older adults, to enable older people to live independently at home for longer, or to alleviate the "burden" of aged care (e.g., Neven, 2015). In contrast, this paper draws on a program of research that focuses on designing and using technology to enhance older adults' social and emotional wellbeing. This research considers not only the opportunities that information technologies can provide but also the ethical issues and challenges we might encounter as researchers working in this space and the challenges older adults can face when using new technologies for social purposes.

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While social technologies can offer opportunities to empower and enrich the lives of older adults, they can also make older adults feel disenfranchised and excluded. If older adults are on the other side of a vast digital divide, what can be done to overcome this divide? How can we exploit digital technologies to ensure people continue to have opportunities to remain connected to the world and to each other as they reach advanced old age? In this paper we discuss two projects that aimed to address these and related questions and that have formed the focus of our research over the past four years. Taking a broad overview of this research, the paper provides insights into some of the challenges encountered when using technology to create social opportunities for older adults. We focus, in particular, on the role researchers and others have played in overcoming these challenges. Our experiences show that it takes more than just well-designed technology to foster opportunities for digital participation; the social context of use and the support provided by technology "champions" are critical in ensuring the success of any project that aims to promote digital participation among marginalized groups. We conclude with a discussion of another project, currently underway, that aims to address some of these challenges through ongoing collaboration between older adults and researchers.

## THE RESEARCH PROJECTS

The lessons described in this paper come from our experiences working on two related technology and ageing projects. These are described very briefly below.

### Photo-sharing via iPads

*"Growing Older, Staying Connected: Touch-Screen Technologies for Ameliorating Older People's Experience of Social Isolation"* was a project funded by the Australian Research Council. Starting in early 2012, the project explored how communication applications on touch-screen devices could help alleviate older people's experience of social isolation. Human-computer interaction researchers worked in collaboration with an aged care organization to conduct three field studies that evaluated a prototype iPad application used to create and share captioned photographs and messages. More information about the prototype and the outcomes of the field studies can be found in our publications about this research (Waycott et al, 2012, 2013, 2014).

### Participants

Participants in each field study were clients of the aged care organization, along with their care managers. The aged care clients all lived independently at home but received home and community care services from the aged

care provider. Clients were aged from 67 to 93 years old at the time they participated in the study, but most of the participants (12 out of 16) were aged in their 80s and 90s. They were selected to take part in the project because they were identified by their care managers as experiencing – or at risk of experiencing – social isolation.

#### *Field studies*

Over the course of the project we conducted three field studies during which participants used the iPad application to share photographs and messages with each other and with their care managers. Small groups of five to eight older adults took part in each field study, along with their care managers. The first field study was a three-month pilot, followed by a six-month study and finally a longer 12-month deployment of the prototype. Participants used the iPad application in their own homes. The photographs and messages they created appeared on a shared interactive display on each person's iPad screen.

Despite being clients of the same care organization, the older adults who participated in this project did not know each other prior to the study. We supported participants' online interactions through face-to-face meetings by holding regular social gatherings held over lunch or morning tea, during which participants shared their experiences of using the iPad and the photo-sharing app.

#### **The Supportive Network**

The *Supportive Network project* was the second author's PhD research. The project aimed to provide ICT access and training to a group of older people who had experienced homelessness and social exclusion. The participants were all clients of a social work program, operated by a homelessness organization, that aimed to provide support and foster social inclusion for homeless older adults. This project took place in rural and regional settings and featured seven participants, aged from 58 to 81 years, who had complex needs due to their histories of homelessness, substance abuse, and mental health issues.

#### *The research*

The project used a Participatory Action Research methodology and involved a range of qualitative data collection methods including multiple in-depth interviews with each participant and field notes kept in a research journal. Over the course of eight months, the researcher supported participants – five of whom had never used computers before – and helped them to learn how to use an iPad to communicate with their social workers and to connect with a range of social supports. During this time, participants gained confidence in using the iPad and experienced some profound social benefits, as described in publications arising from this research (see Baker, Warburton et al, 2016). Here, again, we focus on providing a broad overview of the challenges encountered. Reflecting on these challenges was a crucial component of the research methodology, as described below.

#### *Participatory action research and researcher reflections*

An important part of Participatory Action Research is researcher reflection. The methodology “combines iterations of planning, action and reflection throughout the research project” (Baker & Warburton, 2015, p. 1). In this project, data collection included observations and

reflections recorded in a research journal, along with interview transcriptions that were coded and analysed thematically. The cyclical process of action and reflection provided the researcher with opportunity to identify and respond to the challenges encountered. These included ethical challenges during the research (Baker & Warburton, 2015) and difficulties participants experienced appropriating the iPad for social purposes (Baker, Waycott et al, 2016).

#### **DIGITAL PARTICIPATION WITH OLDER ADULTS: CHALLENGES ENCOUNTERED IN OUR RESEARCH**

There was much overlap between the challenges identified in the “Supportive Network” and “Growing Older, Staying Connected” projects. We have discussed the ethical challenges from both projects in detail elsewhere (Baker & Warburton, 2016; Waycott et al, 2015, 2016). Here we identify some of the core challenges relating to the workshop theme of “digital participation”. Specifically, we discuss: (1) the challenge of ensuring social benefit when working with older adults with complex needs, (2) the need to provide sufficient technical support to ensure participants were able to gain benefit from using the technology, and (3) the challenge of ensuring that any social benefit and digital participation continued beyond the life of the project.

#### **Ensuring Social Benefit**

Both projects involved participants who might be considered vulnerable due to their social isolation and complex needs. This meant they had much to gain from using technology for social purposes, but equally it meant significant hurdles needed to be overcome to realise these potential benefits. A significant challenge here was that participants did not already have a strong social network to connect to. Introducing technology as a means of communication does not immediately open up new friendships or strengthen existing ties, especially when those ties do not already exist.

In the “Growing Older, Staying Connected” project this challenge was met by supporting participants to use the photo-sharing app to communicate with each other. In other words, we not only created and trialled an iPad application but also created the social context in which it was used. We called this a “sociotechnical intervention,” comprising both the technology (the app) and the social network of small groups of older adults (Waycott et al, 2015). Furthermore, we supported participants in getting to know each other by holding regular social gatherings. These events were crucial for augmenting participants' online communications (Waycott et al, 2012).

Despite these strategies, it was still difficult to ensure participants developed friendships and used the app enough to foster a sense of connection with each other. As detailed elsewhere (Waycott et al, 2013), participants sometimes struggled to identify interests or life histories that they shared, despite photo-sharing being an effective way of communicating details about one's life and interests. And we encountered some instances when participants shared photographs or messages but did not receive a response. This could have the effect of

exacerbating, rather than alleviating, our participants' experiences of social isolation (Waycott et al, 2015).

In response to these challenges, the care managers and the researcher actively sought to facilitate participants' connections. In all three field studies, care managers played a crucial role in supporting and encouraging participants and responding to any signs of uncertainty or self-doubt (for more information about how care managers used the app to augment their communications with clients, see Waycott et al, 2014). Participants were introduced to the app slowly and for the first few weeks were only connected via the app to the care manager and the researcher. This gave them time to become familiar with photo and message-sharing on the iPad before they were connected to other participants. Furthermore, we guided participants in their communications via the app. In the second field study, the researcher sent messages every week suggesting themes or activities to inspire participants to share photographs and messages. In the third field study this evolved into an "activity page" on the app which we updated weekly with suggestions that aimed to provoke activity around themes such as sport, movies, home decorations, and seasonal events.

In the "Supportive Network" project, the researcher was instrumental in helping participants identify how to use the iPad to extend their social network. For this to be successful, the researcher needed to spend time with each participant getting to know them, their family histories and their interests so that any suggestions about how to use the iPad were tailored to their circumstances and interests. This resulted in some great successes, including one participant who connected with his estranged daughter via Facebook and another participant who learned how to use email to lobby the local council and her local parliamentary representative for improved public transport services (Baker, Waycott et al 2016). However, these positive outcomes were only possible because of the researcher's active and considered intervention. If participants were introduced to the technology without additional guidance, it is unlikely they would have experienced these outcomes.

### **Providing Technical Support**

In both projects researchers played a vital role in helping participants learn to use the iPad and overcome technical difficulties, many of which could not have been foreseen prior to the research. Our experiences suggest that one-to-one support was essential to enable the older adults who took part in our research to successfully master the iPad and its applications. This one-to-one support included regular visits, phone calls, and impromptu meetings when technical difficulties could not be resolved over the phone. In both projects this required us to travel long distances to visit participants in their homes. We had to make home visits to resolve problems such as the iPad needing to connect to a wireless network when there was an operating system update, and needing to restart the iPad when it stopped responding to input. The difficulties participants had restarting the iPad (i.e., locating the hidden on/off button and then holding it down for several seconds until the apple symbol appeared) highlight how challenging it can be to foster digital literacy with older adults who have

had limited experience using computers or touch-screen devices. Even the iPad, commonly believed to be an accessible and easy-to-use device for those with limited digital literacy, presented challenges that could only be overcome with the support of a technology "champion".

One of the expected challenges that both projects faced was ensuring the iPads could be connected to the Internet. Both projects relied on Internet connection to enable participants to gain social benefits from using the iPad. Given that participants were unlikely to have access to wireless networks, we provided iPads that could be connected to the Internet via a telecommunications network. This meant supplying SIM cards and ensuring the SIM cards always had credit on them, which was a time-consuming (and costly) administrative burden for both projects. Purchasing and activating recharge vouchers was a particularly complex process that would have been difficult for participants to do themselves.

Other challenges encountered included participants' uncertainty when they inadvertently touched an icon and opened an application or feature they weren't expecting to, or when they accidentally pressed an icon too hard or put the iPad into "app deletion" mode. This made all the icons appear to wobble, leading one participant to exclaim: "It did the jelly wobbles on me... I couldn't get the cursor on it (and) didn't know what to do... I was really upset when it happened" (Baker, Waycott et al, 2016). Another participant in the "Growing Older, Staying Connected" project accidentally put the iPad into "airplane mode". Not understanding this concept, she was concerned that it meant her iPad may have been interfering with air traffic control and even checked the news to see whether she had caused any plane crashes. This example can seem amusing but highlights the gap in digital literacy that some (not all) older adults can face when learning to use new technologies for the first time.

A further challenge faced in this regard was when one participant in the "Growing Older, Staying Connected" project thought he was sending messages to the researcher when in fact he was typing messages using the iPad's notes function that were stored on the device and not shared with anybody. He assumed that because the onscreen keyboard had appeared with a space for writing notes, this meant he could write a message to the researcher. Unfortunately, the researcher only saw these messages when visiting the participant to help him use the iPad.

### **Ending the Research**

In any research that involves implementing changes in people's lives and working closely with participants, it is important to end the research in a careful and ethical manner. Because research projects are often dependent on short-term external funding, researchers must find ways to end the project carefully to ensure participants are able to continue gaining benefit from the research.

This was a significant challenge in the "Growing Older, Staying Connected" project where we had spent up to 12 months trialling a prototype iPad application and working with older adults who were considered to be socially isolated. Because of the cost involved, we could not

support continued use of the iPad application. However, participants were able to keep the iPads and we undertook careful planning to ensure they were able to continue using the iPads for social purposes. This meant showing participants how to maintain their connection to the Internet by recharging the credit on their SIM cards, setting participants up with their own Apple IDs and showing them how to download apps, and in some cases helping them learn how to use email and ensuring they were able to stay connected to other members of the group if they wanted to. On the surface these sound like simple procedures but they were actually very difficult to implement. Setting up an Apple ID, for example, requires answering a number of security questions, some of which are quite difficult for a person in their late 80s or 90s, as well as choosing a password that includes a combination of characters and yet is easy to remember. Many of the older people we worked with did not have family members or friends who would be able to help them with this on an ongoing basis. We therefore enlisted the support of the aged care organisation and participants' care managers to ensure they were able to help. However, this was not ideal given that care managers could only visit participants on a monthly basis, and sometimes less often).

These experiences demonstrate the importance of having one-to-one support and guidance to ensure older adults – especially those experiencing social exclusion or isolation – are able to make full use of the social participation opportunities that new technologies provide. While community-run programs, such as “iPads for seniors” courses can help older adults develop digital literacy, there is a need for ongoing mentorship and support, which can be provided by technology “champions” who work closely with older adults in helping them to overcome specific challenges encountered.

#### **MOVING FORWARD: TECHNOLOGY EXPLORERS**

Building on our combined experience with the above two projects, we are now collaborating on a new project funded by the Australian Research Council that aims to improve older adults' social inclusion by exploring the role of avatars, socio-physical games, and virtual reality in promoting playful and meaningful social activity for older adults. These technologies offer exciting opportunities to extend and support the social inclusion of older adults and can overcome the limitations of text-based online communication and touch-screen interfaces (Baker, Waycott et al, 2016).

Given the challenges we faced in our previous work, we are mindful of the need to develop a sustainable approach that will enable participants to support each other in their use of the technology and to continue gaining benefits beyond the life of the project. For this reason, we are establishing informal social clubs, known as “Technology Explorers,” comprising people aged over 70 who will meet regularly to explore new technologies together. We hope that members of this club will come to support each other, with some taking on the role of technology “champions”. This could alleviate some of the support required from researchers while also creating a system that continues

beyond the life of the project. Over time, we expect participants' expertise to develop so that they contribute actively to the research, creating a collaborative partnership between researchers and participants. This, of course, is the goal of any user-centred and participatory design research but can be difficult to achieve.

During the “Technology Explorer” meetings, participants will undertake in a range of activities that will provide data for the research project. The meetings will also explore more broadly the role technology can play in healthy ageing, thus allowing participants to shape the course of the project and the concern of the social group. This aligns with recent suggestions about ensuring older adults have the opportunity to influence HCI research in technology and ageing (Vines et al, 2015). We anticipate this approach will provide many opportunities to facilitate digital participation among our participants and will help avoid some of the challenges faced in our previous work.

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