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"InTouch" with seniors: Exploring adoption of a simplified interface for social communication and related socioemotional outcomes

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ABSTRACT

Communication technologies have the potential to increase older adults' self-efficacy and their social contact with friends and family. In this study, ten older adult participants were matched with a support volunteer in an attempt to use a digital communication tool called *InTouch*. Three interviews were conducted over the course of 3 months. The study examined patterns of use, relationships between participant profiles and their adoption of the tool, and the effect InTouch might have on their socio-emotional well-being. The results showed that audio messages were the most popular, while pre-set text messages were the least popular. At study completion, four of the ten participants successfully adopted the tool. Internal motivation was a key factor for those who were able to adopt InTouch, while existing social difficulties, diverse health experiences, and lack of volunteer support created barriers. Positive communication changes were reported by six participants and positive relationship changes were reported by three participants. Overall, participants conveyed mixed feelings while using InTouch. Those who successfully adopted the tool reported more positive feelings than those who did not adopt it. The results are discussed with considerations for technology acceptance and the benefits that successful adoption can bring to older adults.

1. Introduction

Social isolation, estimated to affect 43% of older adults in North America, is categorized by social disconnectedness and perceived isolation, which involves few social ties, low social engagement, feelings of loneliness and inadequate social support (Cornwell & Waite, 2009). Social isolation can have serious negative effects across multiple domains (Miyawaki, 2015; Seeman, 2000) with risk factors such as poor physical/cognitive health, disabilities, being widowed/divorced, reduced social networks, living alone, poor weather conditions, and transportation issues (Hall, 2004). Communication technologies may mitigate social isolation in older adults, however research results are inconclusive due to the heterogeneity amongst interventions and populations studied to date (see Chen & Schulz, 2016; Morris et al., 2014 for reviews on the topic). For example, one study found going online was associated with a decrease in loneliness scores and an increase in social connectedness measures (Cotten, Anderson, & McCullough, 2013). The study involved 205 participants in assisted and independent living facilities in the United Status. Due to the size of the sample, only superficial information about social ties and social contact were obtained, and no information about participants' motivation was collected. A highly motivated group of participants may adopt new technology practices more readily than an un-motivated group. In addition, participants who are motivated to adopt this new behaviour may also hold high expectations about what this intervention can do for their social connectedness. Two other studies, which focused on using a computer training intervention and a social media site, found no significant decrease in loneliness in older adults (Aarts, Peek, & Wouters, 2014; White et al., 2002). The computer training study had a large sample size of over 600 participants and the social media site had 100 participants randomly split into an experimental group and a control group. Both of these studies did not measure participants' social situations in great detail nor did they account for motivation levels for using these technologies. Communication technology usage was found to have a positive effect on social support in chronically ill, rural-dwelling women (Weinert, Cudney, & Hill, 2008), older adults with diabetes (Bond, Burr, Wolf, & Feldt, 2010), both randomized control trials although both failed to account for participant expectations and motivation to use technology. This positive link

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between communication technology and social support was also found in older adults with a chronic illness who lived at home and were caring for their spouse (Torp, Hanson, Hauge, Ulstein, & Magnusson, 2008). While this is a special sample which may not generate to the entire population of older adults, chronic illness and caring for a partner is the reality for many aging people. This was one of the few mixed methods data that collected detailed qualitative information about the participants' baseline social and motivational profiles. Ahn and Shin (2013) found that seeking social connectedness through communication media use was associated with greater well-being but using media to avoid social isolation was not. This study did take motivation into account but was conducted with adults of all ages rather than focusing on older adults. Morris et al. (2014) examined 18 studies measuring social connectedness and found some evidence that technology use with older adults can result in improved social connectedness (i.e. social support, social self-efficacy, etc.). However, they also acknowledge methodological flaws in these studies such as failure to limit researcher bias, and failure to fully detail participant characteristics. In the review by Chen and Schulz (2016), reduction of social isolation was the variable of interest across 25 studies. Overall, information communication technology (ICT) use was found to affect social isolation as well as social support and social connectedness. The authors highlighted the importance of reducing researcher bias. They also call for more studies to examine the type of older person who might be best suited for ICT interventions. Based on the individual studies and these review articles, the results suggest that communication technology cannot replace face-to-face communication, but may augment social support and maintenance of social ties. More work is necessary to determine and explore the factors that make communication technology a beneficial avenue for optimal social well-being.

Communication technologies also have the potential to enhance self-efficacy (Erickson & Johnson, 2011; Karavidas, Lim, & Katsikas, 2005). Self-efficacy is one's belief in their ability to perform a given behaviour and is highly task-specific (Bandura, 1989). In the social domain, low self-efficacy can prevent the growth and functioning of social support systems leading to stress and depression (Holahan & Holahan, 1987a, 1987b). Low social self-efficacy can occur when individuals do not feel they have the capacity to avoid loneliness or rejection, spend enough time engaging in social interactions, or overcome the difficulties of having friends and family live far away, all of which often accompany aging. Previous research has shown that older adults can in fact engage successfully with technology, increasing their self-efficacy in this domain. For example, computer use amongst older adults has been shown to increase confidence and reduce technology anxiety (Karavidas et al., 2005). Internet use in older adults has been highly correlated with self-efficacy, including more generalized confidence in their ability to be competent and independent (Erickson & Johnson, 2011) and computer use has been linked to increased life satisfaction through greater self-efficacy (Karavidas et al., 2005).

Despite the potential communication technology holds to decrease social isolation and loneliness, and enhance self-efficacy, older adults still lag behind, with just 61% of Americans over age 65 using the internet (Anderson & Perrin, 2015), a figure that can be explained by the challenges encountered by this population. Attitudinal barriers, which include technology anxiety, aversion to technology, and cognitive barriers, such as processing speed and memory declines, can make learning more difficult for older adults (Charness & Boot, 2015). Physical limitations associated with aging, such as hearing loss, visual deficiencies, and compromised dexterity and mobility, may also impact adoption of technology, with few mainstream technology tools designed with these challenges in mind (Yuan, Ali Hussain, Hales, & Cotten, 2015). In addition to these cognitive and physical issues, there are often privacy concerns, as many older adults fear putting personal information online or trusting a malicious email or website (Gatto & Tak, 2008; Yuan, Hussain, Hales, & Cotten, 2015). In fact, those older adults who are online tend to be younger, have more education, and greater wealth and health compared to those who are not online (Smith, 2014). Even among those who are internet users but do not use social networking sites, 56% report that they would need assistance to use sites like Facebook to connect with users (Smith, 2014). Despite these barriers, there is evidence that sites likes Facebook could offer older adults similar social benefits that it does for younger research participants (Sinclair & Grieve, 2017). In summary, there is a need to develop and evaluate communication technologies older adults are both willing and able to use, potentially reducing social isolation and loneliness, and enhancing self-efficacy.

1.1. InTouch

In response to this need, the Technologies for Aging Gracefully Lab (TAGlab) at the University of Toronto developed a digital communication tool called InTouch (Baecker, Sellen, Crosskey, Boscart, & Barbosa Neves, 2014), an accessible software application (running on iPads) that has a non-language specific interface (based on icons) and supports asynchronous communication. InTouch allows older adults to send and receive four different types of messages within a closed network (see Fig. 1): (1) wave messages: short, pre-set text messages; (2) video messages: messages that can be filmed and recorded; (3) audio messages: messages that communicate sounds; and (4) photo messages: pictures of the individual and/or their surroundings. No typing is required, making this tool simple and easy to use for people who may experience difficulties adopting conventional social networking apps. Participants add contacts email addresses to the app. When they send a message it is received in their contact's email inbox with the media as an attachment. Should their contact decide to respond to that message, they can simply reply over email. This reply will show up in the InTouch user's conversation screen for that contact. The app allows users to contact friends and family using a simplified interface, while enabling these friends and family to continue using their existing communication technology. The technology is the

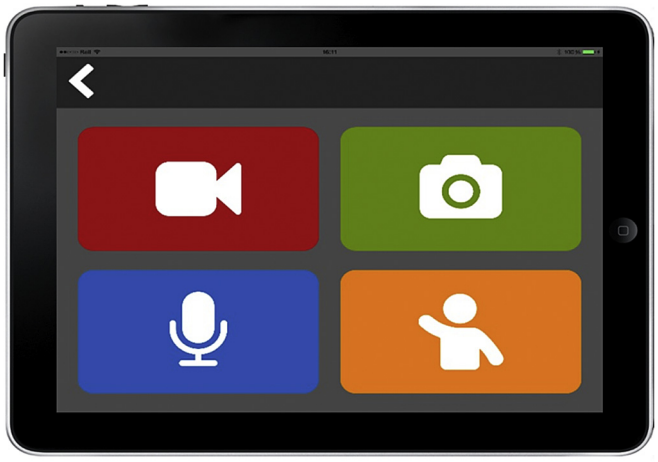

Fig. 1. View of message option screen. Participants can choose to send a video (red), picture (green), audio (blue), or a wave message (orange). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)