Improving Older People's Lives Through Digital Technology and Practices

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Abstract

The Aging and Technology special issue showcases twelve papers spanning a range and diversity of international scholarly research within the field of ageing and technology. The collection of papers demonstrates the positive impact technology can have on the lives of older people including improving cognitive performance, physical and mental health and people's daily activities and practices. There are still barriers to use, including psychological issues of motivation, attitudes, privacy and trust and social issues involving learning to use the technology. In conclusion, to help overcome these barriers, it is recommended that research and development of technology involves older people as co-developers working with stakeholders from different disciplines and backgrounds.

Introduction

This set of articles contributes to knowledge and understanding of how digital technology and practices play a role in improving the lives of older people in contemporary society as well as setting the grounding for future ageing populations. The Aging and Technology special issue comprises twelve papers from international scholars across the USA, the UK, Italy, the Netherlands, France and Canada.

Introducing the Papers

Digital technology may be beneficial in improving people's cognitive ability as suggested by Wu et al. (2019). In the first paper of the special issue, Wu et al. (2019) explore the use of technology in memory clinics suggesting how the use of technology can be beneficial for people's mental and physical health, through stimulating cognitive abilities including executive functioning, memory and reasoning. Wu et al. (2019) conclude by noting how learning to use digital technology may protect people from cognitive decline in line with previous research (e.g. Stern, 2012; Valenzuela et al., 2008). In the second paper, Siu et al. (2019) found using technology in primary care with older adults identified how information

provided to an older adult with regard to taking their medications could in turn improve medication adherence, primarily by prompting better informed discussions between the patient and the clinician.

Technology may help people become more active and less than half of older adults carry out the recommended physical activity, for example, only 37% of older adults in the Netherlands fulfilled the required activity according to Dutch guidelines (National Institute for Public Health and the Environment, 2015). With this in mind, the third paper in this special issue from Ummels et al. (2020) discusses how a pocket activity tracker can be adapted to work with older people and therefore be used to give insight into the amount of physical activity older people undertake and increase awareness and motivation to increase their physically activity. The fourth paper of this special issue is by De Vito et al.

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(2020) who explore and monitor activity by conducting a telehealth intervention once a month. This intervention pertains to the care of older people living with advanced dementia, showing acceptance and feasibility of such technology over 6 months, as part of the care.

Conversely, engagement with technology can become difficult and cumbersome for people in later life, for example difficulty with the graphic user interface, pressing multiple buttons (Marston, 2013) and any peripheral devices and/or screens (e.g. smartphones) due to age-related health issues (e.g. dexterity, eyesight issues and cognitive changes) and for people who have various disabilities. Virtual assistants (VAs) can allow people (including older adults) who experience such difficulties the opportunity to still gain benefits from technology such as enjoying listening to music, setting medication reminders and making telephone calls, including critically point of contacts and/or emergency phone contacts (White et al., 2020). As noted by Marston and Samuels (2019), VAs afford people of all ages to achieve a series of tasks, while Sheerman et al. (2020) and White, et al. (2020) note how VA smart speaker technology and other respective technology devices can function as an emergency response system and help older people connect with friends and family and link to vital services and offering assistance. There are two papers in this collection focussing on voice assistants or smart speaker technology. The fifth paper in this special issue is by Nallam et al. (2020) who explored using voice assistants or smart speakers to provide health information to older adults from low-income backgrounds. However, the sixth paper by Chung et al. (2021) identified low-income older people living in residential accommodation using smart speakers or VA technology to provide reminders and support for their daily needs, such as a daily living assistance tool, a social activities reminder, a medical appointment reminder, a medication reminder and an information provider including providing health tips and the news.

The seventh paper by Tural et al. (2021) explored the intention to use and attitudes towards smart home technologies, including smart lighting, door locks, fire prevention and home automation. Findings from this article identified how the notion of smart fire prevention devices were perceived most favourably because of various factors including the affordability, the prospective benefits to one's safety in the home, which also influenced a positive intention to use (Tural et al., 2021). They do note that technology scepticism, an often underplayed issue in the literature, can affect older people's relationship with and use of smart technology (Tural et al., 2021).

As a refreshing change to viewing older people as in need of technologies to help them with safety, health or illness, the potential for technology to help people across the life course find a spouse, partner, a lover and/or experience differing levels of intimacy is explored in Marston et al. (2020a). In this eighth paper in this special issue, a review was conducted by Marston et al. (2020a), who explore and discuss the importance of sex and intimacy for older adults and people with life-limiting and life-threatening health conditions (LLTCs). Their extensive review of contemporary dating apps highlights the breadth of this growing area of research, the differences surrounding the verification of legitimate users on respective dating apps, cost of subscriptions, age classifications and the app 'category'. Concluding this in-depth review, Marston et al. (2020a) propose a series of recommendations for multiple agencies including developers, governments and public sector workers (e.g. police).

Moreover, technology may be able to assist people to connect to places they can no longer go to, as noted previously by Musselwhite (2018). The concept of virtual reality (VR) and virtual environments (VEs) has been around for over 20 years whereby scholars such as Turkle (1997), Murray (1998) and Fencott (1999; 2001a; 2001b) have explored and contextualised narratives, storytelling and the interconnections of VR and VEs. The ninth paper in this special issue, by Brown (2019), used VR to show local places of interest to people, including a local walk and a museum. Findings from this article highlighted three themes: 1. usability; 2. video subject matter preferences and 3. application, which highlight the positives that VR can afford older people as well as the challenges. On the whole, the participants enjoyed seeing such places and discussed how it may help people stay connected to places they can no longer go to, while acknowledging it could potentially be distressing for people who can no longer travel to such places.

There are some important barriers and enablers to technology among older people as acknowledged in the articles, surrounding psychological and sociological aspects of use. The tenth paper in the special issue, by Briones & Meijering (2021), explored the initial and subsequent motivations to use technology by older people living in Barcelona, Spain. Taking a qualitative approach to their work, the respective authors identified the need of social support to assist participants to learn, supporting similar findings ascertained by Marston et al. (2019). Furthermore, Briones & Meijering (2021) emphasise that their research also supports intergenerational learning opportunities towards using technology, supported by previous work by Freeman et al. (2020).

Cognitive reserve refers to the extent to which cognitive functions are preserved despite neural damage due to age, injury or disease (Stern, 2002). The eleventh paper in the special issue is by Ranieri et al. (2021) who found technology is beneficial to those with medium levels of cognitive reserve, improving their quality of life through being actively involved in the digital world. Those with higher cognitive reserve found the technology to be less beneficial, highlighting for them their perceived lack of digital savviness. It is also discussed that they already have greater access to social and cultural systems, and as such, digital solutions are only one aspect of their daily lives. This is another crucial understanding of how technology can fit into people's lives and become part of it; they are not separate or an additional extra.

The final paper of this special issue is by Kadylack & Cotten (2021) who explore the willingness to use automated vehicles

(AVs) or self-driving vehicles by older adults living in the USA. Older people often have to give up driving, limiting their mobility and as such automated vehicles offer much promise (Musselwhite, 2019). Quantitative findings from a sample of 1231 people identified adults with higher levels of education, transport limitations and displaying positive attitudes towards technology adoption were more inclined to use AVs.

Barriers and Enablers to Technology

Implementing and accessing digital technologies and services such as the Internet is not cheap and can often for some people in society lead to digital poverty (House of Lords, 2021; Marston, et al., 2020b). There are affordability issues noted among potential users both in virtual assistance smart speakers (Chung et al., 2021) and smart technologies (Tural et al., 2021). Additionally, there are also ensuring privacy concerns noted among potential users both in virtual assistance smart speakers (Chung et al., 2021), especially when using health data (Nallam et al., 2020), and smart technologies (Tural et al., 2021). Finally, there is concern emanating in a lack of trust that a smart device can give the correct health recommendations (Nallam et al., 2020).

Having individuals who support older people's use of technology are important in technology use and uptake (Freeman, et al., 2020; Marston, et al., 2019). In Briones & Meijering (2021), the presence of social support from people viewed as technology experts by older people helped the learning and use of the technology. Opportunities for intergenerational learning are important in this context, where older people may share their life experience with younger people's technological expertise (Briones & Meijering, 2021; Freeman et al., 2020).

Conclusion

The Aging and Technology special issue showcases twelve papers spanning a range and diversity of international scholarly research within the field of ageing and technology and demonstrates the impact technology can have on the lives of older people in contemporary society and sets out a baseline for future research agendas. Based on the published work in the Aging and Technology special issue, technology can improve cognitive performance, physical and mental health and simply improve people's lives. There remain some ensuring barriers to use, including psychological issues of motivation, attitudes, privacy and trust and social issues involving learning to use the technology. It is recommended that more research involving older people as co-developers co-producing technology with academics from different disciplines is needed in addressing these barriers.

Declaration of Conflicting Interests

Funding

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