PREFACE

Ageing with Information and Communication Technologies in the 21st century

1   Introduction

This special issue addresses two important defining features of today's society: ageing and digital technologies. In the 21st century, ageing has become one of the most significant social transformations [27], as an increase in the ageing population is changing much of the world and has become visibly real in many societies. Population ageing is occurring in a digital world, wherein Information and Communication Technologies (ICTs) are playing a pivotal role in multiple facets of everyday life. Thus, it is timely to better understand how these technologies may enrich ageing (and living) in the early 21st century, as well as to ask what we may learn about our increasing dependency on ICTs, if looked at from the purview of age and ageing.

The aim of this interdisciplinary special issue is to bring together a selection of papers that contribute to the aforementioned goal. The editors of this special issue come from three different areas: Human-Computer Interaction, Communication and Media Studies, and Education. Despite the growing amount of research in these (and other) areas on ageing and digital technologies, we argue that there is still much work to do on the relationship between older people and ICTs.

1.1   Human-Computer Interaction

Within Human-Computer Interaction, ageing has only become a significant research area relatively recently [30]. While the user is a central concept within the field, this user has traditionally been assumed to be either a young or a middle-aged person. The main question that drives the dominant trend in HCI research on or with older people can be summarized as: 'how can we help older people?' [21]. In much HCI research conducted with or concerned about older people, this assumption is seen in the following ways: compensating for the impact of age-related declines in functional abilities on user interface design; reducing social isolation; enabling older people to remain in touch with their children and grandchildren via new Computer-Mediated Communication (CMC) tools [20]. Helping older adults to live independently and to age-in-place with assistive technologies [18] captures another set of presuppositions. Within the field, stereotypical views of older people as unable to either learn or use digital technologies also predominate, as argued in [5]. Albeit important, these perspectives, particularly the assumption that older adults are unable or incapable and need 'our help', provides but a partial view of the relationship between older people and digital technologies. For instance, this view renders imperceptible the long history of engagements of older adults with digital tools and changes in media, those older

adults who are motivated to use digital technologies, the specific choices and complex histories of use and non-use [6] and the practices of those who are actually using them. It is worth noting that in a growing number of studies, the specific and complex negotiations of older people living in a digital world indicate and include those who are able to use ICTs and make important contributions to their families and society, e.g. [20], not simply despite their chronological age, but because of their age [24, 25, 26].

1.2   Communication, Media and Cultural Studies

In communications, media and cultural studies (CMCS), there is a growing legacy of research on ageing *with* communication and the role played by the introduction of new media technologies, but as well new genres and forms that impact communications, such as email, twitter, Instagram play in the lives of older adults. Part of this legacy includes research on seniors and mobile phone use [13]; social media [10]; work on ageism and digital technologies as well as ageism, gender in culture [4]; the representation of age and aging on new media platforms such as Wikipedia [7]; and the intersection of older discourses directed to the elderly, such as active ageing, to new generations of surveillance technologies that monitor and sense the bodies functions ([29, 28, 16]).

If HCI tends to focus primarily on the engagements with individual or group of users in their relationship to a singular piece of technology- whether it be a smart phone or a fitbit- then research from within CMCS operates from a perspective that deals first and foremost with societies, cultures and the workings of specific cohorts of people with complex identities [11]. CMCS looks not only at individual use practices in isolation, but at how the engagements with devices are connected to infrastructures and systems that enable or disable meaningful engagements may change as we age [6]. Ageing from within this purview research pays attention to how our social circumstances may affect how and when we use media, in what context. For example, how do prior work habits influence what device one uses; how does the move to a pension transform the decisions one makes to pay for mobile and/or internet services? How do one's media consumption habits change as the digital landscape transforms (eg, what happens when there are no more phone booths? Engaging in a variety of methods, from survey research, to ethnographic studies, to innovative forms of participatory media CMCS notices patterns: why do older users in Spain prefer to access the internet through their mobiles via a cellular provider, rather than through open wifi networks? What does this tell us not only about ageing and ability to navigate hybrid digital spaces, but about different generational notions of privacy?

Discussions of media, from this perspective, brings to the fore how specific groups of older users, such as older adults in Denmark, cope with being forced into a governmental system of national digitization in order to access services. It looks at how different cultures and nations (connected to policies governing ICT use) might thus engage with specific platforms, such as Facebook willingly or unwillingly and how this changes as we age. It considers shifts in identity related to culture: for example, the experience of "digitally ageing" as a grandmother in Romania is not the

same as being a grandmother in Canada, and not only   indicates different infrastructural developments, but different notions of familial obligation in different national cultural contexts ([24, 25]). CMCS looks at digital media technologies as they exist within specific cultural contexts to avoid generalizations about what it means to age in a digital world.

In this framework, representation is considered: who do we see on Youtube? How are older adults representing themselves on Facebook? When cultural studies is included in the mix, the particular histories and relations of power in a society that make some feel that they are called into, as is the question of what constitutes a technology: what happens, for example, when cars integrate wireless digital technologies into the driving experience? [9]. CMCS monitors how these habits may change as changes in the media landscape evolve through time. Attentive to history, C-M-C questions how we bring forth different media habits and practices from prior moments into our present lives: the technologies we hang on to and choose [19]. As this work indicates, it is not just a question of design and affordances, but how our identities shift as we age and bring forth different desires and proclivities. Finally, CMCS considers how different social media may be used by older adults to generate new content, and reshape identities for how we age [10].

In this sense the question is what knowledges older adults bring to the digital table, as well as an examination of possibilities and material constraints - from the level of design, to the development of software, to the economics of purchasing a device or service, to desire to use or not - as they transform over time.

1.3   Lifelong learning

From a lifelong learning perspective, older people use of digital technologies are often perceived as less competent [14, 23]. Nevertheless, there is an important diversity in the use of digital technologies not only among younger users but also among older adults. This diversity appears among the different papers of this special issue, in which active uses of technologies such social media or games. From a creative engagement perspective [22], older adults are not just consumers of technologies but are in some cases engaged in creative uses of technologies. Engaging participants of different ages in the design, development and evaluation of the use of technologies could help to overcome the stereotypes of age that are often associated not only to older adults but also to children.

2   This special issue

Fifteen papers were submitted to this special issue. After a peer-review process, in which each paper was reviewed by at least two reviewers, five papers were selected. Common to them is that they examine ageing (and living) with ICTs in a creative way, without overlooking challenges and difficulties that need to be overcome, looking at how to create conditions for the   agency for older people. The papers highlight the importance of adopting a research and design approach that is as holistic

as possible, going beyond stereotyped views of older people and digital technologies, avoiding the current discourse on technology as a way of solving older adults' problems. The papers follow the increasing progression of considering older people as either active users of digital technologies or clever individuals who exhibit their agency when confronted with these technologies, deciding whether (and how) they will (or will not) use them.

The first three papers [1, 2, 15] focus on technology design, while the other two [3, 8] are more methodological and deal with social media. We provide a succinct summary of them next. We hope you enjoy reading them.

[1] addresses the question of how to design for meaningful experiences of wellbeing and social inclusion amongst older people living in a suburb mediated through digital interventions. These digital interventions, which range from a geo-caching activity to a mobile cinema experience, aim to facilitate positive experience of social inclusion and wellbeing that are related to a number of human needs, such as competence, relatedness, pleasure and stimulation. By drawing on the theory of Experience Design, this paper shows that bringing culture to the local community is key to design for meaningful, positive and enticing experiences of wellbeing and social digital inclusion.

[2] seeks to understand seniors' felt experience around a predictive sensors system gained through fieldwork, and turns the limitations uncovered into design opportunities, which are explored and tested through experience prototyping. [2] challenges current mainstream research on active ageing, ICT solutions for the older population and AI as a black box disjoint from human experience, opening up to a complete new perspective of seniors as agent of their sensors monitoring system.

[15] focuses on games, which are a hot topic in research on technologies and older people. Games might make more appealing and effective physiotherapeutic rehabilitation, which is a long and often tedious process. By talking to (older) patients, game designers and physiotherapists, this paper provides a number of interesting design ideas, which go beyond compensating for age-related changes in functional abilities. There is a need to design games to be engaging and motivating, only to the point that they are not too addictive in order to prevent players from further injuries. Perhaps, more importantly, there is a need to shift our attention away from focusing only on games to adopt a more holistic approach to embed games in the patient's everyday practices and keep up their engagement even after the first boost of motivations has faded.

In [3], a number of Participatory Design activities, involving cartographic mapping and future workshops, show that the use a number of older people make of social media is not just a matter of necessity, but it is also fun. Older people do have something to say even when it comes to new social media design, which is a domain of young experts. This paper also shows that older people are not just using the social media that they consider useful, but they are searching and finding new ways, new themes, new topics to make meaning from the social media and make them useful for themselves.

This proactive behavior is addressed further in [8], in which an analysis of a food blog developed by and for the elderly is discussed. The analysis is based on almost one year of fieldwork in a local association, wherein the group members used food as a means to collectively work towards ideals of social justice, to add their voice to the

mediatized food culture. Technology is not seen as a remedy to some of their limitations but as a way of empowering this collective to raise awareness towards ageism and food in a mediatized culture. The success of the blog does not rely on statistics, but on lived and shared experiences of satisfaction resulting from the community connections that were built throughout the development of the blog.

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