The Wisdom of Older Technology (Non-)Users

By Bran Knowles and Vicki L. Hanson

It is impossible not to notice that many of the questions driving today's research on older adults' technology use are the same as those at the forefront of aging and accessibility research 20 years ago. Back then, computers were predominantly large desktops, social media was still on the horizon, and mobile phones were large and not (yet) smart. Older adults had little presence on the Internet. Today, devices have changed and older adults are increasingly online [9,15]. They do, however, continue to lag behind in broadband use, breadth of applications used, and time online [12]. Typical reports are that most show little interest in social media (other than staying in touch with family) and are skeptical of online financial transactions [17].

Clearly, the problem of older adults and technology use has not gone away, despite a more tech-savvy group of people entering the 'older adult' category. According to the most recent data [12,15], predictions of a forthcoming 'Silver Tsunami' of retired workers—a cohort now accustomed to digital technology access in their working lives and therefore capable of taking full advantage of the Internet—have not come to pass [9]. Indeed, the overwhelming perception remains of older generations as incapable of or otherwise resistant to using technology. And critically, this "digital divide" is potentially more disabling now in comparison to 20 years ago, given the push for a more fully realized digital society. Today, digital technologies have become so essential to daily life that it is reasonable to ask whether an inability for older adults to access online-only government services may soon be included among the precipitating factors in older adults moving to assisted living.

While we see the emergence of calls for more holistic view of designing for older adults [4, 13, 18], as was the case 20 years ago most interventions to get older adults online commonly focus on age-related declines (e.g. vision, hearing, cognition, and dexterity) as the principal barriers to technology adoption. These interventions are typically in the form of alternative senior friendly variants or adaptations to make the technology more accessible [6,10]. However, older adults are considerably less likely than younger users who have a disability to adopt assistive tools designed specifically for them [3], which suggests that perhaps they do not view the conditions of aging as disabling [10], or (or in addition) that their resistance to technology adoption is not solely or even primarily rooted in usability/accessibility issues [19].

Our conversations with older adults reveal that they are often unwilling to acknowledge that their lives would be enriched by digital technologies (whether or not they were made accessible). It is this attitude to technology that intrigues us. Given that the kinds of technologies and applications older adults are receptive to or averse to varies by individual, older users do not appear to be identifying inherent design failings of any specific tools. Are there bigger picture issues with "digital society" that lead older adults to reject particular technologies? If so, are these likely to be of continued relevance when future generations become older adults? And is there anything that can be done to address these issues?

In this paper, we draw from recent research interviews and a substantial body of experience working with older adults to describe three factors that contribute to older adults' resistance to the digital proficiency that is ostensibly required of them if they are to be fully participating, fully independent citizens of our increasingly digital society. These factors suggest new directions for aging and accessibility research, while also being more broadly instructive for creating a digital society that works for everyone.

****** SIDEBAR: What is an 'older adult'? ****

Various age groupings have been used over the years to define "older." The fact is, aging is a process. Governments define age for pensions and social security, and various services offer senior rates based on age. From an individual's point of view, however, age is largely a state of mind. A person who is 60 may feel old, while another who is 80 may not. Research on use of technology by older adults has varied in terms of the cut points for age categorization. Over age 50 has often been used, though a less controversial cutoff would be age 65. As noted by one of our participants, however, a person doesn't suddenly wake up one day and find themselves "old"—nor do they wake up to find they are no longer able to use technology. Age itself does not appear to be determinative for technology use, as there is large variability in adoption and use by those categorized as "older adults." So while some broad

statements can be made about older adults in comparison with younger adults, it is always important to retain an awareness of the ways in which older adults are individuals.

Older users' experiences

While there is reason for optimism about older adults' adoption of technology when looking at their increasing online participation [15], their participation is qualitatively different than younger users, more limited in time and variety of experiences [12]. We sought to better understand the underlying reasons for these differences in a series of group interviews with a total of 14 post-retirement community dwelling individuals ages 66 to 86, residing in the area of Dundee, Scotland, who were drawn from an established older adult participant pool [8]. While discussions revealed some physical and cognitive decline among these participants, we were not aware of any having physical or cognitive deterioration outside the typical range for their age. The focus groups followed a semi-structured format that allowed for significant conversational steer by participants. Discussions focused on what participants use the Internet for, what they would *not* use it for, and what aspects of digital technologies they did or did not trust.

Overall, our participants were open to using at least a limited set of applications. Email and general Web browsing were used by all. Social networking, travel booking, online shopping, and online banking were used by some, often to the point of dependency.[1] Notably, learning and using technology was not considered rewarding in and of itself. Many also talked about consciously avoiding "getting caught up in" digital life, viewing the abundance of applications and features as possible diversions from more rewarding activities. Social networking often fell into the time wasting category, with many noting the insipidness of the content on Facebook; though some found it useful (and even enjoyable) for keeping in contact with family. For those in the former camp, there was a strong aversion both to the idea of one's life being an "open book" and to being glued to one's mobile phone—trends they found deeply troubling to have witnessed in younger generations.

Besides the limited range of tools these participants adopted, the most striking characteristic of their reported use was a lingering discomfort. "Although I use the computer, I find it quite frightening," admits one woman. "The reason I find it frightening is that I don't understand it. And I don't know how to put things right." They described feeling much more competent, and therefore more comfortable, with analog equivalents, such as paper archives and paper calendars. They described worrying about and planning for the eventuality of their computer just "blowing up." Security concerns were omnipresent. Even tools used regularly were not trusted *per se*. Rather, when older adults acknowledged significant benefits of specific tools, they used them *in spite of* unresolved concerns regarding their trustworthiness.

While none of what we have found may seem especially surprising, it is worth emphasizing that this paints a picture that clashes with the dominant cultural narrative that older adults are resistant to all digital technologies by default. It also provides a more nuanced view of recent claims that uptake of digital technologies is rising among older adults; while a much greater percentage of older adults are online than they were a decade ago, they are very discriminating in what they are willing to do. And, as we hope to show below, much of what underlies this resistance is inherent in aspects of being older that are unlikely to change as new generations enter retirement age.

Underlying problems

In what follows we explore what underlies older adults' resistance to the many digital tools that would ostensibly provide so many benefits to them, such as combatting loneliness and isolation, being in control over decisions that affect them, living independently, and participating in and contributing to society [1]. We identify three clusters of factors that can contribute to resistance, though note that the relevance of these factors and their interactions play out differently within each individual.

Perception of risk

Upon retiring, people lose an important training ground (and motivation) for developing competence with emerging technologies. One approach to solving this problem has been to create IT drop-in centers or training courses tailored to older users. Such resources are valuable for older adults seeking information relating to precise steps for executing a task (i.e. procedural knowledge), as they so often

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[1] Most did not use all of these applications, and in most cases they only used a few of the available functions from an application.

ask for [11], but do not strengthen their conceptual grounding in ways that enable them to execute unfamiliar tasks. As a result, existing training opportunities for older adults do little to affect generalized anxiety about not "understanding" technologies. Most seemed to worry that they didn't know enough to use the tools effectively and responsibly and, furthermore, did not know how they would know when they did know enough.

A contributor to these feelings of incompetence was that in the past our participants would seek out trained professionals to accomplish specialty tasks for them. For example, they would go to a mortgage advisor to get advice in choosing a mortgage, or to a travel agent to arrange hotels and flights, or to a bank to handle the transfer of money. A consequence of having more immediate "control" [1] over these tasks is having to take on new responsibilities, which some felt equated to "having a part-time job," requiring hours spent in front of a computer screen. Though this will surprise many adults in full time employment, older adults' lives are still extremely busy: chock full of clubs, activities, commitments to family and friends, and more mundane chores and responsibilities (e.g. home repairs, doctor appointments, shopping). They simply do not have time to learn how to use online services well enough to use them with confidence.

In terms of online banking, a common response is, "I don't trust it" (cf. [17]). But upon further probing, it becomes clear that these older adults do not trust *themselves*. They lack confidence in their ability to use the tool and fear the consequences of making mistakes. What happens to their money if they press the wrong button? If they are hacked, will they be held accountable for not following security protocols that they ought to have known about? And they are right to worry in both cases. It is unclear which mistakes might be correctable and it is quite likely that more personal responsibility will be assumed as expectations for digital proficiency rise. We can hardly fault older adults for deciding it unwise to use any tool—be it online banking, online shopping, submitting official government forms—without the time to invest in learning to use it in ways that ensure their safety and security.

The assurance of a clearly understandable safety net when conducting digital activities is essential for older adults to adopt tools, more so (in the case of online financial transactions) because they would much less easily recover from being defrauded of their savings. In addition to developing a legal scaffolding for such a safety net (i.e. policies forcing businesses to assume the costs of user error, including accidental breaches of security protocol), there is important work to be done in devising mechanisms and user interactions that make data systems closer to (if never entirely) foolproof. Remembering that individuals often adopt a tool despite not trusting it, it is critical to design mechanisms that help manage user anxieties, e.g. providing necessary feedback and reassurances throughout the interactions, both to ensure effective use and to prevent panic and abandonment.

The value proposition
What is not often discussed in aging and accessibility literature is that choosing not to use new technologies can be a considered and *rational* decision for older adults, depending on their resources and needs. For example, among those who live on limited pensions, it may be difficult to justify the financial outlay for broadband alone. And in the case of a service like online shopping, while this would seemingly provide numerous benefits—saving time, saving money, not having to travel—it would also replace an important social activity for those who shop (sometimes daily) purely for the social benefit. Indeed, older adults we interviewed work hard to strike a happy balance between on-line proficiency and cultivation of rich off-line social worlds.

A surprisingly common feature of discussions with older adults about reasons for resisting certain technologies is their strong sense of social responsibility. They worry, for example, that online shopping takes business away from local shops, which may soon mean there are no vibrant town centers in which to socialize with friends. They worry in particular that if they don't make an effort to attend physical shops, banks, and so forth, the people who work at these places will soon be out of a job. One participant expressed sympathy for the "delightful" receptionist at the sports facility whose job was replaced by an app for booking classes. Another said she would never pay her road tax or anything online, though not because of any concern about using the technology: "I just think I want to keep the post office open."

If and when some of the digital technologies that older adults are currently resisting become essential to daily (independent) living, it will be important to explore their resistance to understand what might motivate or enable them to use it in the future. While the mental trade-offs that older adults are making—weighing the perceived benefits against the financial cost of these technologies, the time it will take to learn how to use them, the social interactions they may lose, and the jobs that these technologies are replacing—will be evaluated differently by different people, there are at least three things that must change to tip the scales. Broadband cannot continue to be charged at rates that are prohibitive for many older adults; this needs to be treated as the human rights issue that it either already

is or will soon be [2]. Secondly, with loneliness being such a common characteristic of the older adult experience, greater attention needs to be paid to ensuring that digital engagements do not replace social interactions, but instead where possible facilitate new social and community building opportunities. Currently, social networking mechanisms such as Facebook fail to broadly address this need for older adults. And thirdly, in an age of widespread concern over unemployment, part of getting older adults online will be the development of strategies for creating new, good quality jobs in place of those that digital technologies make redundant—something which, regardless of older adults' attitudes to technology, needs critical attention [16].

The freedom of low expectations
The notion that aging *per se* leads to technology abandonment does not withstand scrutiny. And yet, older adults themselves are often the worst perpetuators of this myth, quick to excuse their disinterest in a given tool with the seemingly self-explanatory line, "I'm too old." It is worth considering, therefore, what older adults gain by this stereotype.

We (the authors) have come to understand that this stereotype affords older adults the privilege to take quiet political stands against the aspects of technology they find worrying, threatening, or just plain annoying. For example, a common justification for not using Facebook and other social media is because of the cyber-bullying, "stalking" behaviors, and "narcissism" they seem to encourage. One older adult explained: "I don't do Facebook. Having been a teacher, I think it's got loads of problems for young people. [T]here's pressure put on them if they haven't got 500 friends and I think there's all sorts of online bullying and I thought, 'No, this is not really for me.'" This is a purely political stand (this woman would not be a victim of the problems she's raising); and because there is no expectation that she would use Facebook, she can easily act on her principles.

Similarly, when older adults say, "Maybe I'm just in a generation where I'd rather go into a bank and speak to someone face-to-face," they may simply be playing into the common view that they are creatures of habit with nothing better to do as a cover for their prevailing sense of social responsibility. Playing the "age card" to justify a rejection of technology is one means of older adults being able to take a political stand while minimizing political risk.

And it is also true that the stereotype that older people simply prefer so-called traditional forms of communication (i.e. face-to-face) allows older adults to ask for the help that most of us wish we were entitled to. When it comes to filling in government forms, in particular, we have presumably all had the experience this older adult describes: "I think in my case what happens with the computer is, you're filling out this bit and this bit and this bit and sometimes you get so *confused* as to what they're really asking you." There is an expectation that younger adults should be able to figure it out themselves, and most will trudge on as expected; whereas the woman from the above excerpt is empowered by this stereotype to reject the unreasonable demands that are being placed on her on the basis that she is "too old", and walk in to her local council office and demand that someone answer her question for her.

We must stress here that even if future generations of older adults will be more digitally adept than today's older adults, continual technological change alone means that older adults will almost certainly remain less adept than their younger contemporaries. The older adults we met often spoke with awe (and the occasional hint of jealousy) about how easily their children, but especially grandchildren, use technology. There are clear physical and cognitive bases for these observed differences (e.g. [5] [6] [9]), but there are social ones as well, namely that children and younger adults benefit from informal training by their peers, and further experiential bases, such as the fact that many of the technologies older adults are most familiar with are becoming 'old-fashioned'. It would make sense if older people's reaction to these observations is to not even try to "compete", as it were, by working to become as proficient with technology as younger people. Therefore, this excuse of being "too old" will continue to be a professed barrier to adoption for a certain segment of the older adult population. But when and why older adults choose to play the age card may provide clues as to what issues they are protesting, and therefore which social side effects of digital technologies still need to be addressed.

****** SIDEBAR: Why focus on non-use? ****

There is a tendency both in public discourse and computing research to conceive of older non-users as "problematic" [14]. And it is true that by resisting technologies and/or not being able to use them as intended by designers, older adults do create challenges for realizing the technocentric vision of a fully digital society. But considering non-use from the perspective of lacking, as *not* doing something, obscures the fact that non-use is "active, meaningful, motivated, considered, structured, specific, nuanced, directed, and productive" [14]. Therefore, understanding what alternative meaning is being made when individuals selectively *choose* non-use enables reflection upon the meaning(s) implicated

or embodied by the technologies these non-users are rejecting.

After several decades of research focused on getting older adults to adopt technology, there has not been enough progress to ensure that older adults are sufficiently adept for navigating a society in which critical services are increasingly "online-only." We suggest that this is because the usability and accessibility of these tools are not the most salient barriers to adoption. As Zajicek noted [20], when there's something they want to do, nothing is going to get in the way of an older adult using technology. This means that the more appropriate questions are those that seek to understand what may be underlying older adults' resistance to developing digital proficiency. While there are definitely cases in which physical and cognitive factors may limit some older individuals' ability to use technology, we have argued that there are at least three important factors that are not often addressed: 1) older adults are uncomfortable with having to take on responsibility for tasks previously handled by trained professionals, particularly when they do not have time to train themselves sufficiently to be able to perform these tasks with confidence and when there are genuine risks associated with using digital technologies; 2) older adults make deliberate decisions not to use technologies when they perceive the technology as replacing or eroding something of value to them; and 3) older adults are one remaining demographic for whom opting out of technology usage fits with cultural expectations and therefore seems acceptable, despite being increasingly limiting in digital society.

To the extent that these factors play a role in de-motivating digital uptake, getting older adults more productively online will require a multi-pronged approach that attends to the real world social and economic consequences of digitization of services, explores strategies for de-risking digital technologies, and deeply considers the desirability of the world we are asking older adults to take part in. In order to develop technologies that older adults are able to use, attending to accessibility requirements for those experiencing age related physical and cognitive decline is a must. But this is clearly not enough. Part of what we have identified is the importance of older adults' perception of the usefulness of technology as a motivator for adoption; but beyond that, we have shown that the contextual milieu within which the technology exists must also be understood and addressed. Attending to the concerns central to older adults' resistance to digital technologies, therefore, should not be seen as a matter of accessibility or inclusiveness; we would all be beneficiaries of a more considered approach to digital development which seriously considers questions about how we are going to co-exist harmoniously with technology.

The older adults we interviewed offered a valuable perspective: they recall that for most of their lives they functioned just fine without the digital devices and services younger generations take for granted, and they have experienced first-hand the changes that digitization has brought. The concerns they raise about digital technologies are valid, and their applicability to younger generations is greatly underappreciated, not least because younger generations will of course age. Perceptions of greater vulnerability that come with aging, and reduced time and energy for maintaining technological proficiency, will likely ensure that perception of risk remains a relevant barrier to adoption of new technologies by future generations, even if the particular technologies that are thought to be risky might change over time. Similarly, while current technologies (e.g. online banking) may become so essential to daily living as to be universally adopted in years to come, this will only contribute to future resistance to change when new technologies arrive. And finally, while the specific changes that older adults are protesting now may not be a cause for concern for future generations, technological innovation will continue to have wide-reaching societal consequences that may provoke protest among future older adults who resist the loss of whatever it is they value. For these reasons, not only are older adults likely to remain behind the curve in terms of adoption for generations to come and require some degree of accommodation for their comparative lack of proficiency, but their instances of and justifications for non-use will help draw attention to the tradeoffs that are being made in the development of new technologies.

Acknowledgments

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