The Harm in Conflating Aging with Accessibility

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INTRODUCTION

> *"The quest for youth—so futile. Age and wisdom have their graces too."*– Jean Luc Picard

It is an increasingly global phenomenon that societies promote the notion of youth as the preferred state [27]. In stark contrast to the "wise elder" of ages past, today old age is assumed to be marked by loss of physical and cognitive ability, diminished relevance, and as we are sadly seeing with the Covid-19 pandemic, devalued humanity [18]. In many ways, it is not surprising that such stereotypes are reflected in our technologies: tech companies compete for territory in an already overcrowded youth market; whereas older adults[1], if considered users at all, are offered little more than fall alarms, activity monitors, and senior-friendly (often lower functionality) versions of existing tools. Meanwhile, there is a growing trend of workers aging out of the tech industry as early as their mid-forties [17], reflecting the higher value placed on the perspectives of those who represent the default target demographic.

ACM has produced a Code of Ethics and Professional Conduct [1] which affirms the importance of computing technologies being accessible as well as meeting the social needs of a diverse population of users. In light of such principles, it is ethically problematic that individuals toward the far (and particularly farthest) end of the age spectrum are clearly the lesser beneficiaries of digital technologies [3]. There are competing views on why this is the case. On the one hand, older adults are more likely than younger adults to have multiple health related constraints which can present difficulties in using standard (or, shall we say, poorly designed) technologies. But differences in technology adoption rates between young and old may more accurately reflect technologies' lack of appeal to older adults than their inaccessibility. After all, healthy older adults have been shown to reject digital technologies when

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[1]Whether "older adult" is even a meaningful category of user is something we question in this paper.

they are perceived to be in conflict with"what matters" in their lives and to society at large [12].

It is our contention that usability concerns have for too long overshadowed questions about the usefulness and acceptability of digital technologies for older adults. In what follows, we confront the uneasy relationship between accessibility and aging research—specifically, the assumption that the two fall under the same umbrella *despite the fact that aging is neither an illness nor a disability*. Our point is not that the phenomenon of disability represents a comparatively simple challenge for designers, as assistive devices and accessibility adaptations are inadequate for users with disabilities for many of the same reasons we highlight in this paper [20]. Instead, we argue that while accessibility research is important as one aspect of ensuring that individuals are not unfairly discriminated against, Human-Computer Interaction (HCI) and Aging research should be seen as separate entities. As a basis from which more inclusive HCI and Aging research may spring, we eschew notions of "old age" in favour of the alternative framing of aging as a largely positive process to which all people are subject.

WHAT'S THE HARM?

We begin by laying out the ways in which conflating aging with accessibility inadvertently harms older adults. Our argument is essentially Foucauldian [8]: that assuming a natural connection between aging and accessibility works to reify "older adult" as a category of user/subject in ways that disproportionately benefit younger technology users. In other words, understanding older adult users through the lens of accessibility—in which disability is the most salient characteristic in technology use—has implications for the kinds of design opportunities we identify and prioritize for this group, and in turn for how older adults see themselves as belonging (or rather *not* belonging) within digital society. Below we break this down into four related problems stemming from the casual association of aging with accessibility research.

Focusing on age-related limitations perpetuates negative stereotypes of aging and promotes ageism. That negative narratives of aging abound is not the fault of digital technology, though it is important that researchers and designers are cognizant of the ways in which negative societal attitudes toward aging are reflected in and reinforced by technology. Fundamentally, this bias affects what behaviors are visible or invisible to designers: it is easier to see what older adults can't do, rather than what they can do, and thus design aims to com-

pensate for age-related deficit [22, 24] rather than designing to support late-life development and enrichment [5].

Research has shown that attitudes toward aging concretely impact the way people age. People who hold more negative attitudes are found to be more likely to show biomarkers for Alzheimer's disease in their brains and as a result experience greater cognitive changes [14]. This suggests that there is a strong psycho-social component to aging, and as such, technology has a role to play in shaping how we conceive of, and in turn, experience old age. Consider the following:

- The lack of interest by the tech sector in designing for the older adult market contributes to implicit ageist messaging that older adults are not worthy of investment, technologically or otherwise, and any harms that may occur to older adults through this omission is an unavoidable externality of a system that economically rewards other priorities.

- Technologies specially designed for "old people" that seem to prove ageist stereotypes can be actively stigmatizing for users, and therefore are rarely adopted unless one has no other choice [23, 26].

- If one internalizes the stereotype that old people are incapable of using technology, any poorly designed technology that presents usability challenges can make someone who otherwise doesn't consider themselves old *feel* old—a phenonomenon known as situated elderliness [4].

- Similarly, notions of "aging successfully" involve older adults being able to keep up with technological change, putting pressure on older adults to adopt and master new technologies lest they reveal their old age [25, 26].

In each of these ways, technology works to define what it means to be old: it *subjectifies* older people and turns aging itself into a *problem*. Through the experience of digital technologies one is forced to either identify as an "older adult" or deliberately refuse the term. It is interesting that older adults can use these stereotypes to their advantage, insofar as claiming that one is "too old" frees the person from having to adopt technologies that they otherwise don't want to adopt [12]. But resisting technologies by conceding the stereotype, unfortunately, only reinforces this subjectification.

Designing for potential physical and/or cognitive differences of older adults to the exclusion of other contextual factors limits the scope for technology to meaningfully relate to and positively contribute to the older adult experience. As people reach advanced old age, their individual personalities and identities can sometimes become hidden; the world only sees them as "old" [9]. It is an insult to older adults—and undermines the identity building work that is so important to wellbeing in older adulthood—that digital technologies do not represent or accommodate their individuality as users.

Not only are older adults as multi-faceted as people of any other age, they differ from younger adults in a variety of important ways that are too often overlooked when blinded by potential differences in ability (**see Sidebar: "What Makes Older Adults Interesting?"**). One cannot construct a well-defined design problem when ignoring these factors, and digital technologies are therefore less likely to appeal to and work for older adults.

Assuming older adults lack the ability to use digital technologies makes it harder to conceive of meaningful contributions they might make as co-designers of technology futures. Simply put, designers cannot take seriously the opinions of those they infantalize. Technologies are almost always designed *for* older adults, rather than by or with older adults. This can lead to situations where older adults do not find such digital technologies relevant to their lives.

It can be harder to reach older adult populations for research (perhaps the research community ought to ask why this is the case), but studies that have sought to engage older adults in co-design have demonstrated they can be productively engaged in helping envision the future [2, 10, 22]. Older adults have much to contribute to their communities, other generations and research, if enabled. They are a storehouse of personal experience and historical knowledge, and researchers as well as designers can learn a lot from their frank insights and vision for society.

Construing older adults as differently-abled contributes to the "othering" of older adult users. In addition to limiting the scope of innovation for older adult end users (as described previously), a preoccupation with physical deterioration and limitations associated with aging can obscure key design issues underlying older adults' difficulties with or objections to technologies. Younger adults also struggle to use poorly designed technologies and are frustrated with negative consequences of these technologies, but often they have greater incentive to learn to use such technologies, indeed often less choice whether to adopt them [12]. When older adults choose not to adopt these same technologies, assuming their non-use is due to a lack in ability (physical or cognitive) or digital literacy is a way of de-legitimizing these objections, while also concealing that the objections likely pertain to other users.

The categorical separation of older adults is how they come to be thought of as a problematic "other" or a divergent user group. It is part of an apparatus that encourages the treatment of older adults as peripheral to digital society. And if older adults are considered essentially problematic or difficult to accommodate, this feeds a vicious cycle: older adults are less likely to use technologies that do not account for their needs and wants; then not using these tools means they lose confidence in their technical abilities, and so are even less likely to use digital technologies. Ultimately, this ends up justifying the decision not to invest in the older adult market, focusing instead on delivering technologies that appeal to younger users.

SIDEBAR: WHAT MAKES OLDER ADULTS INTERESTING?

Older adults are not a well defined category of user [21], in part because there is no set age that makes someone "older". HCI and Aging research has largely failed to make clear what is different or interesting about older adults beyond their likeliness

to experience usability issues related to age-related physical and/or cognitive decline. We have debunked this already as the sole reason for focusing on older adults; and yet there are several contextual factors that make older adults uniquely interesting to research and design for.

Life experiences. Older adults have lived through more/different historical events and cultural shifts which shape their view of the world, even if in different ways to one another.

Technology biographies. As part of their life experiences, older people have learned a variety of technologies across their lifespan, not all of which have been digital. These inform the way they approach their interactions with new technologies and can contribute to discomfort with novel forms of interaction, particularly if introduced to them post-retirement. Most importantly, however, they shape their understandings of what makes for "good" or "bad" technologies.

Societal expectations. Whether an older person individually ascribes to positive or negative views of aging, they will be aware of and react to/against these narratives in ways that affect their use of technology. Older adults can be ageist against themselves and their peers, too [15], just like younger people [6]. Lack of expectation for their proficiency or comfort with technology, however, allows older adults to voice criticisms of technology that others either take for granted or must suffer through as a necessary means of accomplishing everyday or work related tasks.

Changing family structures. Often older adults have to navigate multi-generational bonds and caring responsibilities (e.g. for spouses, grandchildren, friends, their own elderly parents), putting particular constraints on their time and energy.

Stage of life. While a luxury not all older adults are guaranteed, retirement can precipitate a number of dramatic changes in one's social life, create new opportunities, and stimulate rapid identity building. As one perceives the end of life to be near (either due to advanced age or ill health), people seek more meaningful, emotionally fulfilling relationships (see socio-emotional selectivity theory), thus giving them a new perspective on what might be important and not important when engaging with technologies.

Taken together, older adults offer a perspective that can deepen understanding of the effects of digital technologies, so that we, as designers, can better understand the tradeoffs entailed by our design decisions. Also, actively engaging with older adults helps to mitigate designers' own latent ageism—something one must do as a deliberate practice—resulting in technologies more likely to enrich the lives of those who are fortunate enough to arrive at older adulthood.

THINKING DIFFERENTLY, DESIGNING DIFFERENTLY

Having identified the problems with the current view of aging in HCI, there are clear alternatives. We offer the following recommendations as an antidote to the harms identified above, directly mirroring each in turn:

Seek design inspiration in narratives of positive aging. It is worth pointing out that conflating aging with accessibility is not just a way of making aging more tractable as a design problem. It is really a *mindset*—a mindset that views the old as infirm, incompetent and in need of help. This view has its origins in the medical model of disability, whereas we are adopting a more social, positive and ultimately empowering model.

The first step in challenging this mindset is to consciously attend to the more positive aspects of the aging experience. Research and design could focus on the relative freedoms that older adults enjoy compared with those busy with child rearing or work life, and the space this opens up for being able to engage with questions about "what matters". Thereby, retirement becomes not an end but a new beginning, a chance to re-invent oneself or renew interests in hobbies, to travel, or to volunteer in the community. Designers could look to older adults as "elders"—those experienced in the art of living whose advice society should actively seek as we design our world.

Making this adjustment has two effects, therefore:

1. Considering older adults as teachers and custodians of culture [27]—roles they have held or still hold in many societies—enables one to benefit from older adults' (and indeed, older members of the design team's) wealth of experience. Designing technologies with this in mind can overcome naive and shortsighted development and instead can lead to technologies that substantially contribute to a life worth living.

2. Researchers and designers can readily conceive of older adulthood as a site for exciting innovation. How radical it would be to put older adults at the frontline of our most innovative technologies, creating and benefiting from technologies that others also want to use.

Construct user types on the basis of shared contextual factors. People are different, and nothing can ever really work for everyone; but divergent perspectives ought to be accommodated within a digital society. Diversity nourishes insight and innovation; it helps society to become more empathetic, and design more compassionate technologies. Enfolding older adult perspectives and enriching the diversity of user types can only improve one's ability to design good technologies, hence the importance of working to understand what motivates these individuals.

But we caution that "older adult" is not a user type that is meaningful enough to inspire good design. This group, such as it is, is not monolithic, and the tendency to treat it as such perpetuates harmful stereotypes that they, as users, rarely conform to. What's more, treating older adults as a distinct user type isolates the transferable insights that the HCI community might gain from their perspectives and experiences.

To combat this, it is critical that research and design specify user types un-tethered from age. Some issues may be more salient for younger or older adults, but there are few issues that are so specific to chronological age that the user type of

interest couldn't be represented by either an older or younger adult. And yet, while HCI research would benefit from more age-diverse samples, there may be especial cause to turn to older adults to better understand the impacts of technology within a wider historical and social context.

Empower older adults to envision and shape the future. It would be paternalistic to ignore that health is very important to older adults, even if one disagrees with some of the reasons why health has become such a big focus. But it is paternalistic, too, to assume that because someone is older we, designers, know what is best for them—that it is in their best interest to adopt assistive technologies, for example. Paternalism is antithetical to the kind of listening stance that underpins good design work. It makes it harder to hear what older adults are really saying, or even to ask the right questions to begin with.

The ACM Code of Ethics and Professional conduct states, "*A computing professional should. . .* 1.1. Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing" [1]. With this in mind, it is key to conceive of older adults as stakeholders not only in the particular subset of technologies specifically designed with them in mind, but also in the technologies that directly and indirectly shape the wider society in which they are, clearly, stakeholders. There is a casual ageism that assumes that individuals who may be closer to death are not worth consulting about technologies of the future. In our experience interviewing older adults, they take a great interest in how technologies may affect the lives of their grandchildren, for example, and make certain decisions about their own technology use to try to bring about more positive future [11].

There is a methodological solution here, not unrelated to our previous recommendation, which is to involve older adults as study participants and/or co-designers as a rule, not as the exception. Merely considering what individuals across the age spectrum might want is not sufficient for inclusive design. What makes design truly inclusive is ensuring that all stakeholders have a voice in the design process, and are respected and engaged with as equals. We note that some efforts are being made to include older adults in design and discussions about technology (our reference list includes a number of good examples)[2], but there is still a long way to go.

Design for everyone "growing old". In sustainability discourse, there is a phenomenon known as NIMBY-ism: Not-In-My-Back-Yard. It describes a person not minding others having to live near wind turbines or nuclear power plants, but personally not wanting to live near them. The equivalent in the HCI and Aging field is the ". . . but they need it" argument: "I don't want any of this, but it would be great for my aging father." Technology carries so much stigma, and people don't want to be that "older adult" who is being designed for. It is telling that while most people over the age of 65 do not self-identify as "old"[3] nor see themselves as needing senior-friendly or assistive technologies, these are still designed "for

their own good," ignoring their objections. The surveillance tools designed to monitor older adults is one example: few would tolerate such overt violations of privacy, but for their children and society's peace of mind it is widely accepted that it is a good safety technology.

These tools can and do provide some benefit to some older adults. But we argue that in the zeal to "help" older adults one must remain aware of what might make technology unacceptable for them as for other populations. Making older adults suffer through bad technology does harm to them [7, 16, 19]. If there are consequences to a technology that the (almost always younger) person designing it is unwilling to accept, why should they assume those consequences are acceptable to older adults?

One way of countering this impulse is to move away from designing for "older adults" (with all of the cultural stereotypes this entails) to designing for *the experience of aging*. This shifts the focus from a population in which age demarcations may be cultural, contextual, and, at times, arbitrarily imposed to a focus on the experiences, transitions, and changes that people experience over the lifespan. This stance also helps designers recognize their own journey toward older adulthood, motivating them to design the kinds of technologies that make this life stage enjoyable once they get there.

CONCLUSION
To help ensure that older adults are not disenfranchised by the digital technologies that permeate society, the HCI community will need to move beyond a focus on accessibility as the core design requirement for older adults and consider the myriad other factors that make learning and using digital technologies less appealing for this demographic. Ultimately, by listening to and learning from older adult perspectives, the computing sector is better positioned for designing technologies that not only benefit the current generation of older adults, but will ultimately enhance all people's experience of aging.

ACKNOWLEDGMENTS

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