Chapter 10
Design the Technological Society for an Aging Population

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ABSTRACT

Inclusivity of design for an aging population will be one of the most critical problems to address in the near and far future. With advancing age comes new needs, goals, and unique issues – all of which may be ameliorated through well-designed systems and technologies. But what does it mean to be “well-designed”? In this chapter, the authors discuss the background research supporting design principles that take into account age-related changes in cognition, movement, and behavior. These are then applied in a worked example of a “car of the future,” partly constructed with current technologies, but also imagining near and far future advances. They conclude with a discussion of how to employ these principles in practice, both when designing new and cutting-edge technologies from the ground-up and revising systems and technologies already in place.

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INTRODUCTION

An Aging World Population

The need for usable designs for older adults is not new, but it is becoming an increasingly pressing concern. In the U.S., the number of persons over sixty-five will double by 2060. Percentage-wise, their impact on future society will be even larger: fewer children being born combined with increased longevity will make the ‘pyramid’ of age groups a ‘pillar’ for the first time in human history (United States Census Bureau, 2018). Again, by 2060, the number of older adults will rise from 15% of the population to 24% (Population Reference Bureau, 2016). The distribution of older persons will not be even - currently and in the future, rural areas will have a disproportionate amount of older residents (Population Reference Bureau, 2016). While the current and near future cohorts of older adults will be the most well-educated the world has seen, they will also likely be working for longer in jobs that require adapting to the use of new technology (Population Reference Bureau, 2016).

At the individual level there will be a diversity of housing in the future, with some older adults living alone or with a spouse, others in group homes and independent care facilities, and others in facilities that provide high levels of care. Projections are for a 75% rise in the need for nursing home care (Population Reference Bureau, 2016). Many of these older persons will be facing age-related changes while also serving as the caretaker of another - adding to their physical and mental burden. It is likely no surprise that, when asked how they would prefer to live, most older adults desire independence: independence of daily activity, independance with transportation, and independance to engage socially (Blieszner & Roberto, 2012; Hillcoat-Nallétamy, 2014). It should be the goal of system and technology design to support their desire for independence, health, and their economic livelihoods.

Multiple research centers are focused on successful aging with the help of technology and aging with a disability. These include the Institute for People and Technology at the Georgia Institute of Technology, Atlanta, GA (iPaT), the multi-institution Center for Research and Education on Aging and Technology Enhancement (“CREATE overview”, 2018), and the Center on Aging at the University of Iowa, to name a few. These researchers and others have made advances across a spectrum of issues connected to aging, from the privacy expectations older persons have of new technologies (Caine, Šabanović, & Carter, 2012), to seamless connections between older adults and their families or caregivers (Liu, Strouila, Nikolaidis, Miguel-Cruz, & Rios Rincon, 2016), to “technology coaches” that can provide just-in-time training and feedback for older adults using new helpful technologies (Rogers, Essa, & Fisk, 2007).
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