

Supporting Aging in Place with the Introduction of Artificial Intelligence Technologies

Tracy Moon

Department of Cognitive & Behavioral Neurology, Emory University
tnmoon@emory.edu

Abstract

As our growing population ages, there is a stronger push to age in place. Adults want to stay in their homes and communities as long as possible despite degenerative health issues. With adequate education and support, the growing desire for adults to age in their homes can be met with the strategic integration of AI technologies to maximize safety and bolster engagement in meaningful activities. This seemingly simple solution is complicated by the intersection of unique learning styles and the complexities that come with a generation that is cautious of even the simplest technology. Adopting a person-centered framework is vital for the success of AI-supported aging in place. As an occupational therapist, with experience across geriatric populations and a special interest in adaptive technology, I provide unique insight into effectively introducing AI technologies into the daily lives of older adults throughout this experiential report.

Introduction

As our growing population ages, there is a stronger push to age in place. Adults want to stay in their homes and communities as long as possible despite degenerative health issues. Research supports the idea that aging in place improves individual outcomes (Albert and Felix 2022). Adults that can age in their home, have routines in place. They are familiar with and comfortable in their environment. Their social networks and support systems remain intact. They stay engaged in meaningful activities longer. Their quality of life is better.

The AARP Home and Community Preferences survey reports that 77% of older adults want to stay in their homes (AARP 2022) as they age. Cognitive and physical challenges associated with aging, injury, and illness make it difficult for older adults to remain in their home environment. As things become increasingly challenging, older adults must have systems, strategies, and support systems in place

to remain safe and independent in their activities of daily living. The innovative use of artificial intelligence (AI) technologies can help support individuals in this venture while reducing the caregiver burden on families.

The automation of daily activities like medication management, self-care routines, meal preparation, community navigation, and security could be the key to keeping our aging population at home longer. This seemingly simple solution is complicated by the intersection of unique learning styles and the complexities that come with a generation that is cautious of even the simplest technology. Research suggests that age may be tied to people's attitudes and acceptance of AI-driven products (Davis 2020). Adopting a person-centered framework for the introduction, education, and training of AI-supported aging in place is vital for success. As an occupational therapist, with experience across geriatric populations and a special interest in adaptive technology, I provide unique insight into effectively introducing AI technologies into the daily lives of older adults throughout this experiential report.

Background

Technology is heavily interwoven throughout our society. It has the potential to be the bridge to otherwise isolated older adults but, it also has the potential to be alienating for those with limited access or who are not comfortable using it (Vercruyssen et al. 2023). Technology is complex and teaching it to older adults, even on the simplest level, is a multifaceted endeavor (Vercruyssen et al. 2023). Most older adults are willing and open to learning about new technology, they simply need someone to explain it in terms they understand and show them how it works in a meaningful way (Vaportzis et al. 2017). Effective use of technology requires an entirely new skill set, thought process, and vocabulary. It can be intimidating and lead to unnecessary frustration in an already fragile population without adequate training and support.

If implemented properly, AI technologies can be life-giving and even lifesaving for an older adult who wants to age in place. It can ensure they are taking their medications appropriately. It can alert caregivers of unusual activity in a home if their loved ones are living alone. It can ensure an adult with cognitive deficits makes it home safely or alert loved ones if they wander too far out of their community. Technology can add a unique layer of assurance and relief for caregivers using safety features and service apps to take care of meal delivery and transportation to doctor's appointments or social outings. Most of this technology is readily available to the general population, the problem being that they don't know it exists or how to access it.

The Occupational Therapist's Role

Occupational Therapists (OTs) are uniquely equipped to utilize a holistic approach for successful outcomes. The Occupational Therapy Practice Act (American Occupational Therapy Association 2022) outlines OTs distinctive role in:

“Assessment, design, fabrication, application, fitting, and training in...assistive technology” to “promote or enhance safety and performance in ADLs, IADLs, health management, rest and sleep, education, work, play, leisure, and social participation.”

OTs are skilled in evaluating the situation and creating a personalized plan utilizing individual strengths, compensatory strategies, environmental modifications, and caregiver education to maximize the effective use of technology for engagement in meaningful daily activities. They are trained to assess the complex relationship between an individual's skills and emotions, the task at hand, and the resources available. OTs are consulted to address the physical rehabilitation and home modification needs specific to aging in place. The integration of technology training fits seamlessly with the profession's background and overarching goal of maximizing engagement in daily activities.

Experiential Report

At the Charlie and Harriet Shaffer Cognitive Empowerment Program (CEP) at Emory University, older adults with a diagnosis of mild cognitive impairment are given the unique opportunity to learn about the benefits of lifestyle intervention. They take weekly classes for 6-months on exercise, nutrition, social-emotional supports, cognitive strategies, and interventions to maximize safety and independence as they age with MCI. They receive a holistic intervention approach created by a diverse interprofessional

team of neuropsychologists, occupational therapists, social workers, dieticians, and health educators.

Through our Functional Independence classes and related work in this setting, I serve as an OT and have introduced countless older adults to AI technologies in their homes and on their phones to maximize safety and independence. We have empowered them to learn more, ask questions when necessary, and explore what is out there. There are a variety of AI technologies readily available to older adults that are intuitive and affordable. Some of the AI-based technologies we introduce most often, include:

- Smart home devices
- Home security systems
- Fall detection devices
- Medication management devices
- Navigation and location tracking applications
- Shopping and chauffeur applications

Older adults and their loved ones are generally excited to hear that there are answers to the problems they have been facing, they are eager to learn and try new things. They need someone to explain it and show them how it works in a way that is meaningful to them. AI technologies are unique in that, once they are set up, they generally run themselves making them excellent options for older adults.

Model of Practice

The Person-Environment-Occupation (PEO) Model emphasizes the dynamic and transactional relationships between the person engaging in a task, the environment in which the task is being completed, and the demands of the task itself (Law et al. 1996).

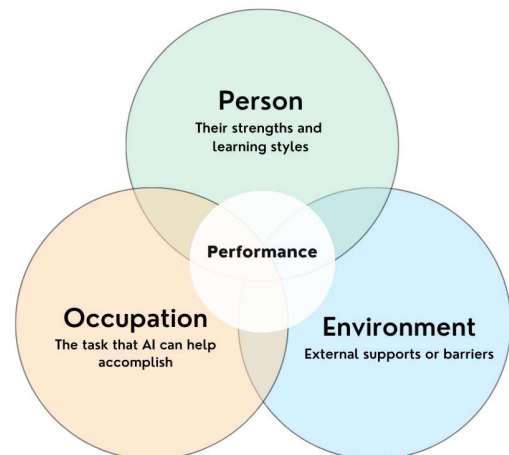


Figure 1: The PEO Model with considerations for supporting aging in place with AI technologies.

Utilizing this model as a frame of reference, will help ensure person-centered interactions. We consider that every indi-

vidual we work with will have different learning styles, different levels of comfort with technology, and different skill sets. We look at their home environments and how much support, or what barriers, they have. Most importantly, we look at what roles the individual takes on, what they want to do in a day, and what needs they have that we could help meet with the support of AI-based technologies.

Effective Integration

Building a unique profile for every individual, is a vital first step to successful integration of technology. We take the time to learn what their strengths are and what areas technology could support them in so we can provide meaningful, client-centered care. It is important to consider that not everyone has the same needs. Taking the time to let participants be actively engaged in goal setting and planning, ensures they have the buy-in necessary for carry over. A piece of technology could be perfectly designed to meet a need but if that need is not a current pain point for that participant, they may not find it worth their time and energy.

Research suggests that older adults learn best when they can experience what is being taught and receive feedback on their performance (Ahmad et al. 2022). We strive to create interactive educational sessions. We present a problem they may be facing, introduce technology that could help solve it, and invite them to interact with it in class with support. We encourage conversation and problem-solving as a group to facilitate exploration. If an individual can get comfortable using something with us, they will feel more empowered to use it in their daily lives. In my experience working with older adults diagnosed with cognitive decline, carryover seems best when they have a care partner to encourage them along the way and reinforce the key ideas in their home environment. Simple, written instructions with pictures or screenshots prove to be effective means of reducing confusion and facilitating autonomy once they have left the session and are trying it on their own. We provide direct links or PDF printouts to empower them to explore on their own once they get home. Those who listen attentively, ask questions, and interact with technology often report successful integrating into their lives long term.

AI is often ruled out as an option when addressing the needs of older adults because they are seen as not technologically savvy enough to manage it. My hope is that this discussion changes the narrative. It is time for the paradigm to shift towards an empowerment model in which we give them the tools and training to succeed. We, as professionals in the field, must first see the potential and know that it far outweighs the uncomfortable learning curve. We have made extraordinary progress with current technological advances and how our older generations age should be progressing as rapidly.

Conclusion

In conclusion, careful consideration should be placed on how AI-based technologies are introduced to older adults. Skilled occupational therapists are an excellent resource for consultation because of our knowledge and expertise with this population. Presenting AI-based technologies as a direct solution to an individual's pain points will help create buy-in and excitement. Providing education and written instruction on what is available and what it could look like in their daily lives empowers them to take action. Allowing time for interaction with the technology to build confidence is crucial to success and carry over long-term. With adequate education and support the growing desire for adults to age in their homes can be met with the strategic integration of AI technologies to maximize safety and bolster engagement in meaningful activities.

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