

Commentary

Technology in Dementia Education: An Ethical Imperative in a Digitized World

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Abstract. Technology can support the delivery of care and improve the lives of people living with dementia. However, despite a substantial body of evidence demonstrating the benefits and opportunities afforded by technology, gaps remain in how technology and technology ethics are addressed in dementia care education. Here we discuss disparities in current educational programming and highlight the ethical challenges arising from underdeveloped knowledge exchange about dementia care technology. We put forward that for technology to be ethically deployed and maximized to improve outcomes, it must be embedded into dementia education programs and made widely accessible to the caregiver community.

Keywords: Alzheimer's disease, delivery of health care, ethics, health education, technology

Technology has the potential to transform dementia care. From mainstream digital devices to dementia-specific systems, the continuum of technology offers multiple avenues for caregivers to develop skills and be supported in their roles. Examples of dementia-specific technologies range from simple devices such as reminiscence apps, medication dispensers with reminder functionality or global positioning system-enabled tracking shoe inserts to address challenges related to wandering, to more complex systems such as social robots that are designed to engage, distract, soothe, and assist with activities of daily living [1–7]. However, realizing the benefits afforded by these tools requires a community of technically savvy caregivers and a supportive infrastructure.

Mainstream technologies such as tablets or online learning platforms can be used to effectively deliver dementia education to caregivers. Technology-enabled education harnesses interactive multimedia to provide flexible learning opportunities that can support caregivers in determining what, when and where learning takes place. It complements busy caregiving schedules and has the potential to empower large communities of caregivers across various contexts [8, 9]. Virtual formats have become increasingly accessible, scalable, and cost-effective [10], and advancements in software like augmented and virtual reality now offer new ways of enhancing learning experiences [8, 9, 11]. However, despite these opportunities, the use of technology in dementia education programs is not widespread [12]. This is pertinent given that technology-enabled approaches may be used to significantly improve knowledge about dementia care technologies [13].

Caregivers have mixed opinions about using dementia technologies. Many are curious and welcome opportunities to learn about how technology

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might support caregiving roles [14]. A recent study reported that 54% of caregivers would be less concerned about the safety of a person living with dementia if they were equipped with technology that supports independent living [15]. However, others are concerned that devices will demand advanced technical skills to operate [16] and therefore perceive technology as being outside of their scope of practice [14]. Caregivers have also expressed fears about technology having a negative impact, including the potential for decreased caregiver vigilance as a result of over-reliance on technical functions [17]. For caregivers aged over 65, who account for 19% of the older adult population in the United States [18], the barriers to using dementia technologies may be exacerbated by low digital literacy, perceptions of mistrust, and digital exclusion. Concerns around privacy, confidentiality, and autonomy represent additional challenges to adoption [4, 19–22] with both persons living with dementia and caregivers expressing concerns about the risk of unwanted disclosure of private or personally identifying information [23–26]. Taken together these challenges highlight the importance of strengthening the digital competencies of caregivers and equipping them to harness the benefits of available solutions in a way that aligns with their values.

The WHO's Global Action Plan on the Public Response to Dementia called for international action to improve access to technological innovations that facilitate support for caregivers and enhance caregiver knowledge and skills [27]. This has since been operationalized across North America. The Dementia Strategy for Canada: Together We Aspire, called for caregivers to be better equipped to deliver quality care with evidence-based tools and resources [28]. In the United States, the National Research Summit on Dementia Care, and the National Alzheimer's Project Acts' Advisory Council on Alzheimer's Research, Care, and Services have identified dementia education and training in technology as priority areas of focus [29, 30]. The Alzheimer's Association's Professional Interest Area for Technology in Dementia and AGE-WELLNCE's EPIC-AT programs are noteworthy initiatives that have since been implemented in their respective countries to address these priority areas [31, 32]. However, while educational programs such as these (and others [33, 34]) are helping to tip the balance in favor of optimizing dementia care technology, they are mostly limited to professional audiences. Training offered to lay caregivers is less developed.

To survey public-facing dementia care training programs which might be easily accessed by lay caregivers, we performed a Google search using the keywords dementia, online, training, health care provider, and their synonyms. The first five pages of results returned 207 training programs, delivered by 89 providers. Large variation was found in the quality and depth of educational content, and among program characteristics such as delivery format, cost, duration, and accreditation. Content analysis of course descriptions revealed that few (15%) program providers offered comprehensive training curricula (scoring ≥ 15 when coded against 20 themes related to dementia caregiving including care approaches, communication, and wellbeing). Only 2% of providers explicitly mentioned technology in their program descriptions. Programs rarely attributed content to evidence-based sources, which called into question the credibility of the training material. Such oversight leaves room for the spread of disinformation or the use of predatory marketing tactics [35, 36]. These complexities make it challenging to identify and access quality dementia education. Publicly available training on dementia care technologies is particularly scarce.

We have reached a critical point. Technologies are continuing to advance and demonstrate increasing application to dementia care. However, training programs that equip caregivers with the skills to utilize these technologies lag behind.

We must address the gaps in caregiver education and tackle unequal distribution of resources. It is widely known that training caregivers leads to better outcomes [37–40]. For caregivers, dementia training improves overall wellbeing and role satisfaction [39], and significantly improves knowledge, attitude, and confidence [37]. For care recipients, training leads to positive outcomes in quality of life, communication, behavioral and psychological symptoms, and activities of daily living [41]. It follows, that empowering caregivers with the skills to optimize dementia technologies may support autonomy, self-determination, and beneficence for both parties. Failure to provide caregivers with opportunities to strengthen digital competencies about dementia care technology, therefore risks disempowering the very people they are intended to benefit. Just distribution of resources is necessary to safeguard the rights of people living with dementia [42, 43].

Information about technology must be transparent and openly weigh promises against user concerns to foster trust and dismantle barriers to adoption [4,

44]. Frequently cited concerns include those related to data collection and the potential harms of digital surveillance through excessive monitoring and privacy intrusions. Storage and disclosure of personally identifying or health information are associated concerns, especially with regard to the possibility of unauthorized use of data by third-party companies or the sharing of sensitive information that leads to discrimination and stigma [21, 23, 24, 26, 45]. Therefore, responsible deployment of technology necessitates that education and training must be delivered to address such concerns and raise awareness of the checks and balances that may be employed to safeguard user rights, thus empowering people with the knowledge and skills to make informed decisions. Rapid advancements in the functionalities of dementia technologies and the increasing prominence of software such as artificial intelligence in healthcare contexts, add further emphasis to the urgency and centrality of education in the ethical adoption of technology [44]. The promises of technology cannot translate into benefits if awareness remains low [46, 47].

Dementia care technologies are at the intersection of technology and medical ethics; ethical, legal and social issues around the implications of technology use overlap with the merits and challenges of care practices. Safeguarding human rights and upholding these shared principles is therefore a mandate that must lead developments in educational programming about dementia technology. The current landscape of training is complex, with pockets of excellence and room for improvement. With rising pressure to increase care capacity, timely action is needed to improve the disparities in caregiver education so that technology may be ethically deployed and optimized by people living with dementia to live well and flourish.

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CONFLICT OF INTEREST

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