



8-20-2013

Dementia and Technology: Evidence Supporting Assistive Technology for Individuals with Alzheimer's Disease and Related Dementias

Diana Skoutelas

Thomas Jefferson University, diana.skoutelas@jefferson.edu

Christine Tanner

Thomas Jefferson University, christinemarietanner@gmail.com

Gabriella Vulpis

Thomas Jefferson University, gabriellavulpis@gmail.com

Gittel Zelczer

Thomas Jefferson University, gittelzel@gmail.com

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Recommended Citation

Skoutelas, Diana; Tanner, Christine; Vulpis, Gabriella; and Zelczer, Gittel, "Dementia and Technology: Evidence Supporting Assistive Technology for Individuals with Alzheimer's Disease and Related Dementias" (2013). *Collaborative Research and Evidence shared Among Therapists and Educators (CREATE Day)*. Paper 5.

<http://jdc.jefferson.edu/createday/5>

Dementia and Technology:

Evidence supporting the use of assistive technology for individuals with Alzheimer's disease and related dementias

Diana Skoutelas, Christie Tanner, Gabriella Vulpis, Gittel Zelczer

Faculty Mentor: Catherine Verrier Piersol, PhD, OTR/L

Presented in Partial Fulfillment of the Master of Science in Occupational Therapy degree at Thomas Jefferson University

Objectives of Presentation:

- 1) **Recognize** the potential for and the use of assistive technology (AT) with Alzheimer's disease or related dementias (ADRD).
- 2) **Identify** the context in which AT can be used with individuals with ADRD.
- 3) **Describe** how AT is being used to promote engagement in meaningful occupations for individuals with ADRD.
- 4) **Discuss** the opportunities for occupational therapy to contribute to the efficacy of AT with ADRD.

Clinical Question: What is the evidence to support the use of assistive technology to promote participation in meaningful occupations for individuals with Alzheimer's disease or related dementias?

Methods:

- Databases: CINAHL, Cochrane, OvidSP, PubMed
- Search terms:

Population		Intervention	Outcomes	
Elder adults	Cognitive impairment*	Assistive technolog*	Aging-in-place	Daily occupation*
Older adults	Neurocognitive disorder*	Smart home	Aging n3 place	ADL
Dementia	Parkinson*	Technolog*	Home environment	IADL
Frontotemporal	Parkinson* disease	Occupational therapy	Improv* participation	
Alzheimer*				

- Inclusion Criteria: Peer-reviewed journals published from 2000 to present, individuals with ADRD, and the use of assistive technology; articles discussing other populations were excluded
- 248 articles yielded from databases; only 8 articles were identified to meet inclusion criteria and 4 additional articles were identified through other sources (8 qualitative, 4 quantitative)
- Critique Process: Two authors served as reviewers and completed either the *Law & McDermid Appendix M* (2008a) and *Law & McDermid Appendix N* (2008b) or the *Law and McDermid Qualitative Review Form* (2008c) to critically appraise the articles.

Results:

- This literature review indicates testing specific prototypes of AT to promote meaningful occupations of individuals with ADRD is in the preliminary stages
- Prototypes have shown the potential of promoting participation within the individual's living space
- Prototypes are continually being modified to maximize engagement in meaningful occupations
- AT decreases caregiver assistance during daily occupations
- The simplicity and familiarity of the design of AT increases its use by individuals with ADRD and caregivers
- When using AT it is critical to consider the environment
- Satisfaction of individuals with ADRD and caregivers are important in implementing client-centered AT interventions
- Occupational therapists are equipped with the knowledge and skills to serve as consultants during the development of AT

References

- Alzheimer's Association. (2013a). Alzheimer's Disease Facts and Figures, *Alzheimer's & Dementia: The Journal of Alzheimer's Association*, 7(2).
- Alzheimer's Association. (2013b). Types of Dementia. Retrieved July 22, 2013, from <http://www.alz.org/dementia/types-of-dementia.asp>
- Aloulou, H., Mokhtari, M., Tiberghien, T., Biswas, J., Phua, C., Kenneth Lin, J. H., & Yap, P. (2013). Deployment of assistive living technology in a nursing home environment: Methods and lessons learned. *BMC Medical Informatics and Decision Making*, 13(1), 42.
- American Occupational Therapy Association. (2008). Occupational therapy practice framework: Domain & process 2nd edition. *The American Journal of Occupational Therapy*, 62(6), 625-683.
- Cahill, S., Begley, E., Faulkner, J.P., & Hagen, I. (2007). "It gives me a sense of independence" – Findings from Ireland on the use and usefulness of assistive technology for people with dementia. *Technology and Disability*, 19, 133-142.
- Desai, A. K., Grossberg, G. T., & Sheth, D. N. (2004). Activities of daily living in patients with Dementia. *CNS drugs*, 18(13), 853-875.
- Grierson, L. E., Zelek, J., & Carnahan, H. (2011). The application of a tactile way-finding belt to facilitate navigation in older persons. *Assistive Technology*, 23, 108-115.
- Johansson, K., Lundberg, S., & Borell, L. (2011). "The cognitive kitchen" - key principles and suggestions for design that includes older adults with cognitive impairments as kitchen users. *Technology & Disability*, 23(1), 29-40.
- Labelle, K.-L., & Mihailidis, A. (2006). The use of automated prompting to facilitate handwashing in persons with dementia. *American Journal of Occupational Therapy*, 60, 442-450.
- Law, M & MacDermid, J (2008a). Appendix M in *Evidence-Based Rehabilitation: A Guide to Practice*. Slack, Inc.
- Law, M & MacDermid, J (2008b). Appendix N in *Evidence-Based Rehabilitation: A Guide to Practice*. Slack, Inc.
- Law, M & MacDermid, J (2008c). Qualitative Review Form in *Evidence-Based Rehabilitation: A Guide to Practice*. Slack, Inc.
- Mihailidis, A., Fernie, G. R., & Cleghorn, W. L. (2000). The development of a computerized cueing device to help people with dementia to be more independent. *Technology & Disability*, 13(1), 23-40.
- Mihailidis, A., Boger, J. N., Craig, T., & Hoey, J. (2008). The COACH prompting system to assist older adults with dementia through handwashing: An efficacy study. *BMC Geriatrics*, 8, 28. doi:10.1186/1471-2318-8-28

- National Institutes of Health. (2013). NIH-supported study finds U.S. dementia care costs as high as \$215 billion in 2010. Retrieved July 15, 2013, from <http://www.nih.gov/news/health/apr2013/nia-03.htm>
- Nygaard, L. & Starkhammar, S. (2007). The use of everyday technology by people with dementia living alone: Mapping out the difficulties. *Aging & Mental Health, 11*(2), 144-155.
- Robinson, L., Brittain, K., Lindsay, S., Jackson, D., & Olivier, P. (2009). Keeping in touch everyday (KITE) project: Developing assistive technologies with people with dementia and their carers to promote independence. *International Psychogeriatrics, 21*(3), 494-502.
- Rosenberg, L., & Nygård, L. (2012). Persons with dementia become users of assistive technology: A study of the process. *Dementia, 11*(2), 135-154.
- Sixsmith, A., Orpwood, R., & Torrington, J. (2007). Quality of life technologies for people with dementia. *Topics in Geriatric Rehabilitation, 23*(1), 85-93.
- Wherton, J. P., & Monk, A. F. (2008). Technological opportunities for supporting people with dementia who are living at home. *International Journal of Human-Computer Studies, 66*(8), 571-586.