

Understanding breakdowns and remote caregiver remediation in task support environments for people with cognitive disabilities

Jim Sullivan PhD, Co-Director, Cognitive Levers Project, University of Colorado
Andy Gorman, Co-Director, Cognitive Levers Project, University of Colorado
Anja Kintsch, Assistive Technology Specialist, Boulder Valley School District
Alex Andrews, Imagine!Colorado, Boulder Colorado

Background. Over the past 30 years, people with cognitive disabilities have steadily moved from institutional living to supervised community residences. Over the past decade, portable digital prompting systems have also emerged as assistive devices to help individuals with cognitive disabilities during key activities for daily living (ADLs), such as daily self-medication, meal preparation and household chores. Key issues with “stand-alone” prompting systems are: (1) prompts or scripts may not precisely correspond to the user’s task environment (i.e. the detergent box on hand doesn’t look like the picture in the prompting script); (2) unexpected events may occur (i.e. a phone call may interrupt a meal task while food cooking on a hot stovetop); or (3) people just have a bad day and need emotional support to complete the task at hand. In such cases, caregivers need to clarify what should be done or help the resident get back on track. Commercial surveillance services are also appearing on the market, but these systems are designed to monitor or detect specific safety or medical situations, and are of limited use in supporting a broad array of activities for daily living (ADL) tasks or assisting when something unexpected occurs.

Project Goals. To support new models for independent living, this project is investigating how ADL task prompting systems can be designed to: (1) independently support a resident during scheduled ADL activities, and (2) allow caregivers to remotely monitor task progress and offer assistance when needed. Since all events cannot be anticipated and breakdowns are inevitable, this project is investigating how and when such breakdowns occur, and what remote supports caregivers need to understand and assist in such situations. These goals are important because people who cannot independently perform ADLs have little choice except to live in supervised or semi-supervised settings which are more costly and less desirable to a resident seeking independence.

Application areas. This approach is being investigated to identify independent/semi-independent living models within a Community-Centered Board (CCB) caregiver network. This approach may also be useful to a family considering independent living arrangements for a child with developmental disabilities, an elder with early cognitive decline, or a veteran with traumatic brain injury. In such cases, appropriate technical supports could facilitate timely and relevant feedback and communications between residents and remote caregivers, while supporting a sense of independence for the resident.

This research is funded by the Coleman Institute for Cognitive Disabilities, The Rehabilitation Engineering Research Center for Assistive Cognitive Technologies (RERC-ACT), and Imagine!Colorado. This research supports this year’s Coleman Institute Conference theme “Cognitive Disability and Technology” since it is investigating how technology can be designed to provide remote caregiver supports in independent living settings.