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Experience Design for Persons Living With Dementia - Current Methods and Experimental Experience



Presented by: **Bruce Wallace**
Email: wally@sce.carleton.ca

Sabrina Knappe¹, Bruce Wallace^{1,2,3}, Laura Ault^{2,3}, Rafik Goubran^{1,2,3}, Neil Thomas^{2,3,4,5}, and Frank Knoefel^{1,2,3,4,5}



AGE-WELL National Innovation Hub
Centre national d'innovation d'AGE-WELL

Sensors and Analytics for Monitoring Mobility and Memory
Capteurs et analytique de suivi mobilité-mémoire

¹Systems and Computer Engineering, Carleton University

²Bruyère Research Institute

³AGE-WELL NIH-SAM³

⁴Bruyère Continuing Care

⁵Faculty of Medicine, University of Ottawa

The Twelfth International Conference on eHealth, Telemedicine, and Social
Medicine

eTELEMED 2020

November 21, 2020 to November 25, 2020 - Valencia, Spain

Dr. Bruce Wallace

Executive Director, AGEWELL NIH SAM³

Sensors and Analytics for Monitoring Mobility and Memory

Adjunct Research Professor and Contract Instructor,
Carleton University

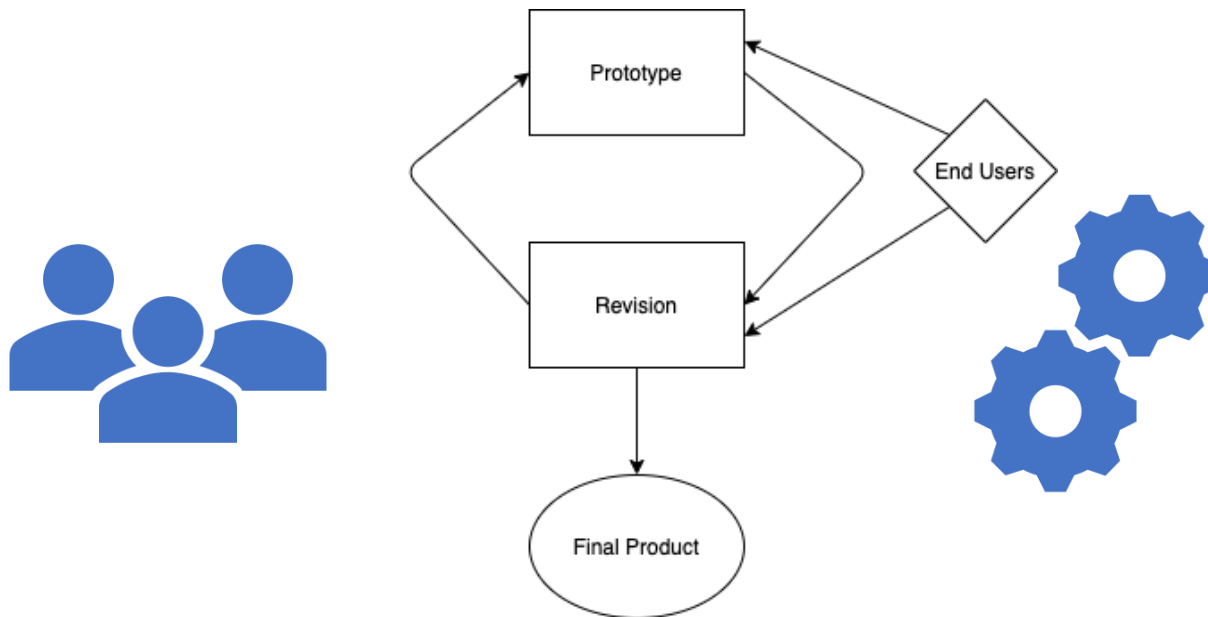
Affiliated Investigator, Bruyere Research Institute

Research Focus: Ambient assessment of well-being and
supportive smart systems to support independence and aging
in place.

Disclosure

The work was also supported in part by the AGE-WELL NCE Inc Platform and National Innovation Hub programs. It was also supported in part by the Natural Sciences and Engineering Research Council (NSERC) Discovery Grant.

Best Practices in User Experience



Involve end users early in the design process

Iterative prototyping

Adapting UX methods for PLWD

1

Collaborate
with families
and caretakers

2

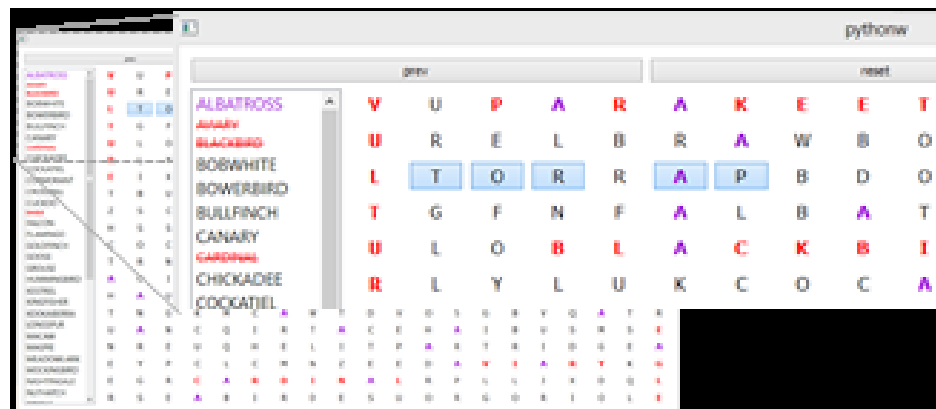
Adapt
traditional
prototyping
methods

3

Empathy can
be a design
strategy

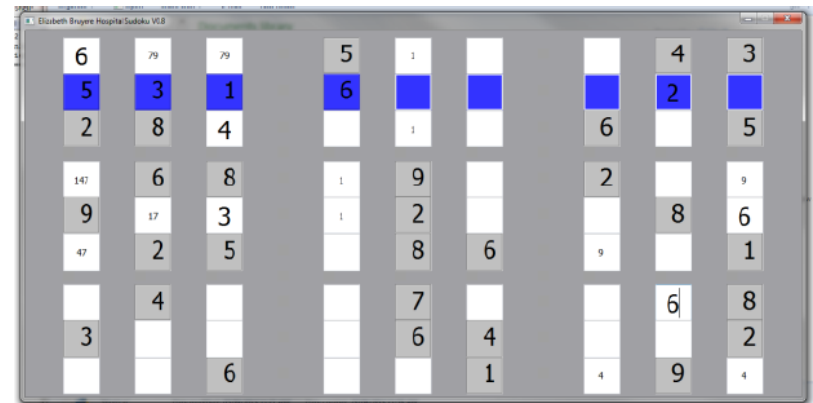
Word Search

- Study: Mild Cognitive Impairment (MCI) group
- Success: They were able to play the game
 - Interface somewhat familiar to participants
- Challenge for some:
 - Association between on screen action and mouse control movements



Sudoku

- Study: Mild Cognitive Impairment (MCI) group
- Success: Some were able to play the game
 - Interface less familiar and game more complex
 - Most has limited to no experience with the game
- Challenge for some:
 - Association between keyboard actions and game action led to need to relabel keyboard keys



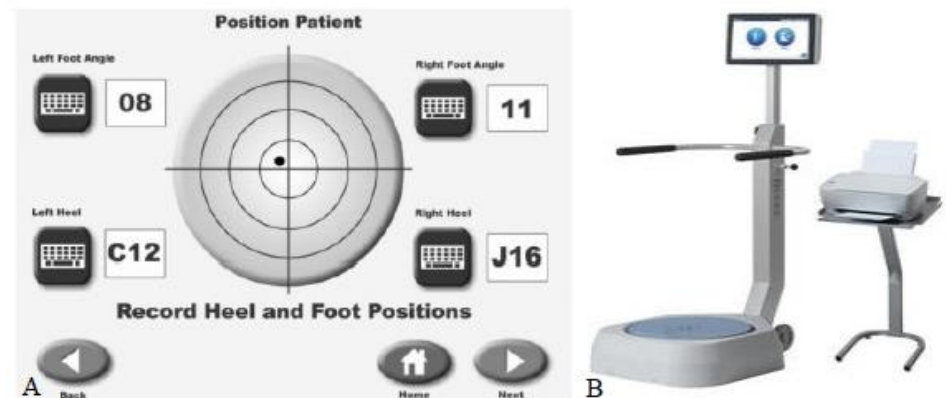
Whack-a-Mole

- Study: Mild to Moderate Dementia group
- Success: All were able to play the game
 - Touch screen tablet was close enough to real life experience (such as the carnival when they were young)
 - Week to week improvement as they “learned” the game
 - Able to understand only hitting moles and not bunnies that were added to game



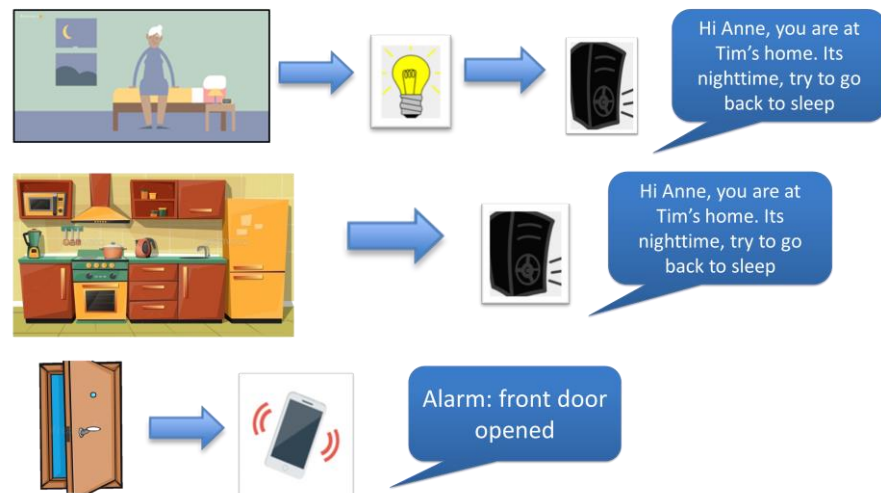
Balance and Cognitive Decline

- Study: Mild to Moderate Dementia group
- Success: All were able to physically do the test
- Challenge for some:
 - Participants struggled with interface of a dot on a target indicating their center of pressure and to control its movement
 - Remembering to not move their feet.



Nighttime Wandering

- Study: Dementia – Care-partner dyads
- Success: The supportive smart home system supported the care partner and most did not want it removed at trial end
 - A unique and novel “Implicit Interface”
 - Multimodal (visual, sound)
- Promising results and opportunity for further investigation



Rules of Thumb

- Large font size
 - As a general rule, larger font sizes are easier to read
- Clear Navigation
 - PLWD are easily disoriented and may be lost trying to navigate
- Reduce hidden affordances
 - PLWD often have difficulty associating elements with actions that can be taken.
- Accommodate limited motor skills
 - Complex motor movements can also be difficult for PLWD
- Avoid the need for information recall
 - Problems with short term memory can make information recall difficult
- Provide Hints
 - Inclusion of a hint function to be useful to PLWD.
- Avoid Iconography
 - PLWD struggle with abstract thinking

Summary

- Use rules of thumb for creating initial prototypes
 - Support and enable engagement by Persons Living With Dementia
 - High fidelity models (photos)
 - Assist with feedback methods
- Use resources such as family when necessary
 - They can assist their loved one
- Inclusion of end user is crucial

- Future work – continued exploration of the supportive smart home as this is a new and novel concept including an novel UX between the “home” and the “resident”

Questions

Acknowledgements

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