

# Technological Solutions to Improve Occupational Participation for Older Adults with Hearing Impairments



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## Literature Review

- 87% of older adults living in senior retirement communities experienced hearing impairments, which disrupted their ability to communicate, increasing chances of social isolation (McMahon et al., 2013; Perlmutter et al., 2010).
- Older adults had difficulty adopting hearing technological solutions due to low technological literacy levels and inability to recognize technological benefits (Tahden et al., 2018; Zhang et al., 2015).

## Diffusion of Innovation Theory

- Studied the process of adoption and dissemination of innovative technologies within a population (Zhang et al., 2015).
- Utilized to develop the dissemination plan that addressed those technological adoption issues through education and implementing the technologies into occupations.

## DEI Site

- Front Porch Center for Innovation and Wellbeing (FPCIW) was created to meet the needs of older adults by using technological solutions to support their wellbeing (Stover, 2019).
- Pilots technological programs at senior retirement communities to test the efficacy of the technology to meet the needs of older adults.

## Needs Assessment

- Difficulty addressing fall risks due to too many variables, such as medication side effects or hearing loss, that needs to be addressed (Chou et al., 2013; Hopewell, 2018).
- Difficulty developing solutions to manage behavioral issues, such as depression or anxiety, without the use of medications due to cognitive decline and over-medication (Bessey et al., 2019)
- Difficulty addressing social isolation because of hearing loss that impacted older adults' ability to engage in social participation within their communities (Dawes et al., 2015; Perlmutter et al., 2010).

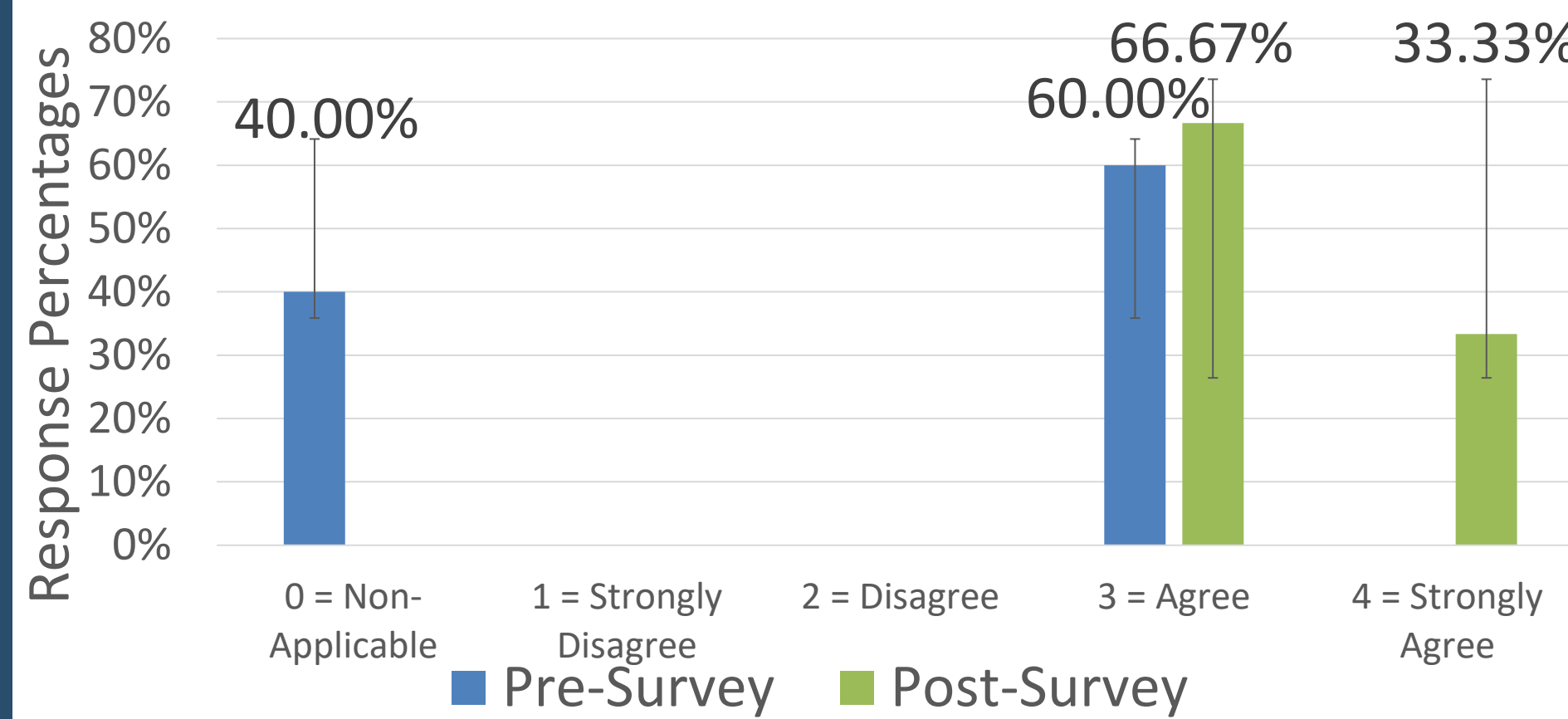
## Learning Objectives

By the end of the DEI, I will:

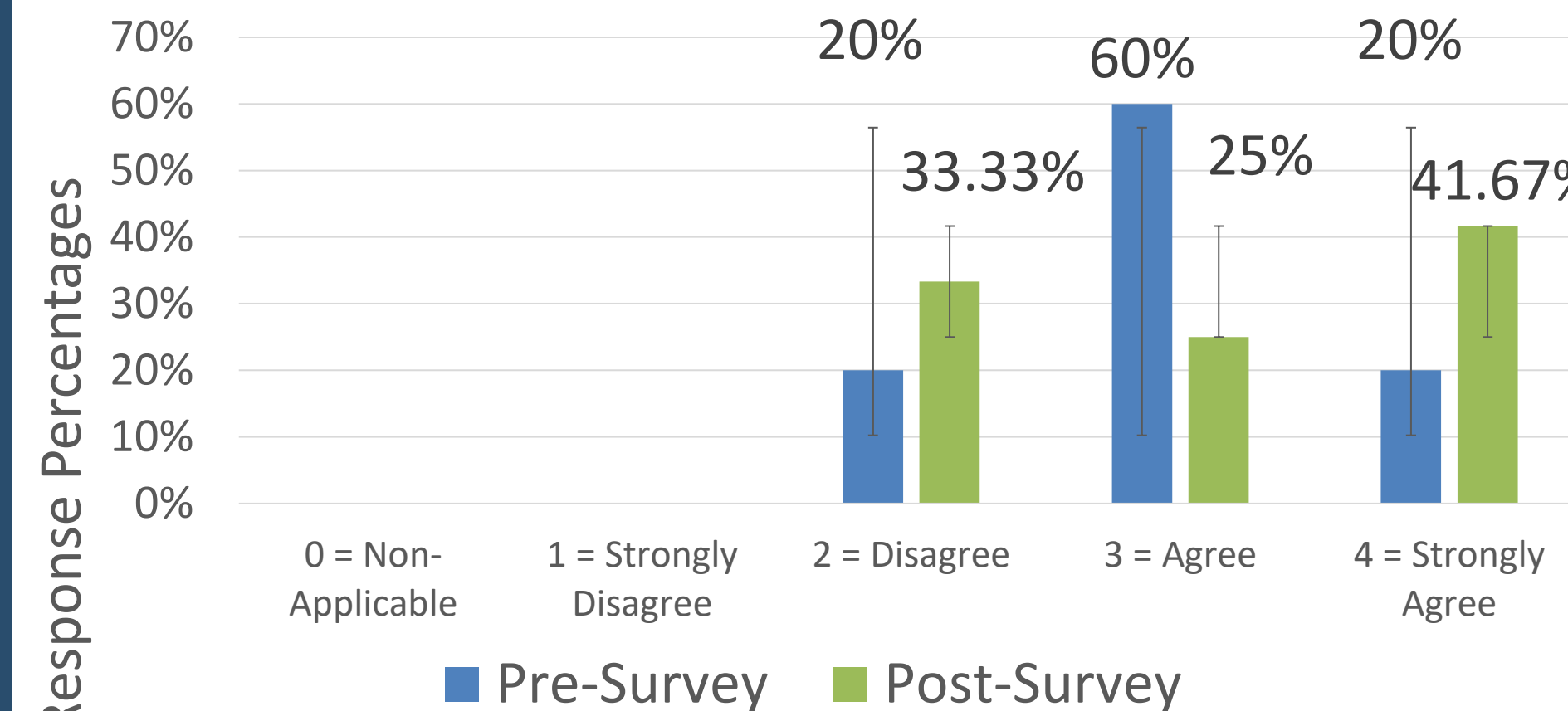
- accurately evaluate the benefits of a technology or technologies for older adults.
- effectively implement community workshops within Front Porch's communities.
- Analyze the in-house data collected from the pilot programs to determine the efficacy of the technology implemented.

## Project Outcomes

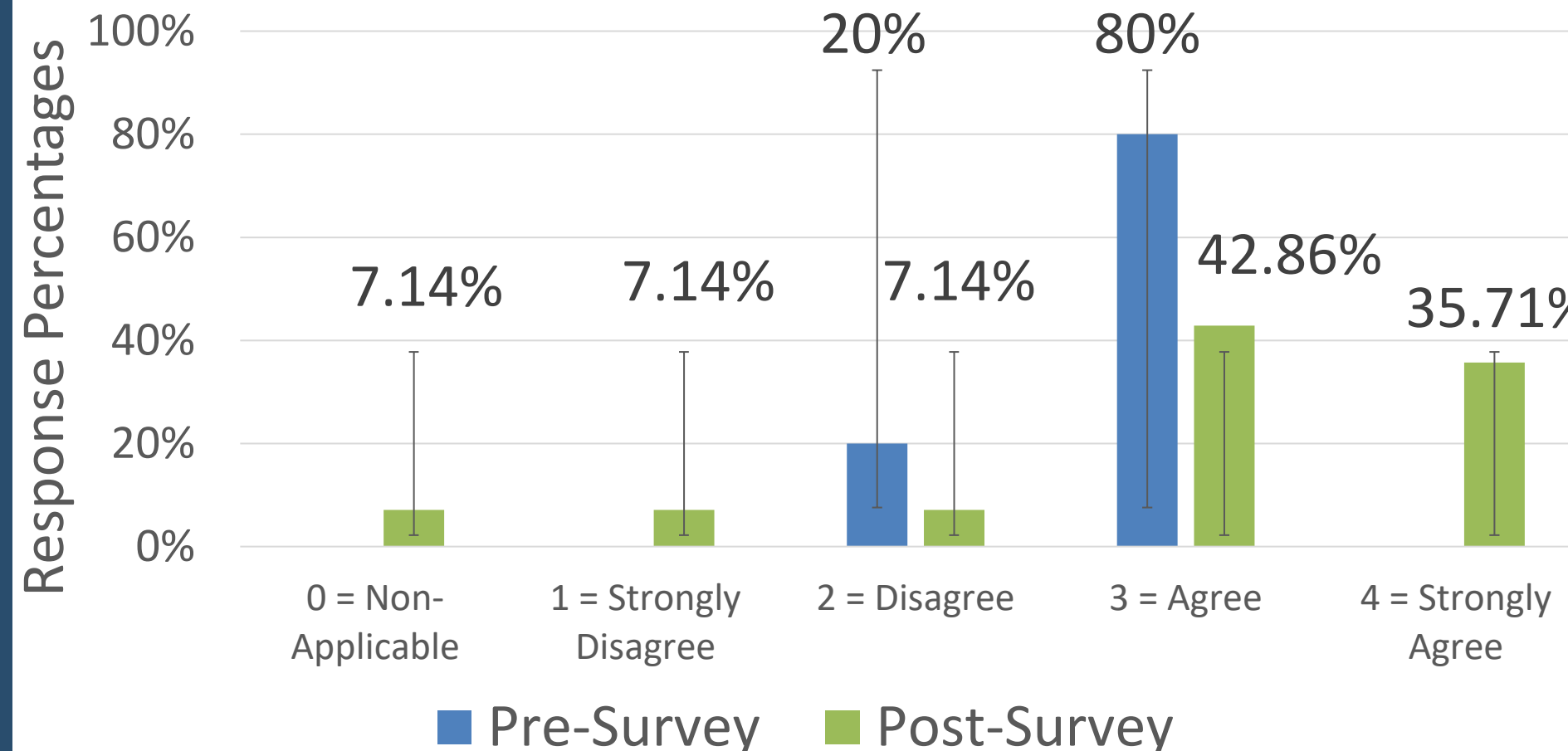
"I can engage in religious/spiritual activities to my satisfaction."



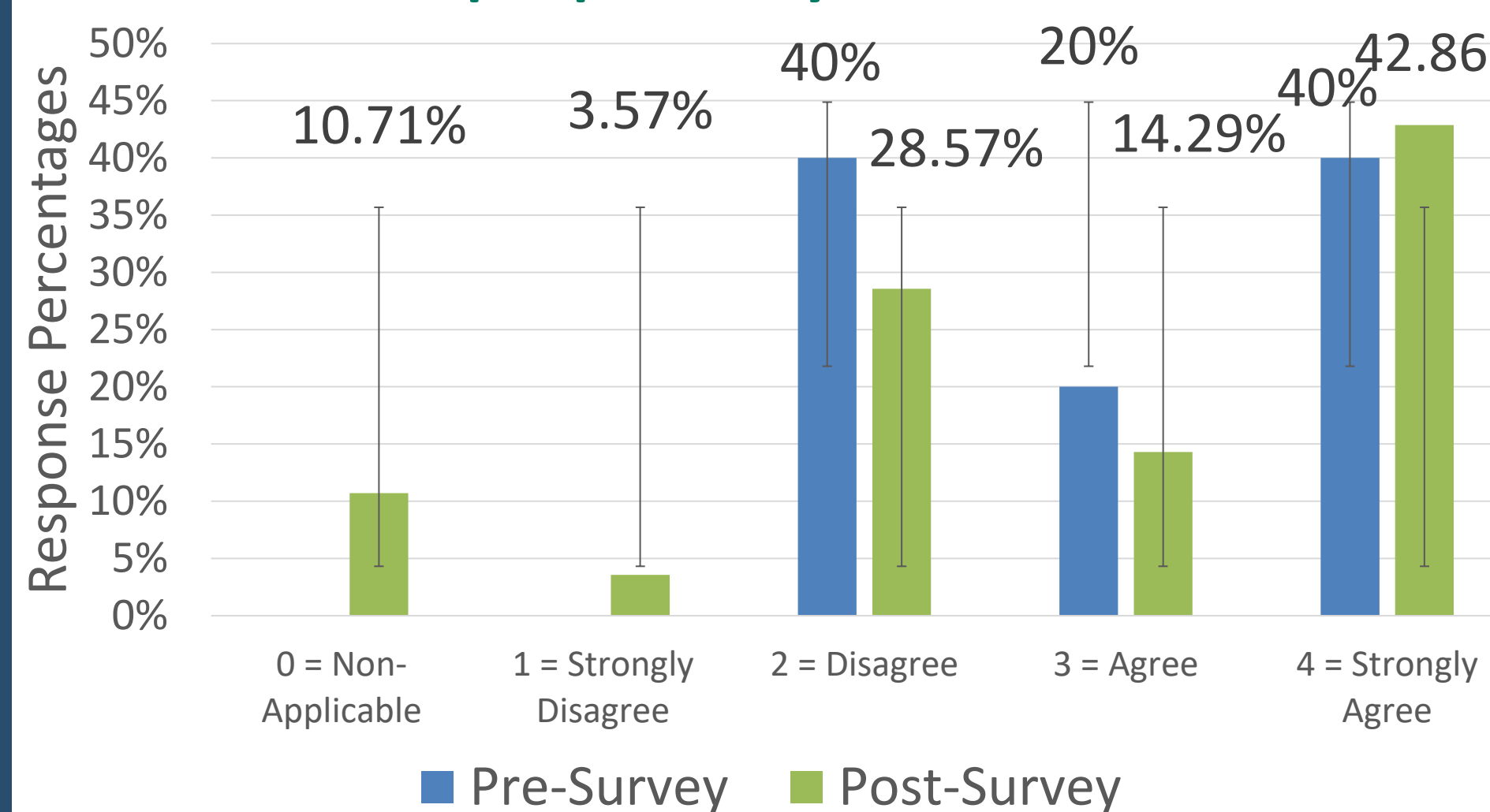
"I can engage in leisure activities to my satisfaction."



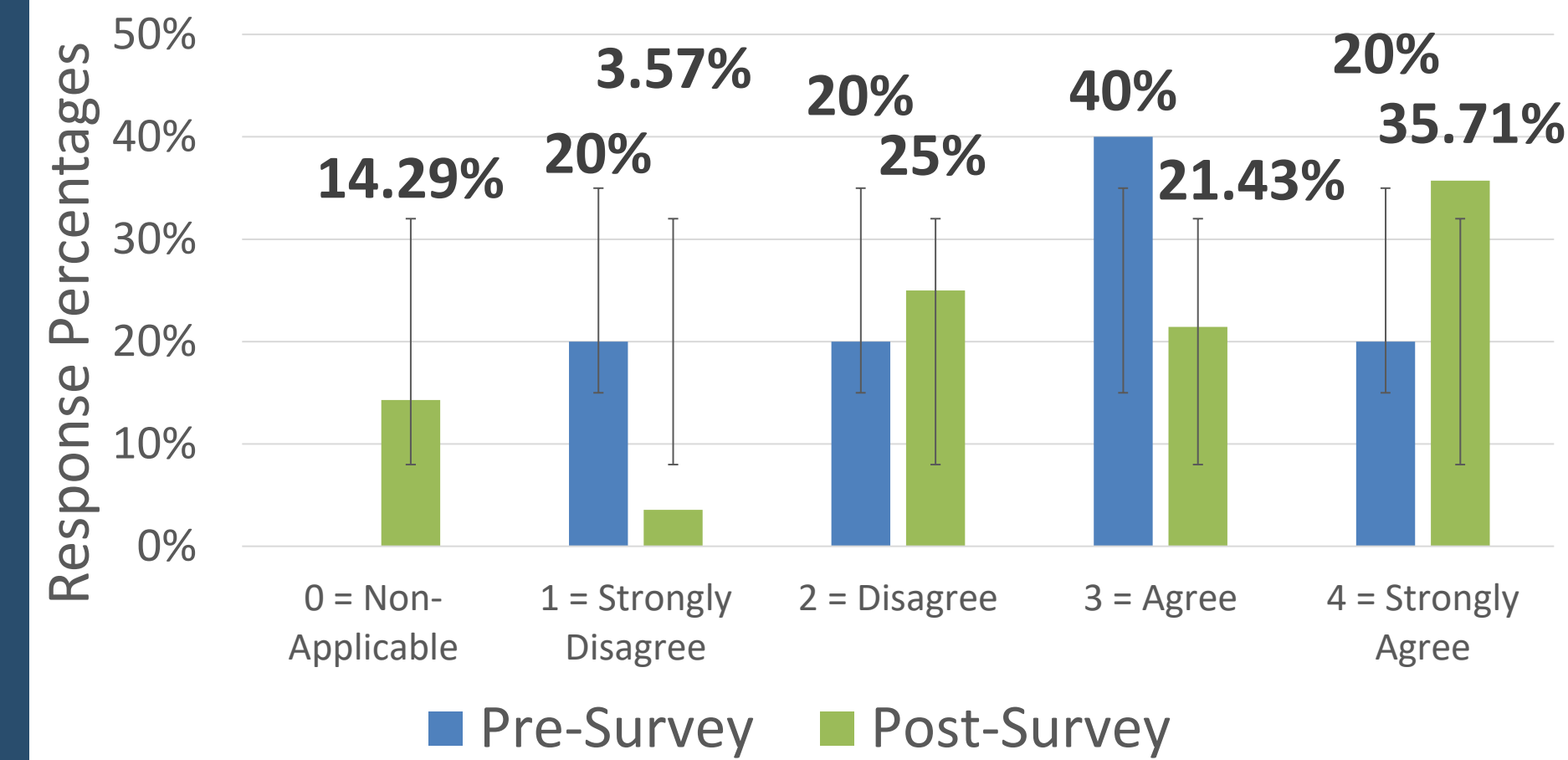
"I can engage in community activities to my satisfaction."



"I can approach or initiate social interactions with other people to my satisfaction."



"I can share my opinions and thoughts with other people to my satisfaction."



## Descriptive Statistical Analysis

	Religious/Spiritual	Recreational/Leisure	Community	Initiate Interactions	Share Opinions
<b>Pre-Survey Results</b>					
Mean	3.00	3.00	2.80	3.00	2.60
Std. Deviation (σ)	0.00	0.71	0.45	1.00	1.14
<b>Post-Survey Results</b>					
Mean	3.33	3.08	3.18	2.92	2.88
Std. Deviation (σ)	0.58	0.90	0.98	1.15	1.13

## Common Qualitative Themes

### Negative Impact of Hearing Impairments

- Difficult to engage in meaningful social activities, such as socializing with loved ones or watch live theater.

"Sometimes I would pretend to engage in the conversations, feeling out of touch, not involved..."

### Benefits of Qball and Eversound

- The technologies improved participants' hearing abilities

"The speaker's voice is sent directly into my ears, while outside noise is muffled, creating a clearer hearing experience."

### Challenges of Qball and Eversound

- Resistance to use the Qball by other older adults and activity facilitators was the main challenge.

"... there were people who didn't want to use the Qball, even though I can't hear them ..."

## Discussions

- Continuous need to address hearing impairment issues among older adults.
- Mixed-to-positive results about the efficacy of Eversound and Qball.
- Results were non-generalizable due to small sample size.

## Limitations

- Too many subject variables, such as other residents, affecting project outcomes.
- Short length of time.
- Inconsistent workshop attendance.
- Lack of cognitive testing.

## Future Directions

- More research required.
- Scaled up to more communities.
- Expand to more group-based activities.
- Consider more up-to-date technologies.

## Occupational Therapy Implications

- OT contributions to the design and review process of technologies across the lifespan.
- Create an occupational theory to guide the use of technologies as an intervention tool.

## Scholarly Deliverables

- Community workshop manual:** Detailed necessary information to allow anyone to implement the technologies themselves
- Final report:** Detailed findings presented to FPCIW for future improvements and the increase scalability to more communities.
- Project outcomes:** The development, collection, and analysis of the quantitative and qualitative data.

## Acknowledgements

Thank you to Jennifer Lee, Dr. Thomas, Dr. Friberg, FPCIW, the staff, and residents of Kingsley Manor for the guidance, help, and support that helped make this capstone project a reality.

## References

Available upon request.