

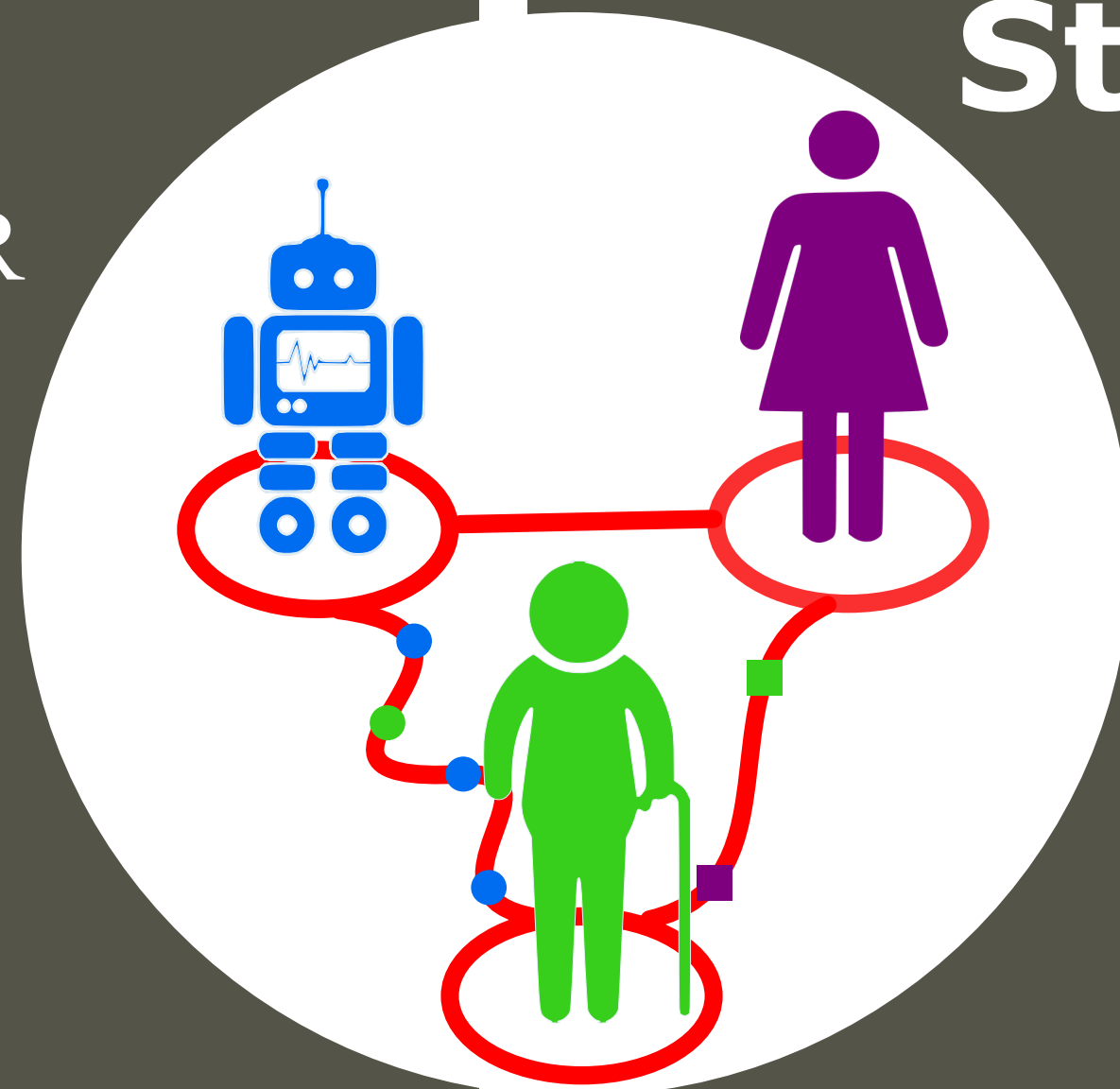
Towards a Study to Assess Conversation-based Interaction between People with Dementia and Robots

Dagoberto Cruz-Sandoval and Jesus Favela
dagoberto@cicese.edu.mx & favela@cicese.mx



Introduction

- Therapies and interventions supported by SAR technologies for a person with dementia (PwD) [1].
- Caregivers often deal with problematic behaviors through verbal communication [2].
- We propose the use of a robot to enact a personalized conversation to deal with problematic behaviors from a PwD.



Study Goals

Better understand of PwD-Robot interaction in terms of :

- Adoption
- Engagement
- Application scenarios

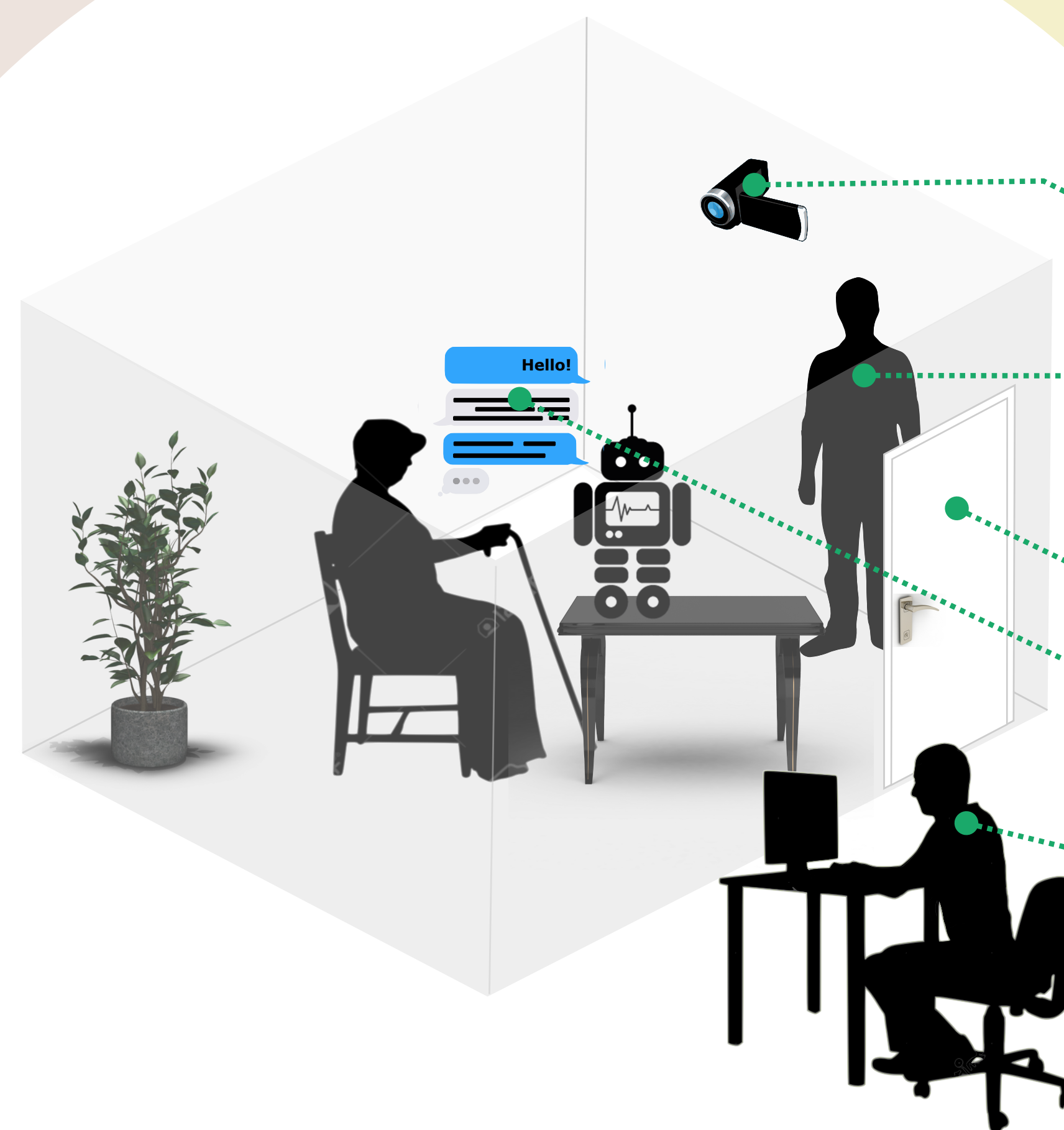
Research Questions

- Can a person with dementia engage in a conversation with a robot?
- How effectively are the conversation strategies proposed by the Alzheimer's Association [3] to be implemented in a PwD-robot conversation?
- How a PwD perceives the social presence of the robot?

Participants

Small group (4-5).
10-20 MMSE rate.
60-85 old.
Capacity to speak.
Good diction level
Be sociable

Inclusion
Exclusion
Frequent aggression.
Tendency to delusions.



Setup

- Video recording
- Facilitator
- Same conditions for all
- Script for each conversation
- Wizard of Oz setup

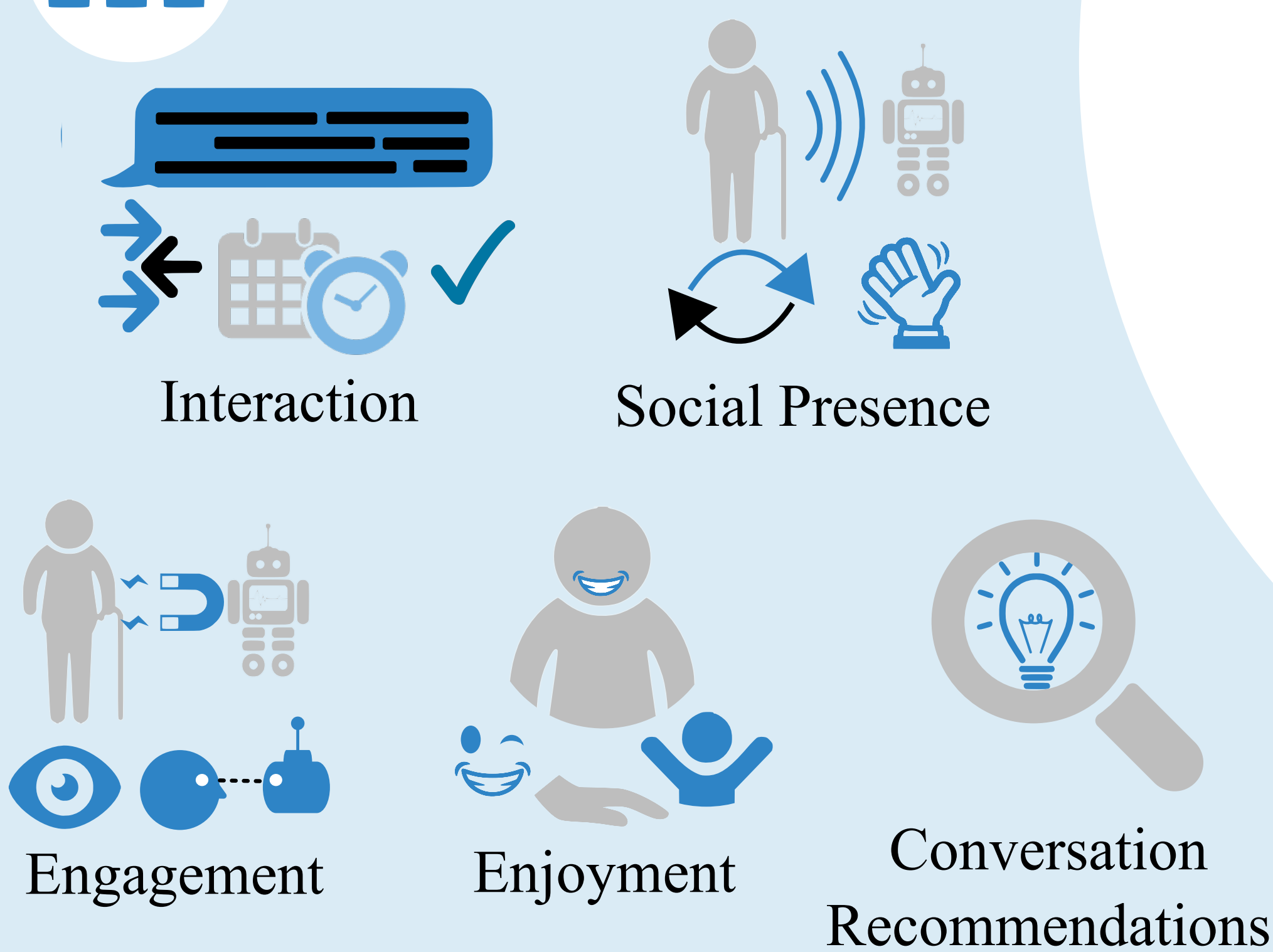
Study Design

1 A group session to familiarize the participants with the robot.

2 A conversation based on:

- Completing famous sayings
- Reminiscence about pleasurable moments
- Talk about recent events
- Ask about her favorite topics of conversation

Variables [4,5]



Analysis

Observation

Coding

Measuring

Answers

Expected Results

- Assess PwD-robot interactions.
- Discover issues affecting the adoption of a conversational SAR by a person with dementia.
- Inform the design of an autonomous conversational SAR to interact with people with dementia.

References

- Nikola Nestorov, Emer Stone, Patrick Lehane, and Richard Eibrand. 2014. Aspects of socially assistive robots design for dementia care. In Proceedings - IEEE Symposium on Computer-Based Medical Systems, 396-400.
- Dagoberto Cruz-Sandoval and Jesus Favela. 2016. Human-Robot Interaction to Deal with Problematic Behaviors from People with Dementia. In Proceedings of the 10th EAI International Conference on Pervasive Computing Technologies for Healthcare.
- Alzheimer's Association. 2014. Tips for successful communication at all stages of Alzheimer's disease.
- Aaron Steinfeld, Terrence Fong, David Kaber, Michael Lewis, Jean Scholtz, Alan Schultz, and Michael Goodrich. 2006. Common metrics for human-robot interaction. In Proceeding of the 1st ACM SIGCHI/SIGART conference on Human-robot interaction - HRI '06, 33.
- M P Lawton, K Van Haitsma, and J Klapper. 1996. Observed affect in nursing home residents with Alzheimer's disease. The journals of gerontology. Series B, Psychological sciences and social sciences 51, 1: P3-P14.