

Robotic media communication for relational transformation: Shaping social dynamics in care for older adults

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Purpose In this research, we aim to investigate the influential nature of robotic media and its effects on older adults with dementia. Humanlike robotic media might facilitate communication of older adults, and it is important to investigate its effects on mitigating dementia symptoms such as agitation and anxiety. **Method** We conducted quantitative and qualitative case studies in which we collected narrative and behavioral data of the subjects conversing with a tele-operated android robot named Telenoid (Geminoid, n.d.) (Figure 1). It is designed as a human presence that gives way for the user's imagination. At care facilities, we investigated its potential to mediate changes in older adults with dementia. Subjects were assessed with the NPI nursing home version scale by caretakers, and subjects' communication behaviors were investigated over time. **Results and Discussion** According to the scale, "anxiety" scores decreased significantly, although further investigation is required to look at maintenance of the effects on the participants. Also, in a qualitative analysis, as will be mainly reported in this talk, we observed participants' behaviors based on video recordings. In contrast to the care staff's and family members' first impressions of Telenoid, all the participants responded to it positively from the beginning. The participants frequently interacted with the robot in both verbal and nonverbal ways, often touching and praising it. Through the case studies, participants exhibited two notable patterns of interaction; 1) being open to the robot, and 2) identifying participants' roles towards the robot. During the interaction, participants cared for the robot, e.g., by saying, "Let me caress your head" and responding to the robot's requests, such as talking about their family. Also, they opened up to the robot, e.g., revealing their feelings to it. One participant started talking about her unknown aspects, for example, revealing concerns and sadness from her childhood, which surprised her daughter to hear though she felt relieved. People with dementia lose their memory, their independence, their confidence and their family roles. More can disappear and turn into fear for the future. In such a situation, the robot's size and design might stimulate participants' memories and experiences of childcare, motivating them to take a role in caring for the robot and affecting their attitudinal change. Reversing roles may work for alleviating their anxiety. We can explore ways to make use of teleoperation robots that allow us re-embodiment. For example, we can imagine the situation where one visits one's parent with dementia at a care facility, but they cannot communicate well, resulting in decreased visits. Such settings as providing an opportunity to operate the robot and role-play responding to the parent may help them recover and re-build a new relationship. In the current studies, the topics of conversation were adjusted to recall their memories, but they were not personalized. In a previous study, it was indicated that topics triggering personal memories could change participants' moods and improve communication (Yamazaki et al., 2018). The results indicate that there is potential for leading older adults' states of mind and behavior in specific directions. Considering ethical issues with respect to subject's autonomy, we need to further investigate how an enhanced teleoperation system can affect older adults' subjectivity. **Conclusion** Based on those results, we conclude that the teleoperation of robotic media that allows us re-embodiment has potential for getting older adults, even those with dementia, to be talkative and helpful. Further investigation is required to verify the potential influences across cultures and clarify the conditions in which robotic communication media can have a therapeutic effect on older adults. As robotic technology is influential and effectively leads older adults to specific directions, it opens an interdisciplinary area of research on human subjectivity, where their decision-making processes need to be investigated and ethically acceptable.

References

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Figure 1. Telenoid R3b.