

R. YAMAZAKI, K. KUWAMURA, S. NISHIO, T. MINATO, H. ISHIGURO. **Activating embodied communication: A case study of people with dementia using a teleoperated android robot.** *Gerontechnology* 2014;13(2):311; doi:10.4017/gt.2014.13.02.166.00 **Purpose** As the aged population grows, social isolation among senior citizens is one of the leading issues in healthcare promotion. Depression and dementia are the most common forms of mental illness among seniors, and related to functional decline; depression may even increase the risk of incident dementia<sup>1</sup>. Social isolation is a huge risk factor for the onset of depression, and those without close social ties have an increased risk for developing dementia<sup>2</sup>. To solve the isolation issue, and improve seniors' well-being by enhancing social connectedness, we propose to employ a teleoperated android robot named Telenoid. By focusing on dementia care, we aim to evaluate the effect of the android on the older person's wellbeing. **Method** Telenoid is designed to represent a human presence that can be perceived as anybody. The objective of this minimal design feature is to instill the feeling that a distant interlocutor is actually close to the user. We introduced Telenoid into a care facility ten times intermittently during two months to observe older subjects' changes in attitude over time (*Figure 1*). As a pilot study, mainly focusing on only two female cases of dementia, we conducted a quantitative and qualitative study that collected narrative and behavioral data from the subjects during conversations. When interacting, the android/teleoperator spoke to them and replied with nodding and hugging them. The residents' behaviors were observed via video recordings, which were coded and analysed. **Results & Discussion** The study shows that the elderly residents developed prosocial behaviors and increasingly positive attitudes toward Telenoid. One resident, who was aggressive due to dementia, started to calm down and gradually increased her interaction, verbally and non-verbally, with Telenoid while showing prosocial behaviors such as stroking its head and attempting to give it food (*Figure 2*). Also, another resident who tended to be isolated and stayed in her room showed a strong attachment to Telenoid from the beginning, started to come out to see it and expanded the various ways of interaction, e.g., by sharing the conversation with other residents. Telenoid encouraged the elderly subjects to be more communicative over time. The prospect of verifying the android's effects on senior citizens in further longitudinal studies is promising. Including possible, beneficial secondary effects on the operators of Telenoid, we consider the conditions for creating a remote community that can promote seniors' integration.

### References

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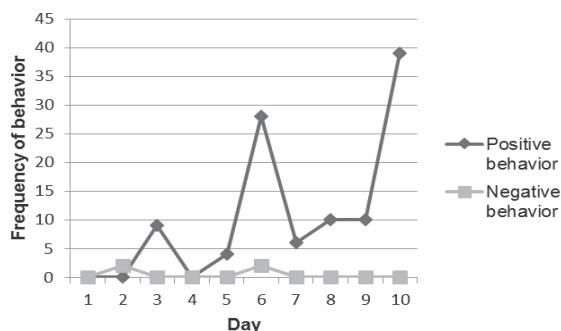
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*Figure 1. Elderly interacting with Telenoid R3b*



*Figure 2. Change in frequency of non-verbal behavior*