

Application Fields and Innovative Technologies

Using Tiny Social Robots to Bridge Generations: Perspectives of Older Adults and Students L.

Hung, J. Fu, V. Moros Villarroel, P. Vega, Y. Zhao, K. Raval, P. Santaella, D. Shao. *Gerontechnology* 25(s)

Purpose Canada's aging population faces increased risks of loneliness and social isolation [1, 2]. This study examined how two tiny social robots (EMO and AIBI) can facilitate intergenerational interactions between older adults and university students, by comparing how different generations experience, interpret, and evaluate the same robot-mediated interactions, focusing on emotional value, practical functionality, risks, and their role in bridging generations. EMO and AIBI are small, desktop-sized social robots designed for everyday use, featuring expressive facial displays, movement-based interactions, and functions such as music, reminders, and conversational engagement. **Method** We used interpretive description methodology [3]. Five focus groups were conducted in community settings with 13 older adults (≥ 65 years) and 13 university students (>18 years). Participants interacted with robots separately and then in joint sessions. All interactions occurred within a single study visit, during which participants engaged with the robots multiple times in a structured session. Participants were encouraged to explore the robots hands-on by issuing voice commands, engaging with music and movement features, and interacting with the robots' expressive responses. Each focus group lasted approximately 60–90 minutes, during which hands-on interaction with the robots took place. Data were audio-recorded, transcribed, and analyzed using reflexive thematic analysis, guided by COREQ [4]. Participants had varying levels of prior technology experience; students were generally more familiar with technology, while most participants in both groups had little or no prior experience with tiny social robots. **Results and Discussion** Three themes were identified: 1) Emotional and companionship value – Older adults noted better mood, less loneliness, and enjoyment from playful interactions, music, and reminders, sometimes viewing the robots as companions. Students found them cute but questioned lasting emotional depth and feared repetitive use. 2) Concerns about limitations and risks – Older adults valued reminders, cognitive support, and reduced isolation, while students noted accessibility and caregiver benefits but worried about reliability, over-reliance, and voice command limits, showing a protective stance toward older adults. 3) Bridging generations – Both groups identified shared elements of robot-related enjoyment, particularly the robots' facial expressions, playful movements, and emotionally responsive behaviors, which fostered joy and emotional resonance across generations. Older adults viewed them as companions and bridges to family or peers, while students cautioned against replacing genuine human interaction. Overall, the findings suggest tiny social robots may enhance emotional well-being and foster intergenerational connections, while participants raised concerns about usability and safety in relation to potential long-term use. Differences between older adults and students highlight the importance of co-design to ensure robots supplement rather than replace human relationships.

References

1. Owusu, B., Bivins, B., Marseille, B. R., & Baptiste., D. L. (2023). Aging in place: Programs, challenges and opportunities for promoting healthy aging for older adults. *Nursing Open*. 10(9):5784.
2. Wang, D., Subagdja., B, Kang., Y, Tan., A. H., & Zhang., D. (2014). Towards intelligent caring agents for aging-in-place: Issues and challenges. 2014 IEEE Symposium on Computational Intelligence for Human-like Intelligence (CIHLI); IEEE.
3. Thorne, S. (2015). The status and use value of qualitative research findings: New ways to make sense of qualitative work. *Exploring evidence-based practice*: Routledge; 2015. p. 151-164.
4. Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International journal for quality in health care*. (6):349-357. **Keywords:** Tiny social robots, intergenerational connections, older adults, social well-being, qualitative study

Affiliation: School of Nursing, University of British Columbia, Canada

Email: lillian.hung@ubc.ca

Acknowledgement: This work was supported by the Canada Research Chair in Senior Care (grant number: GR021222).



Figure 1. Tiny Robot EMO and AIBI (photograph taken by the researchers)