

Between Fear and Trust: Factors Influencing Older Adults' Evaluation of Socially Assistive Robots

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Abstract

The world's population is aging rapidly, and the number of older adults is projected to increase dramatically in the years to come. Socially Assistive Robots (SARs) are expected to help humanity face the challenges posed by this trend by supporting autonomy, aging in place, and wellbeing in later life. For successful acceptance and assimilation of SARs, it is necessary to understand the factors affecting older adults' Quality Evaluations (QEs) of them. Previous studies examining Human-Robot Interaction (HRI) in later life indicated that trust in robots significantly enhances QE, while aspects of technophobia considerably decrease it. Yet, previous research examined separately the impacts of trust and of technophobia on SARs QE among older adults, ignoring the possibility that these key factors can coexist and neutralize each other's influence. Moreover, contrary to trust, technophobia has hardly been investigated in the context of HRI. In addition, the existing literature suggests that older adults' overall QE of SARs is shaped by three aspects: their uses, constraints to beneficial use, and use outcomes. However, these studies were usually limited in duration, focused on acceptance aspects rather than on assimilation, and typically focused on only one aspect of the interaction between robots and older adults, i.e., examining uses, constraints, and outcomes separately. Furthermore, most HRI studies to date relied on either quantitative or qualitative analyses and did not apply a mixed-methods approach. This research aimed to bridge the gaps in the existing literature based on two complementary studies. First, an acceptance study simultaneously examined the effect of trust and technophobia on older adults' QE of SARs through an online survey of 384 individuals. Then, an assimilation study with nineteen community-dwelling older adults explored how the QE is shaped following actual interaction with SARs by a simultaneous exploration of uses, constraints, and outcomes in real-life conditions over a long period. This study relied on in-depth interviews, weekly surveys and use reports produced by the SAR. In both parts of the research, we used "Gymmy", a robotic system for the physical and cognitive training of older adults, developed in our lab. The findings highlight the importance of investigating technophobia in HRI studies and propose that implementing robotics technology in later life strongly depends on reducing older adults' sense of technophobia. Furthermore, this research demonstrates the usefulness of a holistic approach in research of older technology users and sheds light on the value of simultaneous explorations of facilitators and inhibitors, simultaneous exploration of uses, constraints, and outcomes, longitudinal methods in real-life conditions in assimilation studies, and the use of a mixed-methods approach in HRI studies.

Bio:

Oded Zafrani is a doctoral candidate in the field of HRI at the Department of Industrial Engineering and Management, Ben Gurion University in Israel. His research focuses on factors influencing older adults' evaluation of socially assistive robots. His work involves interdisciplinary collaborations between the Industrial Engineering and Management Department and the Department of Communication Studies.