Abstract

Using a Social Robot to Engage Older Adults Living in Residential Care Homes in Cognitive Training: Preliminary Results From the Shapes Project

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Objectives: The SHAPES project, part of the HORIZON2020 initiative, aimed to explore the effectiveness of Socially Assistive Robotics (SAR) in engaging older adults in cognitive training within a residential care environment. This study sought to assess the acceptance and engagement levels of elderly participants when interacting with a SAR-supported cognitive training program. The primary objective was to determine whether the SAR, specifically through the use of the ARI humanoid robot from PAL Robotics, could be positively accepted by older people.

Methods: The study used a mixed methods approach, combining quantitative and qualitative data to assess the effectiveness of the SAR intervention. It involved 11 participants whose enjoyment was measured quantitatively. Their attitudes towards the SAR, and the ARI robot in particular, were assessed using the General Attitudes Towards Robots Scale (GAToRS). Focus groups were also conducted with participants and their carers to obtain qualitative feedback and a deeper understanding of their experience of SAR-based cognitive training.

Results: The results of the SHAPES project showed a high level of acceptance and engagement with SAR among the older participants. An increase in the level of enjoyment was observed over the course of the sessions, reflecting a generally positive attitude towards activities based on SAR. However, challenges to real-world use of SAR were identified. These included participants' desire for a more intelligent and autonomous robot with a broader set of autonomous abilities. The integration of the chatbot with the robot presented technical challenges, particularly with the voice layer functionality in noisy environments, requiring a reliance on text-to-speech communication.

Conclusions: The SAR-based cognitive training intervention conducted was accepted by all stakeholders. Data on enjoyment of participants suggest that they did not experience a “novelty effect” of the proposed innovation, but longer sessions are needed to confirm this result. The request to have a more “intelligent” and flexible robot, in our opinion, should be considered a positive result, in that it may imply the willingness of participants to keep interacting with an artificial agent over longer periods of time.