

# Dementia and Technology

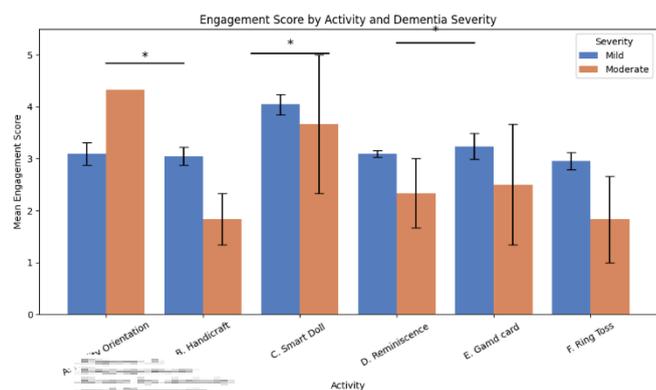
## Impact on the use of gerontechnology in group activities for persons with dementia: a pilot study

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**Purpose** Short-term relief programs in Hong Kong offer essential support for dementia caregivers by providing 2–3 hour sessions for rest or personal tasks. During these periods, trained staff lead structured group activities that promote social interaction, cognitive stimulation, and emotional well-being for participants. While beneficial, outcomes vary based on activity type, participant abilities, and stimuli used. Gerontechnology is increasingly integrated into older adults' daily lives, yet frontline staff often struggle with adoption due to limited knowledge and uncertainty about practical use. To address this, a pilot study introduced two gerontechnology products into a service unit, assessing their impact on activity effectiveness and engagement. **Method** Nine individuals with Dementia participated in a short-term relief program at a local elderly neighbourhood centre participated in this pilot study. Their level of dementia varied between mild to moderate. Within a 2-hour program, 6 activities were conducted. Among them, a smart companion robot doll was used to ask questions during a game similar to Monopoly and a 3D holographic projector was used to facilitate reminiscence training. Observations were conducted by 2 facilitators and 1 independent observer using Group Observational Measurement of Engagement (GOME) during one program session. In addition, a focus group was conducted with the facilitators and one helper of the program to examine the effectiveness and impact of such a gaming program with mixed stages of dementia individuals. **Result** A mixed-effects model was conducted to examine the effects of Activity (including: Reality Orientation, Handicraft, Smart Doll, Reminiscence, Game Card, Ring Toss) and Dementia Severity (Mild vs. Moderate) on engagement scores. The main effect of Activity was significant, with Smart Doll producing the highest engagement scores compared to other activities. The main effect of Dementia Severity was not significant, indicating similar engagement across severity groups. The Activity × Severity interaction was not significant. Post-hoc Tukey tests revealed that Smart Doll was significantly more engaging than Handicraft ( $p = .015$ ), Reminiscence ( $p = .047$ ), and Ring Toss ( $p = .009$ ). No other pairwise comparisons reached significance after adjustment. Figure 1 illustrates mean engagement scores by activity and severity. **Discussion** Traditionally, group activities in elderly service units rarely use technology. Instead of using a robot doll for companionship, the doll was used as a prompter during a Monopoly-style game. This promoted interactive communications among the robot and participants, which fostered active engagement, real time feedback and social relationship building. However, the inclusion of holographic projection for reminiscence training was found to be less effective, possibly due to the selected photos cannot trigger the participants to recall past experiences and memories. Focus group feedback highlighted that robots with appealing voices and adjustable volume stimulate curiosity, joy, and interaction, aiding cognitive training and supporting non-readers. The introduction of the robot doll to group activities increased participants' willingness to speak out and communicate. Overall, companion robots demonstrated potential for enhancing group activities and engagement among people with dementia. Future research should involve larger samples and varying dementia levels to further understand technology's role in elderly care.

## References

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