

“Autographer plus Flo”: a memory support intervention for people with mild cognitive impairment (MCI) and people with mild to moderate dementia

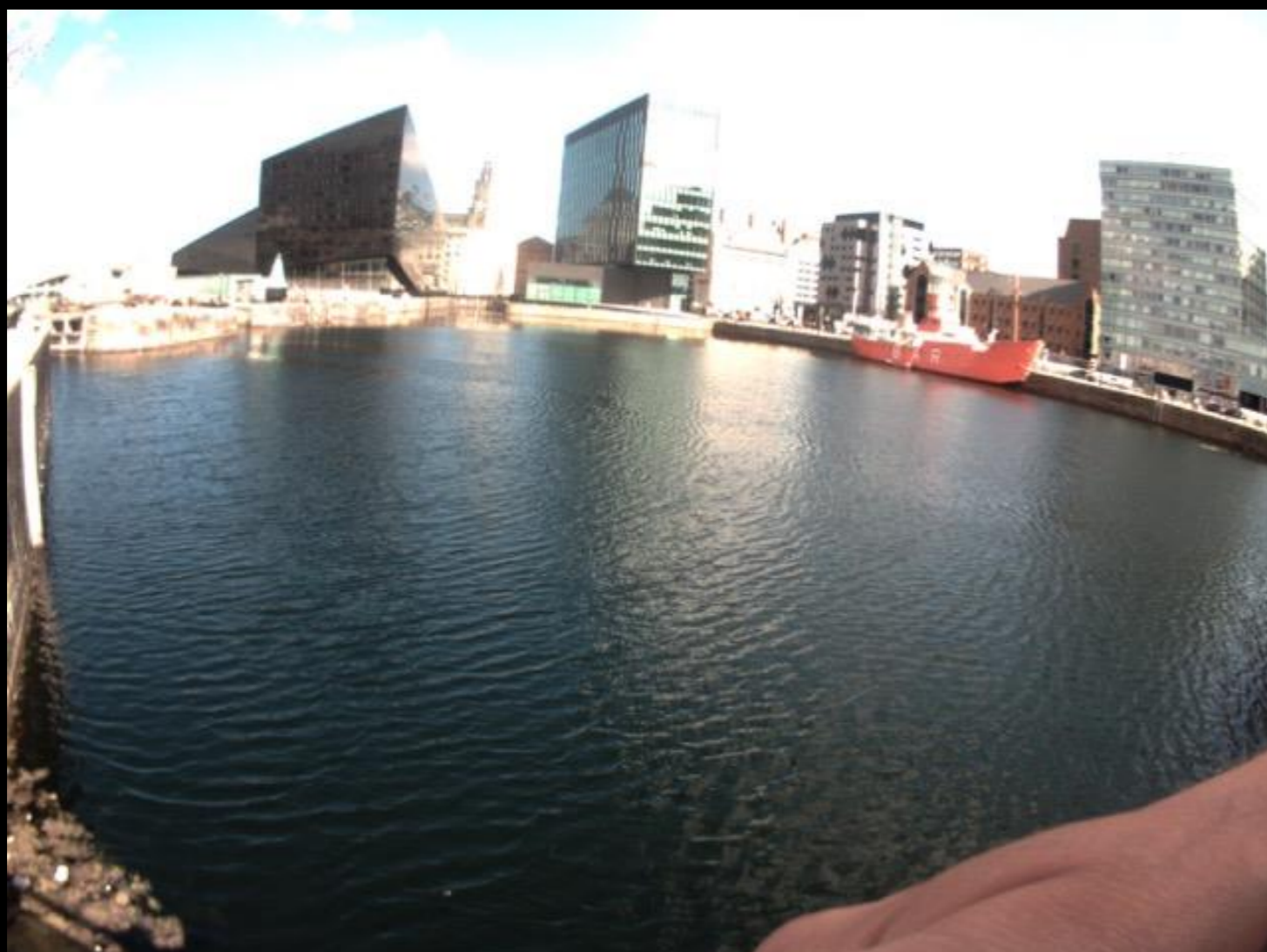
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Background

Simple digital technologies such as Florence Simple Telehealth text messaging have become accepted approaches for enabling self-management of long-term health conditions by users of health and social care services. [1, 2, 3] An example is patients using text messaging facilities to send their blood glucose levels or blood pressure readings to their GP practice. Methods such as this are simple, cost effective and encourage self-management.

For people with a long term memory impairment, such as dementia or mild cognitive impairment (MCI), the issues relating to self-management are rather different. For these patient populations managing the impact of memory impairment is a key concern.

Over the past decade research on the role of simple technologies for rehabilitation of memory has started to examine the potential of lifelogging devices. The majority of evidence about the value of lifelogging approaches to memory rehabilitation has been generated through studies in which the intervention was the wearable automatic camera ‘Sensecam’ [4]. A recent review of the effects of wearable cameras on memory [5] draws on the idea of the interaction between external support and internal self-initiated processes and what role “environmental support” plays. Because memory processing (self-initiated) is compromised in people with dementia or MCI there is a need to look to what the external environment can offer in terms of support to retrieve the information. Where the body is not able to set up adequate cues for retrieval “environmental support acts to stimulate the critical medial temporal lobe memory system”. [5] This external information ‘excites’ the memory networks, and this spreads and activates thereby leading to retrieval. Harnessing these ideas of interaction between external support and internal processes seems to be key for developing and designing memory support interventions.



The Intervention

The “Autographer plus Flo” approach was developed as a protocolled memory support intervention targeting people with MCI and people with mild to moderate dementia.

Participants were given an Autographer wearable camera (formerly known as ‘Sensecam’) which was theirs to keep permanently or for as long as they found it useful and beneficial. Participants were asked to regularly wear it during their everyday activities as a lifelogging device and to review their images from Autographer on a computer at least three times per week.

Participants were signed up to receive Flo text messages based on a once-repeated 13 week protocol. Text messages were of two types: once daily text messages designed to support wellbeing and management of memory problems. For example:

- “Memory is often worse if you are tired and this can affect your mood. By taking a break and then returning to a task afterwards can often help. Flo!”
- “Get into the habit of attending to things straight away that way you are less likely to forget. This can also reduce anxiety. Flo.”

and once per day text message reminders to wear the Autographer, in conjunction with thrice per week text message reminders to review Autographer images.

References

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- [4] Hodges S, Berry E, Wood K. SenseCam: a wearable camera that stimulates and rehabilitates autobiographical memory. *Memory* 2011; 19:7
- [5] Silva A R, Pinho M S, Macedo L, and Moulin C J A. A critical review of the effects of wearable cameras on memory. *Neuropsychological Rehabilitation*. (2016) <http://dx.doi.org/10.1080/09602011.2015.1128450>

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Evaluation

Eleven people with dementia and nine people with MCI were recruited to the project. Of the twenty participants, eighteen were signed up to using Autographer and Flo, one signed up to Autographer only, and the remaining participant used Autographer as part of a one-off therapeutic experiment. The evaluation collected data by the following means:

- One-to-one semi-structured interviews with ten participants to explore their experiences.
- A short questionnaire about use of Autographer plus Flo to any participants who joined the project but later opted out.
- Appraisal of change in participants’ wellbeing and memory assessed via pre and post scores on Warwick-Edinburgh Mental Well-being Scale (WEMWBS) and the Addenbrooke’s Cognitive Examination-111/ACE-111 (both routinely used in clinical practice).
- Review of service usage data for four participants ranging between 3 to 5 months pre-entry to the project and 3 to 5 months post entry to the project.

Results

Participants viewed the Autographer plus Flo approach as acceptable, and as an aid to help them manage their memory problems. All participants grasped the basic competences involved in using Autographer, and some participants developed sophisticated ways of using Autographer: e.g. one person took Autographer on fishing trips to take photographs of his catches.

Out of fifteen complete pre/post score sets for WEMWBS, there was an increase in thirteen post project scores (on a range of +1 to +33), and a decrease in two scores (by -2 and -6, respectively). Post project, out of the eleven participants with complete ACE-111 data three increased their overall score, one participant’s post score remained the same, and seven participants’ overall scores decreased. Post project - specifically in the ‘memory’ domain - the scores of seven out of eleven participants increased (on a range of +1 to +7) and one participant’s score stayed the same. The scores of the remaining three participants had decreased by between one and seven points in the memory domain post project.

Thematic analysis of the interview data indicated two main themes:

- Personal helper who prompts and reminds;
- Complementarity of Autographer to Flo, and complementarity with self-styled strategies.

All interviewees were able to recall clearly and with ease at least one memory of a salient event that had taken place up to six months prior to the interview, linked to using Autographer. In all interviews participants’ recollections contained some evidence that they were able to re-live aspects of specific experiences, echoing the idea that ‘remembering’ is imbued with content that is salient to the individual. [5] Autographer also had very practical applications such as aiding the remembering of tasks already completed, thus preventing unnecessary repetition.

Participants viewed Flo as a friendly and valued helper delivering text messages that prompted specific courses of action. The view that it was important to take action at the time the text was received in order not to forget provided a valuable insight into the detrimental effect of short-term memory loss on the everyday lives of participants. Around half of participants interviewed indicated that the two modalities of Autographer and Flo worked well together, each being viewed as a helper and friend. Using Autographer plus Flo seemed to be associated with feeling more confident and managing better.