



**Service Priorities and Programmes**  
**Electronic Presentations**

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**Innovative self-designed cognitive training software on a 40-inch multi-touch table(SUR40) for elderly with MCI or dementia**

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Self-designed software

Cognitive training for elderly

Advanced technology

Samsung 40" for Microsoft Surface 2.0 (SUR40)

**Introduction**

The potential in using technological solutions to meet the needs of an ageing population and in cognitive rehabilitation is increasingly being recognized. Development of software must take account of the "needs, abilities and desires" of the intended users (Goodman-Deane et al., 2009), especially in respect of those with cognitive impairments. However, commercially available software is usually designed for ordinary user hence most of them are with low relevance for engaging and not user-friendly for cognitively impaired elderly. Also, not much display unit can accommodate more than 2 users simultaneously to enhance social interaction. There is an arising need on developing software that takes account of their specific needs.

**Objectives**

To evaluate the self-designed cognitive training software and the feasibility of using advanced technology in cognitive rehabilitation for elderly.

**Methodology**

Samsung 40" for Microsoft Surface 2.0 (SUR40) is a 40-inch high definition multi-touch table which responds to touch and optical tags. It reacts to more than 50 simultaneous touch points, letting multi-users interact simultaneously. Occupational therapists of Shatin Hospital developed 3 software customized for cognitively impaired elderly which take account of their specific needs: little or no learning required, easy operation, slower pacing, contrasting visual display, grading for appropriate level of challenge. 1. PICK PIC BINGO involves attention, visual memory and matching which characterized in a group context for 2 to 4 users. Stimulating conversation and chance for natural interactions among patients, caregivers and staff. 2. VOYAGE EXPLORER provides cognitive stimulation by photo/ video looping, animation and touch effect generated. An engaging reminiscence experience and stimulation are feasible in a failure-free environment with low cognitive demand. 3. SMARTY HUNT involves attention, figure ground and matching which featuring domestic and community-based context. Patients attending Geriatric Day Hospital in Shatin Hospital with either MCI or dementia were selected for trial. A questionnaire was used to collect feedback on the

content of software, acceptance and competence in mastering advanced technology.

### **Result**

From February to August 2013, 80 cognitively impaired elderly aged 63-93 with mean MMSE score 18/30 and cognitive score of FIM 24/35 were selected. Encouraging feedback was collected. Most patients reveal the software are helpful in terms of cognitive stimulation and training; with appropriate level of challenge; the interface is user-friendly and showed interests to engage in the activity again. The self-designed cognitive training software on advanced technology is successfully applied to cognitive training for elderly with MCI or dementia.