

M. COLOMBO, S.F. VITALI, R. VACCARO, M. MALNATI, C. CUTAIA, S. ABBONDANZA, E. VALLE, S. FOSSI, A. GUAITA. *Current technology usage and neuropsychological functions in older persons attending a memory clinic. Gerontechnology 2010;9(2):204; doi:10.4017/gt.2010.09.02.292.00* **Purpose**

Our goal was to investigate the neuropsychological functions that may underlay the adoption of five familiar technologies like cars, remote controls, automatic tellers, mobile phones and personal computers. **Method** We studied 100 community dwelling, persons, aged  $71.7 \pm 9.7$  years, 2/3 females; 3/5 have been employed in blue collar jobs or as craftsmen, 1/3 work in white collar jobs, and 3% were professionals; years of education ranged from 0 to 18 (mean  $7.1 \pm 3.6$ , median 5). Screening tests were: Mini Mental Status Examination (MMSE) for general cognitive functions and the Clock Drawing Interpretation Test (CDIS) for executive functions and visuo-spatial functions, and the Geriatric Depression Scale for mood. Constructive praxia, visuo-spatial memory, attention, executive tests and intelligence were investigated through a battery of neuropsychological tests. Frequency, ease and pleasure using the five technologies were tapped by a questionnaire. Inferential statistics were performed by the non-parametric Kruskal-Wallis test.

**Results & Discussion** Abnormal MMSE values were found in 50% of the participants, and for the CDIS in 70% of participants; depressive symptoms were present in 60% of participants. Only visuo-spatial tests got a high rate of abnormally low scores (1/3); bottom equivalent scores ranged from 7.6% for attention to 4.4% for constructive praxia. A mobile phone was the most frequently used technology (2/3) and a personal computer the least used (1/5). All technology related items were linked to the three screening tests in a plausible way that is to say that best performers – both in cognitive and mood status – were more and better involved with technologies. The CDIS yielded the highest harvest of links with tech: only the frequency in the use of the remote control was unrelated to CDIS, which was the only screening test related to PC usage. Use of every technology was more or less related to the results of the tests in our neuropsychological battery, except for visuo-spatial memory (*Table 1*). Mobile phone got differences in score for all other tests, PC and remote control only for one test (respectively for intelligence and executive test). The extent to which older people are using technology shows great diversity among individuals. Our micro-perspective<sup>1</sup> confirms that both cognitive abilities and mood status are related to such different usage ratios. The sharp difference in the spread of relationships with neuropsychological functions between such technologies as the PC and the mobile phone – showing the lowest and highest usage ratios, respectively – may fit the conceptual model of the popularization of a product, and its relation to attitudes and cognitive abilities<sup>2</sup>. The influence of mood is worthy of attention as well. To prevent ‘digital divide’ we must be concerned with the surge of psychic frailty among older adults<sup>3</sup>.

## References

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*Table 1. Technology use and cognitive functions in a memory clinic \* statistically significant different scores by Kruskal-Wallis test*

Cognition	Technology				
	Car	Remote control	Automatic teller	Mobile phone	PC
Praxia	*		*	*	
Attention				*	
Executive	*	*		*	
Intelligence	*		*	*	*