

The University of Hong Kong
Department of Psychology

Departmental Seminar

***Visual working memory binding and episodic memory formation:
Neuropsychological and functional neuroimaging research***

Date: June 5, 2012 (Tuesday)
Time: 11:30 a.m. to 12:30 p.m.
Venue: Room 624, Knowles Building, HKU
Speaker: Professor Roy P.C. Kessels
Radboud University Nijmegen
Donders Institute for Brain, Cognition and Behaviour
The Netherlands

Fifty years of memory research has resulted in theories on working memory and episodic memory, which are generally regarded as dissociable and separate systems, each with their own neural underpinnings. However, recent evidence suggests that working memory and episodic memory may in fact rely on the same cognitive operations and brain processes. In this talk I will present evidence from fMRI studies showing that the medial temporal lobe (including the hippocampus) is implicated in working-memory maintenance of bound information, especially when information processed in different brain regions needs to be integrated. This activation may reflect episodic buffer processing in accordance with Baddeley's working-memory model. It is, however, still an open question whether this hippocampal involvement actually reflects working-memory processing or whether it is long-term encoding that determines the hippocampal activation during working-memory tasks. Recent findings on the interaction between working memory processing and episodic memory formation in normal ageing indicate that long-term encoding occurs during working-memory tasks. In addition, neuropsychological findings in patients with MTL-diencephalic amnesia indicate that long-term encoding processes indeed – at least in part – play a role in working-memory tasks that require the binding of information. I will present recent data from ongoing neuroimaging, ageing and patient studies on the role of the MTL and long-term encoding in visual working memory maintenance and subsequent memory effects.