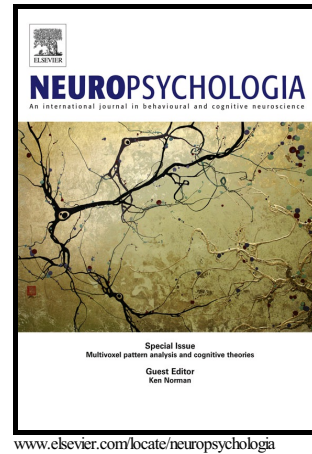


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Newly-acquired words are more phonologically robust in verbal short-term memory when they have associated semantic representations

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Newly-acquired words are more phonologically robust in verbal short-term memory when they have associated semantic representations

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Abstract

Verbal short-term memory (STM) is a crucial cognitive function central to language learning, comprehension and reasoning, yet the processes that underlie this capacity are not fully understood. In particular, although STM primarily draws on a phonological code, interactions between long-term phonological and semantic representations might help to stabilise the phonological trace for words (“semantic binding hypothesis”). This idea was first proposed to explain the frequent phoneme recombination errors made by patients with semantic dementia when recalling words that are no longer fully understood. However, converging evidence in support of semantic binding is scant: it is unusual for studies of healthy participants to examine serial recall at the phoneme level and also it is difficult to separate the contribution of phonological-lexical knowledge from effects of word meaning. We used a new method to disentangle these influences in healthy individuals by training new ‘words’ with or without associated semantic information. We examined phonological coherence in immediate serial recall (ISR), both immediately and the day after training. Trained items were more likely to be recalled than novel nonwords, confirming the importance of phonological-lexical knowledge, and items with semantic associations were also produced more accurately than those with no meaning, at both time points. For semantically-trained items, there were fewer phoneme

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