

# Evaluating the developmental trajectory of the episodic buffer component of working memory and its relation to word acquisition in children

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The creation of temporary bound representation of information from different sources is one of the key abilities attributed to the episodic buffer component of working memory. Whereas the role of working memory in word learning has received substantial attention, very little is known about the link between reading development and the ability to bind information in the episodic buffer of working memory, and how it may develop with age. This study examined the performance of Grade 2 (8 yrs old) and Grade 3 (9 yrs old) children and young adults on a task designed to measure their ability to bind visual and auditory-verbal information in working memory. Children's performance on this task significantly correlated with their word recognition skills even when chronological age, general ability and memory for individual elements were taken into account. In addition, clear developmental trajectories were observed, with improvements in the ability to hold temporary bound information in working memory between Grades 2 and 3, and between the children and adult groups, that were independent from memory for the individual elements. These findings suggest that the capacity to temporarily bind novel auditory-verbal information to visual form in working memory is closely linked to reading development in children, and improves with age.

*Key words: working memory; episodic buffer; binding; reading development;*

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