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Testing an interference-based model of working memory in children with developmental language disorder and their typically developing peers

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Abstract

Children with Developmental Language Disorder (DLD) have deficits in verbal and nonverbal processing relative to typically developing (TD) peers. We examined working memory in DLD relative to age-matched TD peers (9-13 years) under the serial-order-in-a-box – complex span model. This model posits a time-based mechanism, Free Time, that governs how interference affects processing performance. Results showed that Free Time was positively associated with accuracy when recall and interference stimuli had verbal features (b = 0.00; stat = 3.11; p < .01), and combined verbal and nonverbal features (b = 0.00; stat = 3.05; p < .01). Group differences in this relationship were evident when recall stimuli had verbal features regardless of interference stimuli features (b = -0.00; stat = -3.66; p < .001; b = 0.00; stat = 2.97; p < .01). Findings suggest a greater role of Free Time for verbal than nonverbal content, which varies depending on participant characteristics.