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A Causal Link between Working Memory Capacity and Attention Distribution in Category Learning

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Abstract

Category learning is a crucial aspect of cognition that involves organizing entities into equivalence classes. Whereas adults tend to focus on category-relevant features, young children often distribute their attention between relevant and irrelevant ones. The reasons for children's distributed attention are not fully understood. In two category-learning experiments with adults (N=155), we examined working memory capacity as a potential driver of distributed attention. By asking participants to monitor a series of digits while learning novel categories, we reduced their working memory capacity, which could be needed for maintaining multiple attentional templates that guide attention. Despite identifying features critical for accurate categorization, adults with reduced working memory capacity, regardless of their categorization performance, continued sampling more information than was necessary. These results confirm the role of working memory capacity in guiding attention, suggesting the possibility that early in development, limited working memory capacity drives children's distributed attention and broad information sampling.