

How perceptual ability shapes memory

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The enhanced processing account posits a link between visual perception and memory, and finds support in studies on special populations like grapheme-color synesthetes and color experts, whose abilities are linked to neural changes in the ventral visual pathway. Research shows these groups exhibit enhanced memory and perception, particularly when stimuli bias ventral over dorsal processing. Both these populations outperform non-synesthetic controls on tasks which bias the ventral pathway. However, predictions regarding populations with neural changes in the dorsal pathway remain unexplored. This study examines the enhanced processing account through visual perception, short-term memory, and long-term memory tasks. Participants include individuals with grapheme-color synesthesia, color expertise, sequence-space synesthesia, or spatial expertise, allowing group comparisons. The experiment employs two stimulus types: one favoring ventral processing (color) and one favoring dorsal processing (spatial). This design enables testing double dissociations in synesthetic experiences, disentangling ventral and dorsal pathway contributions. Results will be discussed in relation to representational models of perception and memory.

Keywords: Synesthesia, Expertise, Visual perception, Memory, Enhanced processing account.

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