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The consistency of electrophysiological evidence for retrieval mode in episodic memory: A meta-analysis

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Disruptions in long-term memory coincide with, and sometimes preclude a variety of psychological disorders. These disruptions can take multiple forms, not only reflecting the loss of mnemonic information, but also relating to deficits in strategic processing, executive function, and decision making. The current project focuses on characterizing the neural basis of a strategic cognitive state known as *retrieval mode*, which supports retrieval by allowing the rememberer to use stimuli as cues for episodic memories. We conducted a meta-analysis of studies that include both behavioral and event-related potential (ERP) measures of retrieval mode in an attempt to explain some disparate findings regarding the presence of ERP differences when comparing episodic and semantic retrieval tasks. While evidence supporting retrieval mode has been demonstrated when using simple semantic tasks (e.g., animacy or size) as the control condition, we hypothesize that null results might arise when the semantic task is more engaging (e.g., is this object more often found indoors vs. outdoors vs. both equally?). Our analysis confirmed that the absence of ERP differences was exclusive to studies that employed location tasks that were relatively difficult and potentially required access to recent experiences (i.e., episodic in nature). The results of this project are instrumental in further developing experimental designs to test the limiting conditions of retrieval mode with ERPs and other neuroimaging techniques, such as functional magnetic resonance imaging (fMRI). With the longer-term goal of using the neural correlates of retrieval mode and other strategies to better understand age-related memory decline, we therefore argue against the effectiveness of such semantic tasks as a control condition.