

# The Effects of Happy and Sad Emotional States on Episodic Memory

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## Introduction

Episodic memory (EM) is composed of personally experienced events in which ‘the what, where, and when’ are essential components while semantic memory is simply composed of accumulated facts about the world (Tulving, 2002). A wide variety of tasks have been used to tap episodic memory including: recalling words from an early learned list; yes-no recognition of previously presented common objects or pictures; and free recall of past personal experiences. These tasks are used to evaluate episodic memory because in order to know which words, pictures, or experiences to retrieve, some contextual (episodic) information must first be accessed (Mayes & Roberts, 2001). While all of these measures seem to share this contextual component, none adequately examines the current understanding of episodic memory in its subdivided form. Thus, despite the recent theoretical advances prompting the delineation of episodic memory into EM & AM subcomponents, two problems consistently arise when one looks at the array of tasks labeled as tapping episodic memory. First, a distinction is often not made between EM and autobiographical memory (AM) tasks. Secondly, many of these tasks may be inadvertently drawing upon semantic memory instead of episodic memory. The inadvertent engaging of semantic memory with “episodic tasks” can occur for two basic reasons: (1) the lack of “forced” remembering by the participant; (2) the use of familiar items. That is, the to-be-remembered item needs to have a unique novel representation so that it can not be readily identified with current knowledge.

Considering the close interplay between emotions and experiences (possible future memories), the effects of emotions on the formation and retrieval of memories has been area of intense research within Cognitive psychology. Mood-dependent memory effects have generally shown that negative mood states appear to hamper ones memory while positive mood states seem to facilitate memory (Lee & Strenthal, 1999). Within the realm of episodic memory, the majority of this memory-emotion research has dealt with autobiographical memories (AM); conspicuously missing has been the relationship between of emotions and EM.

The purpose of this study was: (1) to examine the effects emotional states on episodic memory, EM; (2) to develop a

methodology for measuring EM largely independent of semantic memory.

## Method

Happy, neutral, or sad mood states were induced in 88 students via a 20 minute long viewing of either a stand-up comedy routine, a documentary, or holocaust footage. Immediately following the mood induction, participants engaged in eight interactive tasks which involved both familiar objects (pennies and paperclips) and novel geometric forms created by bending paper clips with blue beads into unique shapes, (Rock, Schreilber, and Ro, 1994). A four-item force-choice recognition test for the novel geometric forms was employed, with the task name serving as the retrieval cue.

## Results and Discussion

Although the EM test score means did not differ significantly across the three conditions (sad,  $M = 4.31$ , neutral,  $M = 4.32$ , happy,  $M = 4.5$ ), the expected trends were displayed. The second goal was assessed using binomial tests. In six of the eight tasks (counting, coloring, memory matching, sizing, sorting, arranging), a significantly greater proportion of participants reported the engagement their episodic memory than not according to Tulving’s (2002) remember/pop paradigm assessing episodic memory. Therefore, theses six interactive tasks emerged as successfully tapping episodic memory.

## References

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