The University of Texas at Austin
Psychiatry
Dell Medical School

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Dear Editors,

Please consider our article entitled “Emotional learning retroactively enhances item memory but distorts source attribution” for review at *PNAS*.

There is longstanding interest in why people remember some information but forget other information. We previously reported that emotional learning can retroactively and selectively enhance episodic memory for conceptually related events (Dunsmoor, Murty, Davachi, & Phelps 2015, *Nature*). We framed our memory results using a neurobiological model of long-term memory (synaptic tag-and-capture) and its behavioral counterpart (behavioral tagging). In short, these models propose how a strong event stabilizes memory for weak events encoded close in time that rely on overlapping neural substrates.

In this report, we advance knowledge on a potential mechanism of behavioral tagging in human episodic memory. Specifically, we show that emotional learning retroactively enhances item memory, but at the cost of incorrect source memory attribution to the emotional context. The bias to incorrectly source item memory to the emotional learning context was associated with retroactive memory enhancements, and predicted item memory overall. In the framework of behavioral tagging: memory attribution was biased to the temporal context of the stronger event that provided the putative source of memory stabilization for the weaker event. We also found that emotional learning retroactively altered the perceived typicality (i.e., representativeness) for related items, and that stimulus typicality also predicted overall episodic memory.

These results replicate and extend research on how emotional learning retroactively enhances episodic memory for related events. Specifically, behavioral tagging of human episodic memory may involve linking items to the context of memory stabilization, while also enhancing the representativeness of earlier events to make these events more memorable.

Altogether, we feel that this report is a fitting candidate for review at *PNAS*. These findings provide a conceptual advance of our understanding of how powerful learning events generate a consolidation time window that reaches backward and forward in time to enhance memory for related experiences.

Thank you for your consideration.

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