Effects of Attention at Encoding and Retrieval on Short and Long-term False Memories for Emotional Stimuli

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Introduction

- False memories (FM) are remembering things that never happened (Radvansky, 2017).
- The Deese/Roediger-McDermott paradigm (DRM; Deese, 1959; Roediger & McDermott, 1995) has been used to research effects of attention and emotion on false memories.
  - Lists of related words are studied, participants reliably recall a non-presented word (critical item, or CI)
- Divided attention at encoding produces higher rates of false memory for negative than positive or neutral stimuli (Knott et al., 2018).
  - Suggests negative stimuli rely on automatic processing whereas positive and non-valanced stimuli rely on controlled processing
- Negative false memories increase over time when attention at encoding is divided (Knott & Shah, 2019).
- Divided attention at retrieval increases false memory across stimuli types but is greater for negative than neutral stimuli (Shah & Knott, 2018).
- Previous studies have assessed these effects over the long-term but not in short-term memory.

Current Study

Purpose: Examine effects of attention on false memories (FM) for emotional stimuli over short-term and long-term delays

Experiment 1: attention at encoding for STM & LTM

H1: Divided attention at encoding will reduce FM for positive and neutral lists on both STM and LTM tests, FM for negative lists will be comparable to the full attention condition for STM task and increase on LTM.

Experiment 2: attention at retrieval for STM & LTM

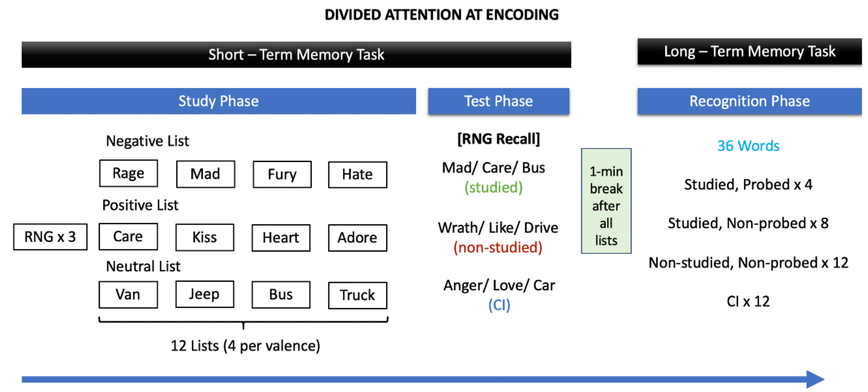
H2: Divided attention at retrieval will increase FM for all list types compared to full attention, with greater FM for negative lists than positive or neutral.

General Method

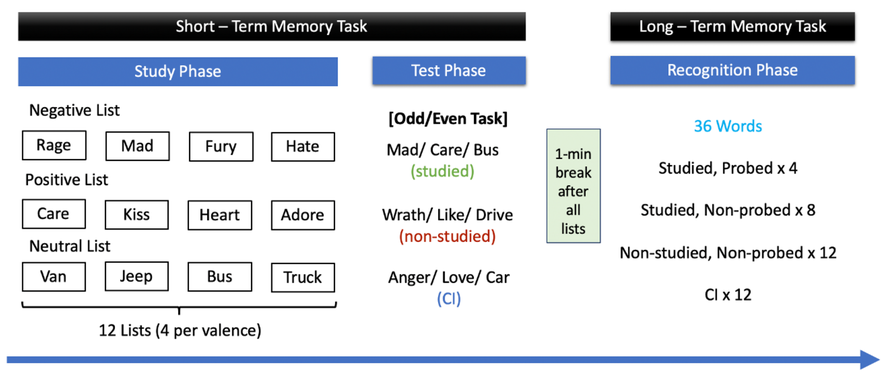
Participants: Approximately 100 will be recruited for each Exp
Design: A 2 (Attention: Full vs. Divided) X 3 (List Type: Positive vs. Negative vs. Neutral) X 2 (Test delay: Immediate vs delayed) mixed design
Materials:

- 12 DRM word lists (Zhang et al., 2017): 4 positive, 4 negative, 4 neutral
- Attention: manipulated with a concurrent random number generation task (RNG)

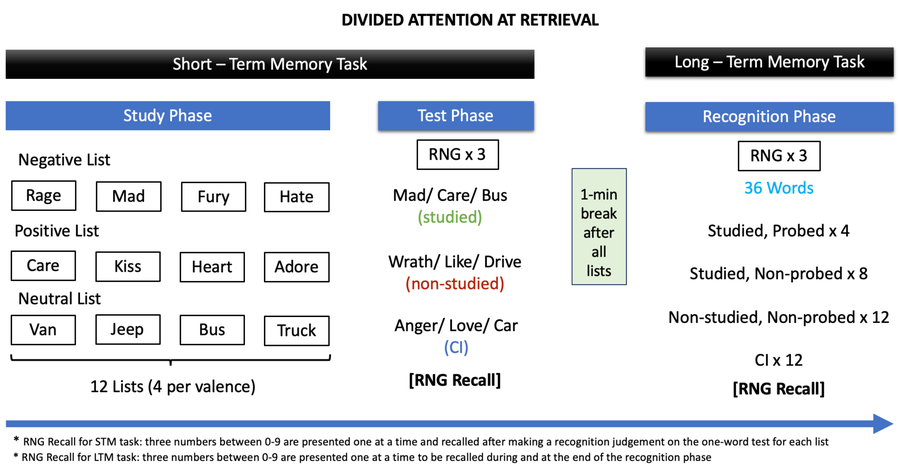
Experiment 1 - Method



* RNG = 3 random numbers between 0 – 9 will be presented one at a time to be recalled at the start of the test phase



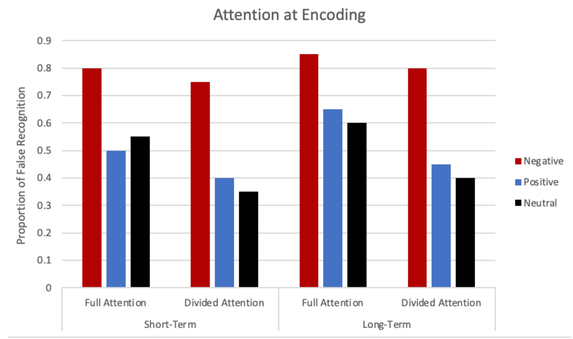
Experiment 2 - Method



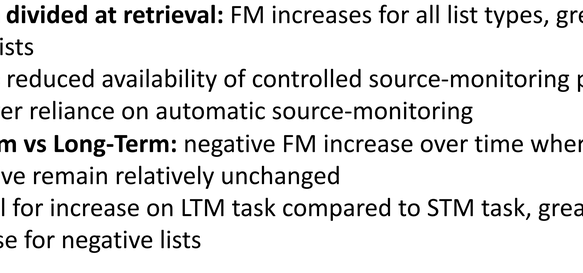
* RNG Recall for STM task: three numbers between 0-9 are presented one at a time and recalled after making a recognition judgement on the one-word test for each list
* RNG Recall for LTM task: three numbers between 0-9 are presented one at a time to be recalled during and at the end of the recognition phase

Expected Results

Experiment 1: Attention at Encoding



Experiment 2: Attention at Retrieval



Discussion

Results are expected to support and extend previous findings.

Attention divided at encoding: FM reduced for positive and neutral lists but increased for negative lists

- Supports use of different processing styles
  - Automatic processing used for negative stimuli, allows for items to be encoded and related items to be activated with minimal attentional resources leading to FM
  - Controlled processing used for positive and neutral stimuli, is disrupted by divided attention, encoding and activation is limited reducing FM

Attention divided at retrieval: FM increases for all list types, greatest for negative lists

- Due to reduced availability of controlled source-monitoring processes and over reliance on automatic source-monitoring

Short-Term vs Long-Term: negative FM increase over time whereas neutral and positive remain relatively unchanged

- FM will for increase on LTM task compared to STM task, greatest increase for negative lists