

Mood, Processing, and False Memory in Problem Solving

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The Deese–Roediger–McDermott (DRM) paradigm has demonstrated memory’s fallibility for over 20 years. When participants studied lists of associated words, unstudied critical lures were recalled during testing, and with confidence that the words had been previously studied. An emerging body of research has explored false memory’s adaptive potential; specifically, by priming insight-based problem solving. This procedure involved a study phase where participants were presented with DRM word lists. Next, the testing phase was comprised of compound remote associate tasks (CRATs), which are triads of words solved by a single associate. For the primed condition, DRM critical lures were also the CRAT solutions. Thus, presenting DRM word lists activated critical lures in memory, making them readily accessible when presented with corresponding CRATs. Unprimed CRAT solutions were conversely not primed with DRM word lists during the study phase. The present study aimed to build upon this developing body of research. As such, participants ($N = 123$) were randomly assigned to a mood (positive vs. neutral vs. negative) and processing condition (survival vs. moving). The experiment included mood induction, relevance rating of DRM associates, and CRATs (primed vs. unprimed). Optimism was integrated as a hypothesized covariate.

The current study aimed to test the false memory priming effect, predicting higher primed CRAT success rates than those unprimed. The results indicated that false memory priming did not facilitate problem solving. The current study also examined processing type as a false memory prime; yet, the data exhibited no advantage for items primed with survival relevance in relation to moving relevance. The effect of mood on DRM primed problem solving was also tested in the present experiment. Although non-significant differences were exhibited between the affective conditions, self-reported happiness was positively related to unprimed CRAT solution rates. In addition, self-reported optimism was positively correlated with CRAT success rates.

The results suggest that happiness facilitates insight-based problem solving when priming is not performed. It is possible that relational cognition is activated during happiness, resulting in activation of existing associated lexical networks and ultimately correct CRAT solutions. An alternative explanation is that happiness assists in the process of shifting attention away from incorrect answers and towards searching for correct answers. The results of the current experiment also suggest that optimism is able to impact insight-based problem solving, potentially by increasing positive affect and triggering relational processing during the study phase, producing critical lures in memory. Alternatively, optimism may promote perseverance or self-control during the testing phase, which would facilitate sustained cognition until correct solutions are found.