# Memory enhancement from surprise: Investigating threshold and incremental accounts

**Carla Macias**
Rutgers University-Newark, Newark, New Jersey, United States

**Elizabeth Bonawitz**
Rutgers University - Newark, Newark, New Jersey, United States

**Abstract**

How might surprise influence memory and learning? Isolating an item from an established category induces surprise and results in better memory. However, it is less clear whether the degree of induced surprise correlates with better memory, or whether – regardless of degree –surprise simply triggers a uniform improvement in memory. To investigate whether the degree of surprise has an incremental effect on memory outcomes, we gave 158 participants lists of words, varying the degree to which a single word in the list surprisingly conflicted with the lists overarching category. Although there was an overall boost in learning for surprising words, we found no evidence of an effect of amount of surprise on memory. Lack of evidence is not evidence of a lack, however these results provide some suggestive evidence for a threshold model of memory enhancement from surprise. Distinguishing these accounts has important implications for affective models of memory and learning.