

# Effects of Emotion on Memory and Time Perception



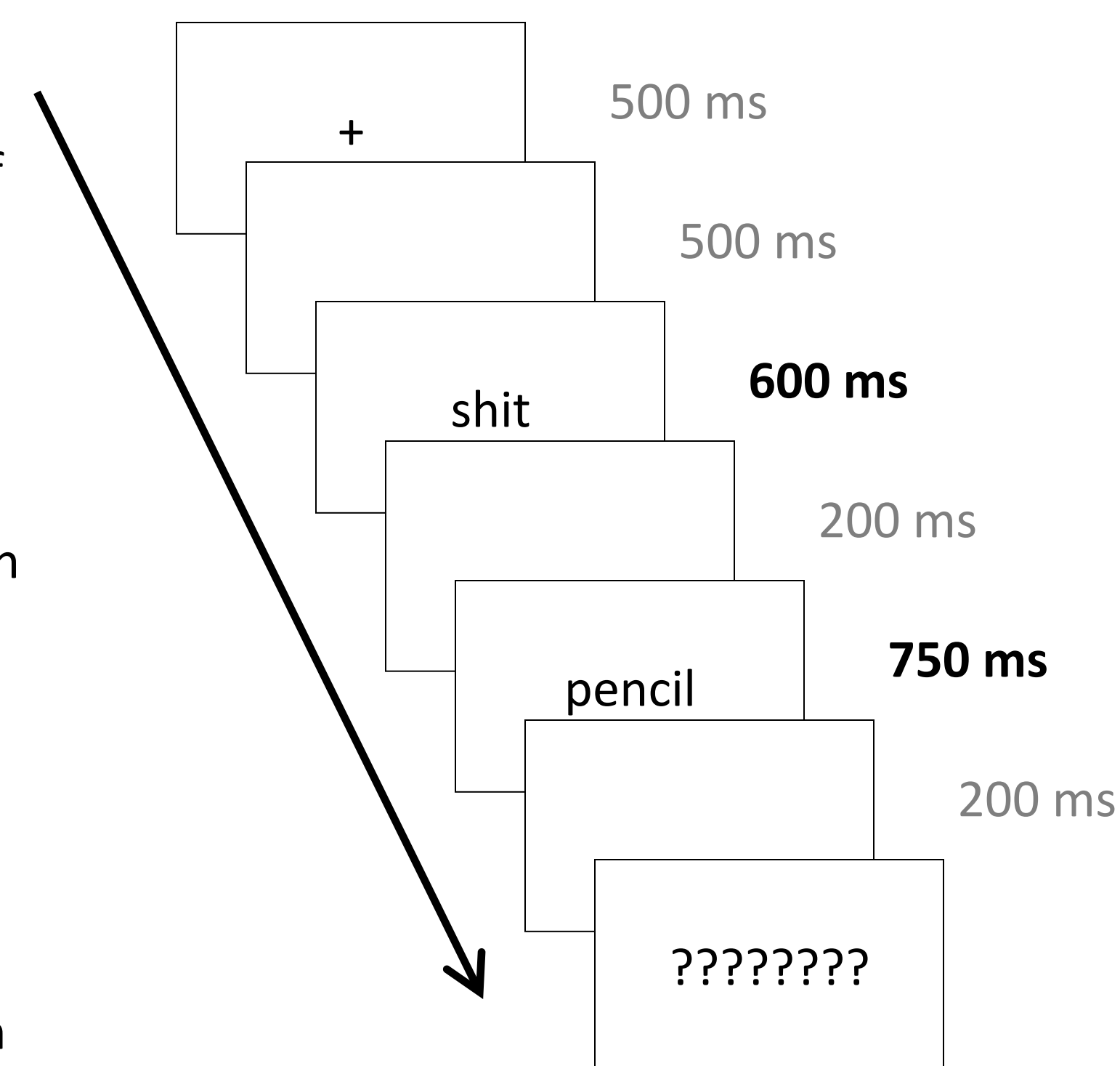
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## Experiment 1

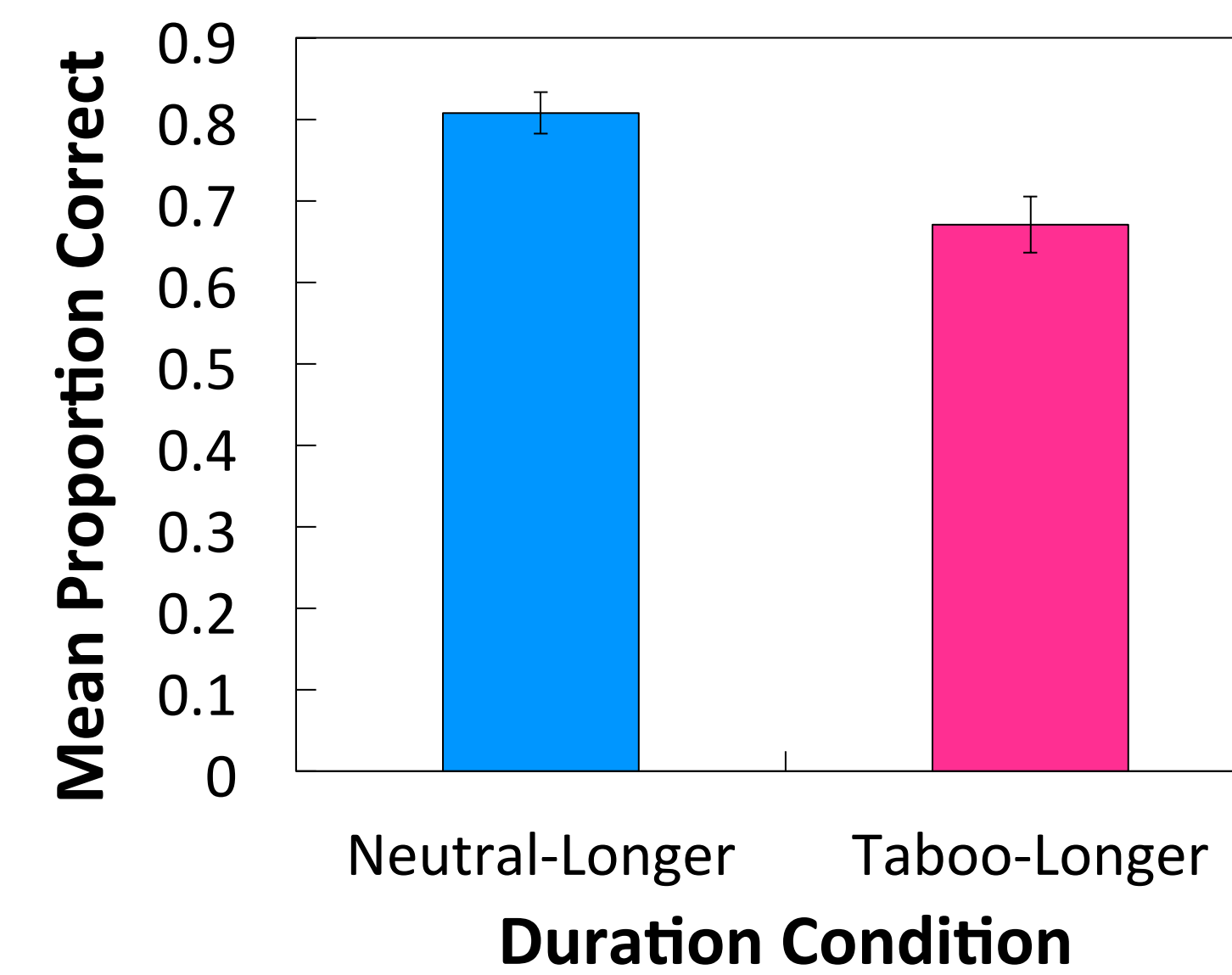
Participants ( $N = 20$ ) viewed 92 pairs made up of one taboo and one neutral word<sup>1</sup>. The words in each pair were presented sequentially, with the two words displayed for different durations. Durations ranged from 600 to 937 ms, and were assigned in a 4:5 ratio. Participants were asked to judge which word was displayed on the screen for longer, either the first word or the second word. A surprise free recall task followed the timing task.



### Predictions

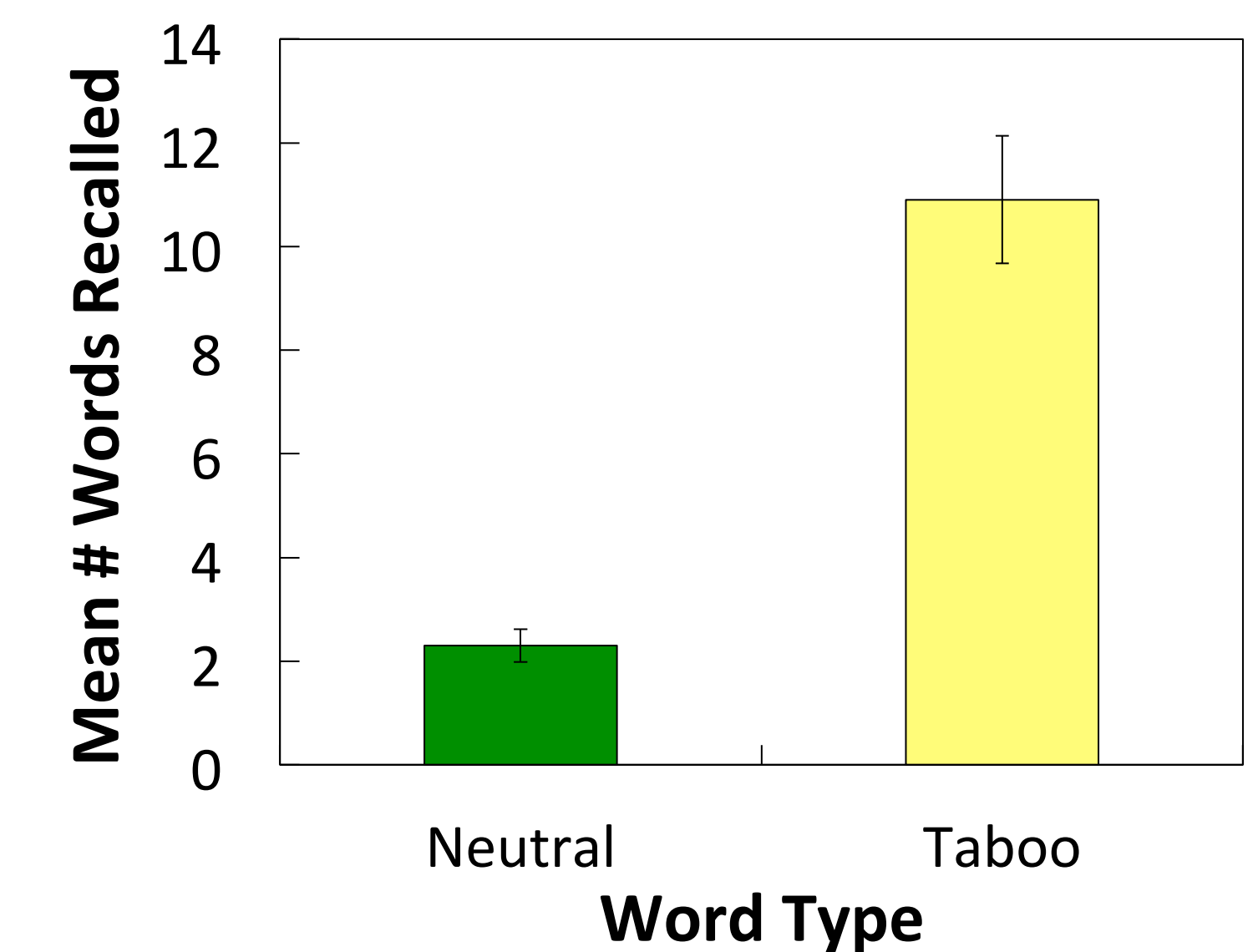
- Less accuracy in taboo-longer condition than neutral-longer condition
- Better recall for taboo than neutral words

### Timing Task



Participants choose the correct answer more frequently in the neutral-longer condition than in the taboo-longer condition ( $p = .001$ ).

### Free Recall



Significantly more taboo than neutral words were recalled in the surprise free recall task ( $p < .001$ ).

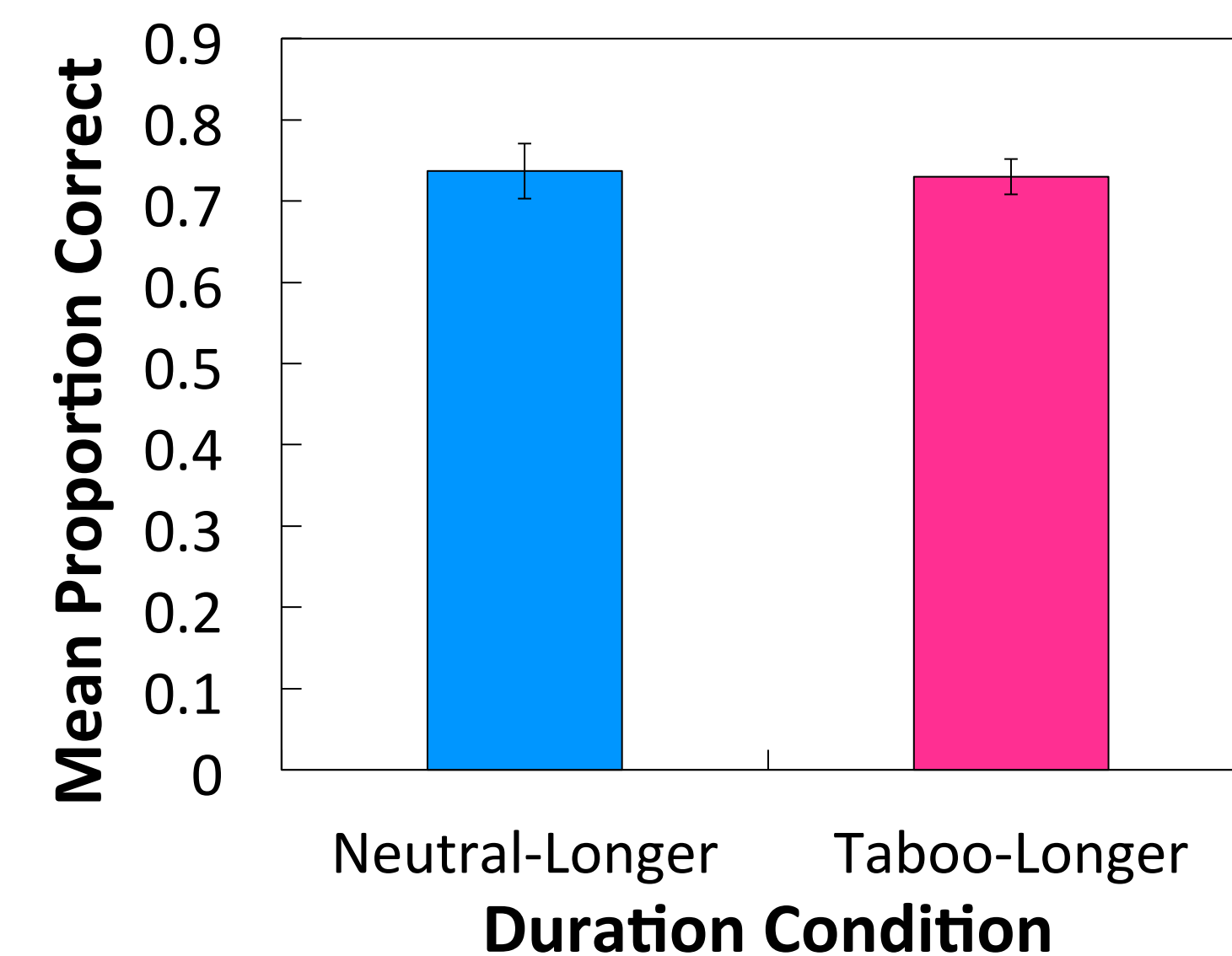
## Experiment 2

Experiment 2 was identical to Experiment 1, except that participants ( $N = 30$ ) were asked to make confidence ratings for their responses in the timing task on a scale from 1 (not confident) to 5 (very confident). In addition, a same-duration condition was added, where both words in a pair were displayed for the same duration.

### Predictions

- Less accuracy and reduced confidence in taboo-longer condition compared to neutral-longer condition
- In the same-duration condition, less frequent labeling of the taboo than the neutral word as longer
- Better recall for taboo than neutral words

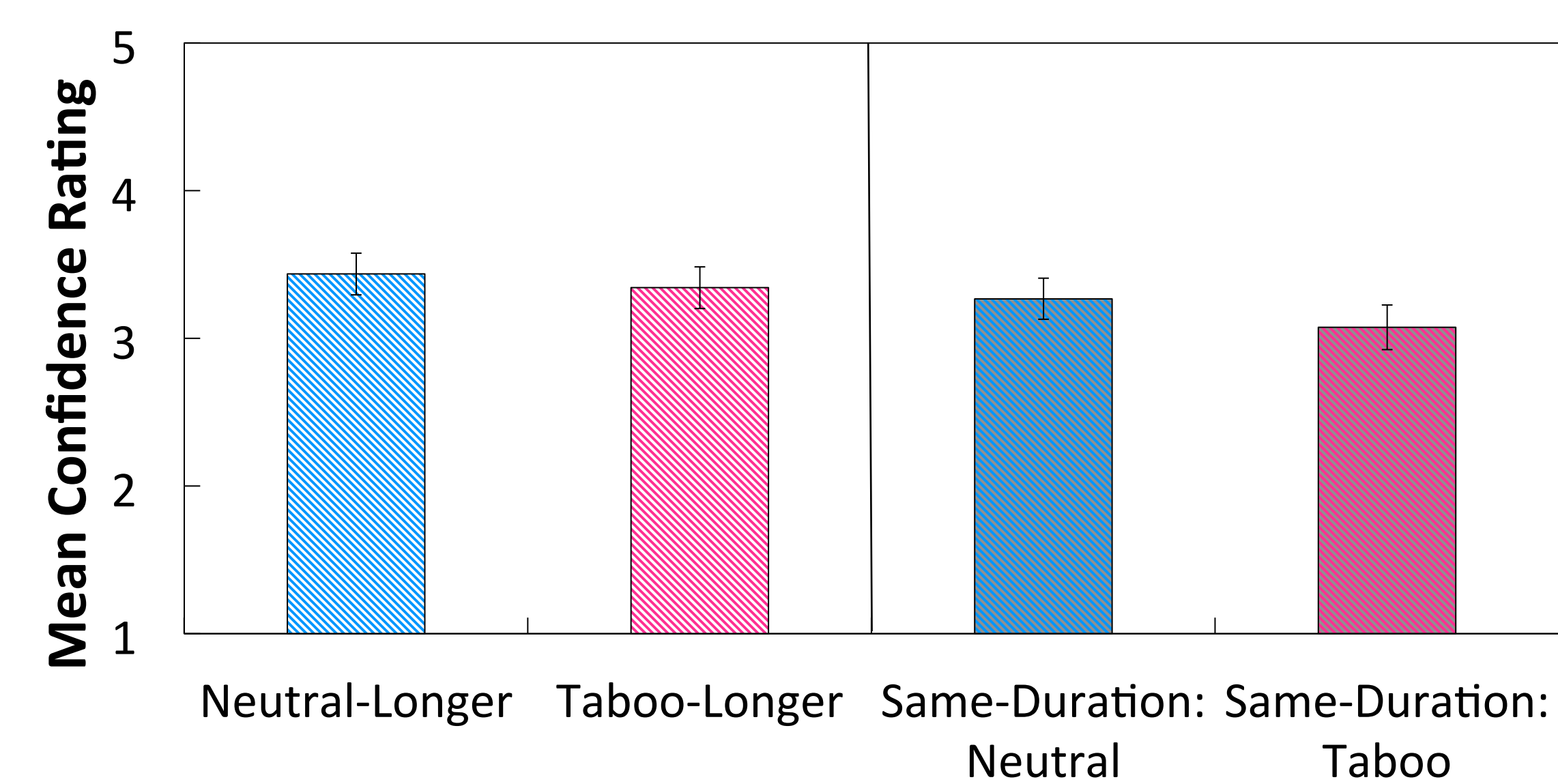
### Timing Task



There was no significant difference in the mean proportion of correct answers in the taboo-longer and neutral-longer conditions ( $p = .848$ ).

In the same-duration condition, participants chose the taboo word as longer reliably less than half of the time ( $p = .059$ ).

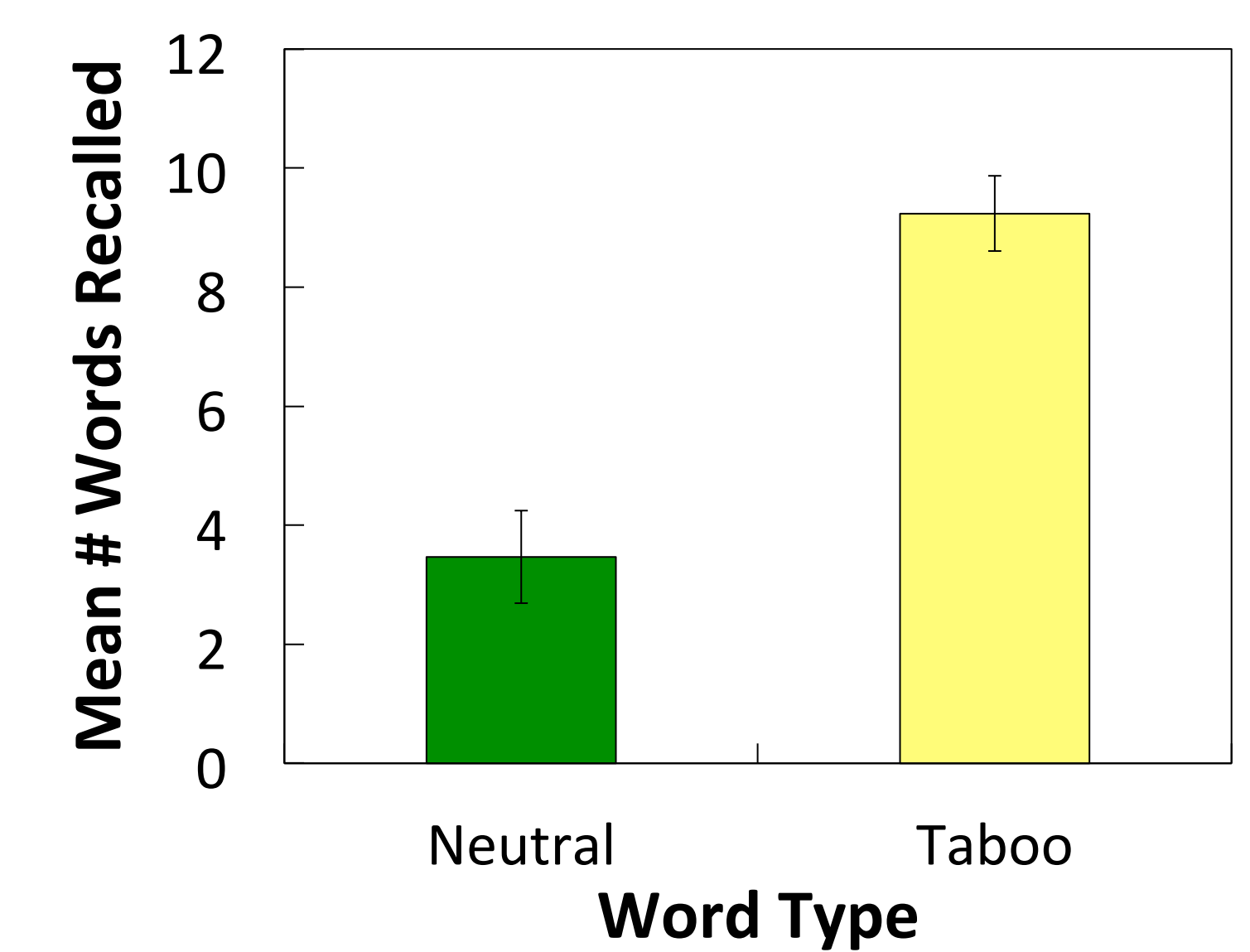
### Confidence Ratings



Participants were more confident about their answers in the neutral-longer condition than in the taboo longer condition ( $p = .077$ ).

In the same-duration condition, they were significantly more confident when choosing neutral than taboo words as longer ( $p = .014$ ).

### Free Recall



Significantly more taboo than neutral words were recalled in the surprise free recall task ( $p < .001$ ).

## Summary and Discussion

Our results supported previous research<sup>2</sup> suggesting that the durations of taboo words are underestimated relative to neutral words. One explanation is that taboo words temporarily divert attention away from the timing task, resulting in reduced duration judgments.

When taboo words were displayed for longer than neutral words, participants were generally less accurate and less confident in their responses. When taboo and neutral words were displayed for the same duration, participants more frequently and confidently judged the neutral word to be longer than the taboo word.

Participants consistently recalled more taboo than neutral words in the surprise free recall test. It is possible that the extra memory encoding processes that occurred with taboo words reduced attentional resources available for the timing task, causing reduced duration judgments.

## Conclusions

Together these results suggest that emotion-linked memory encoding took priority over the timing task, resulting in better recall but shorter perceived durations for taboo than neutral words.

### References

1. Janschewitz, K. (2008). Taboo, emotionally valenced, and emotionally neutral word norms. *Behavior Research Methods*, 40(4), 1065–1074.
2. Tipples, J. (2010). Time flies when we read taboo words. *Psychonomic Bulletin & Review*, 17(4), 563–568.