

## Introduction

- Emotion can enhance memory, particularly negative emotion<sup>1,2</sup>
- Emotion can heighten memory for the negative stimulus, but weaken memory for items associated with the negative stimulus<sup>3,4</sup>
- Studies showing disrupted associative memory used anger as the negative emotion

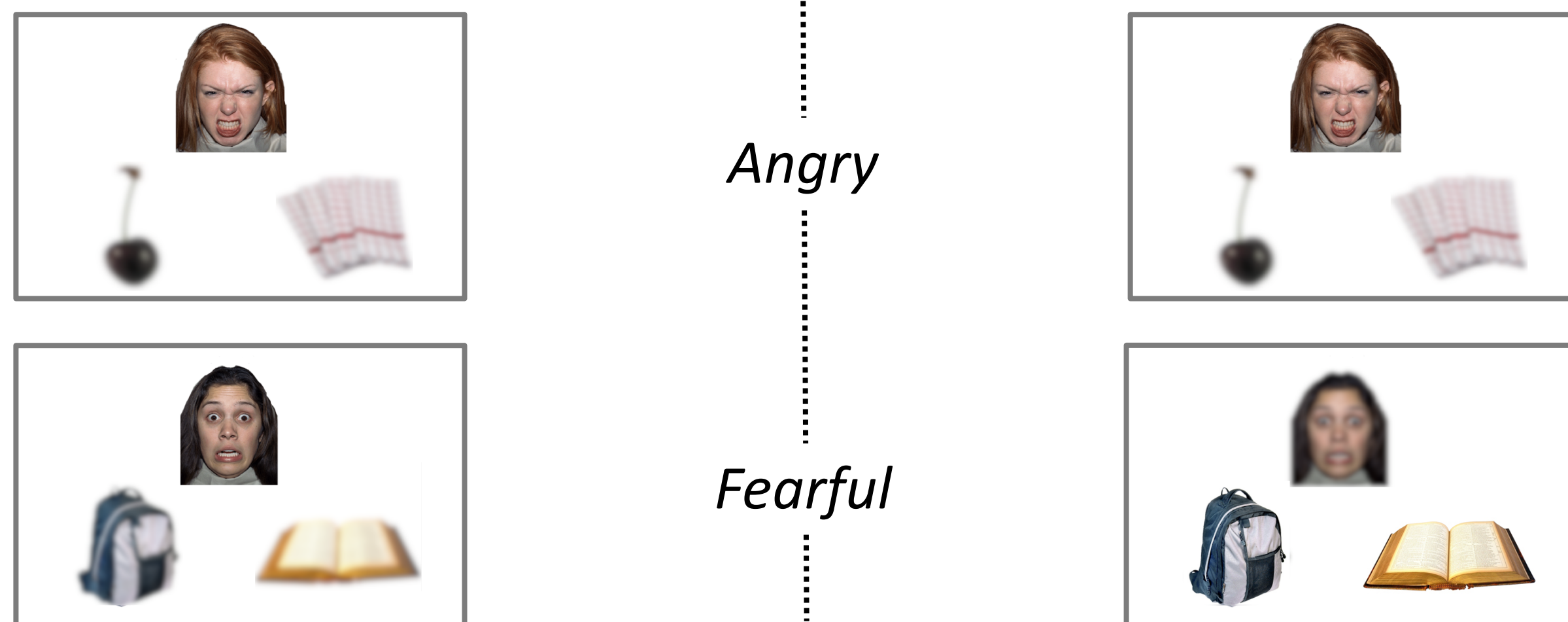
## Central question

**Do fearful and angry faces have different effects on memory for associated information?**

- Fear and anger pose interesting comparisons as a fearful face may convey a threat in the environment to an observer<sup>5</sup>

*Hypothesis 1:* Emotion disrupts associative memory...

*Hypothesis 2:* Emotion directs attention to relevant stimuli...



## Methods

### Participants

- 10 volunteers
- 3 males; 6 females; 1 nonbinary
- Age: 19-23

### Stimuli

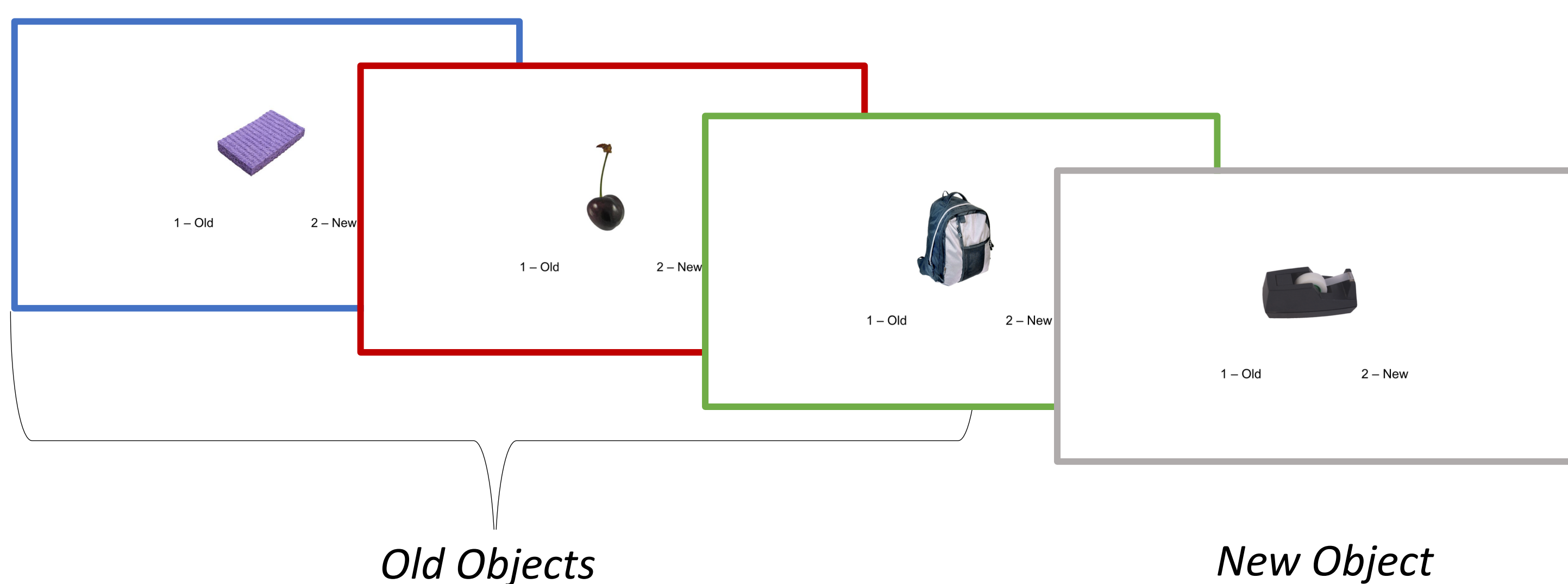
- 36 face images (18 male/ 18 female) each paired with 2 objects

## Study Phase



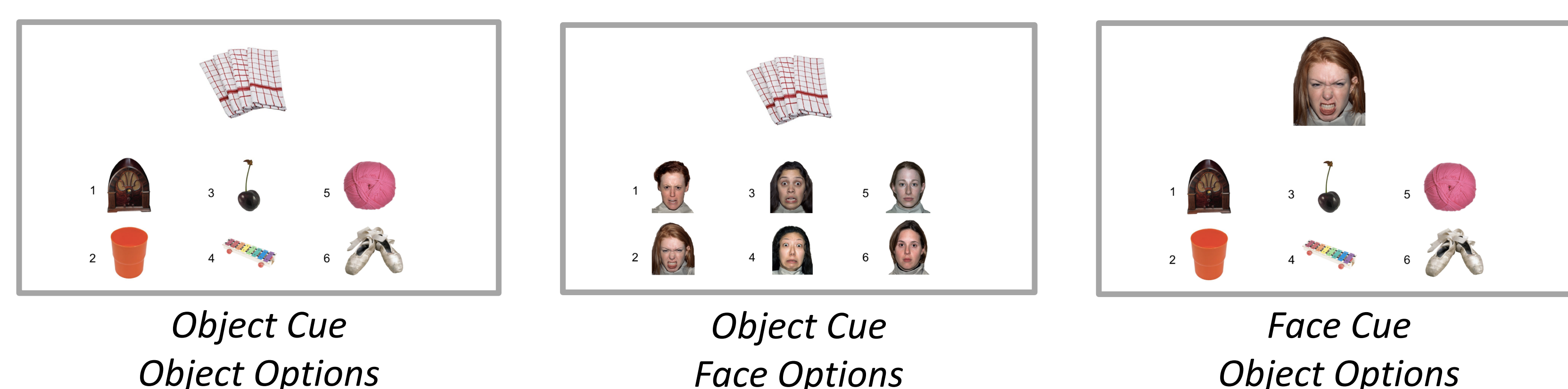
- Task: Create a story based on the 3 images and rate the quality of the story

## Recognition Test



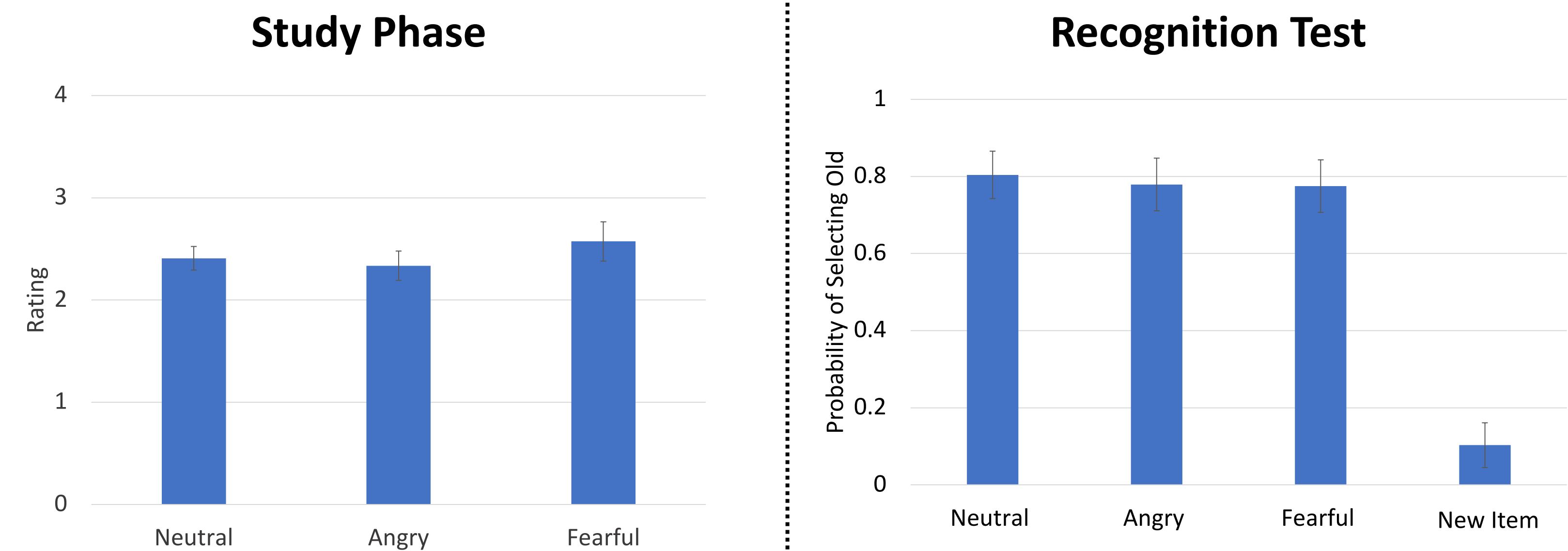
- Task: Determine if the object was seen in the Study Phase or not

## Associative Test



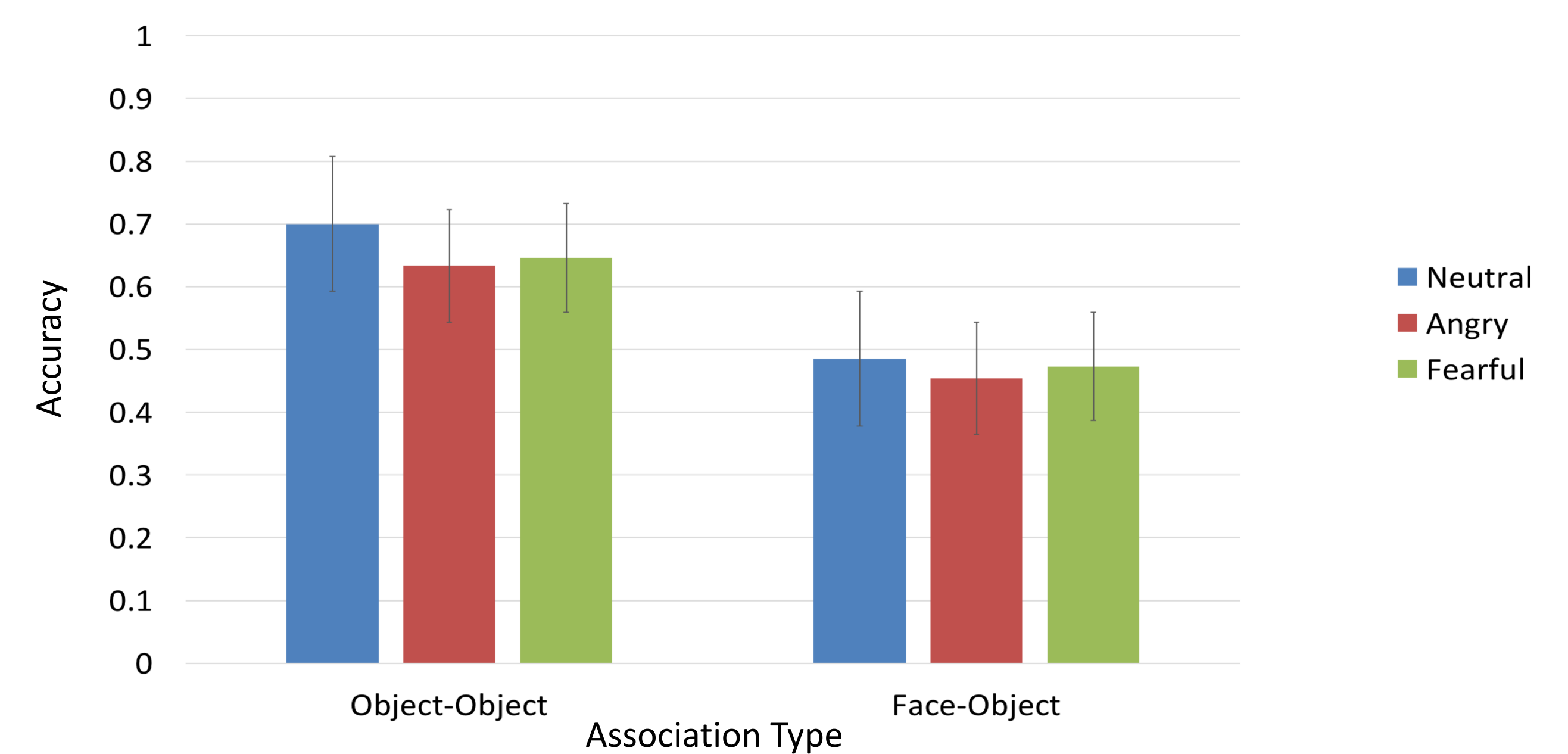
- Task: Select the object or face that is associated to the cue image based on the Study Phase

## Preliminary Results



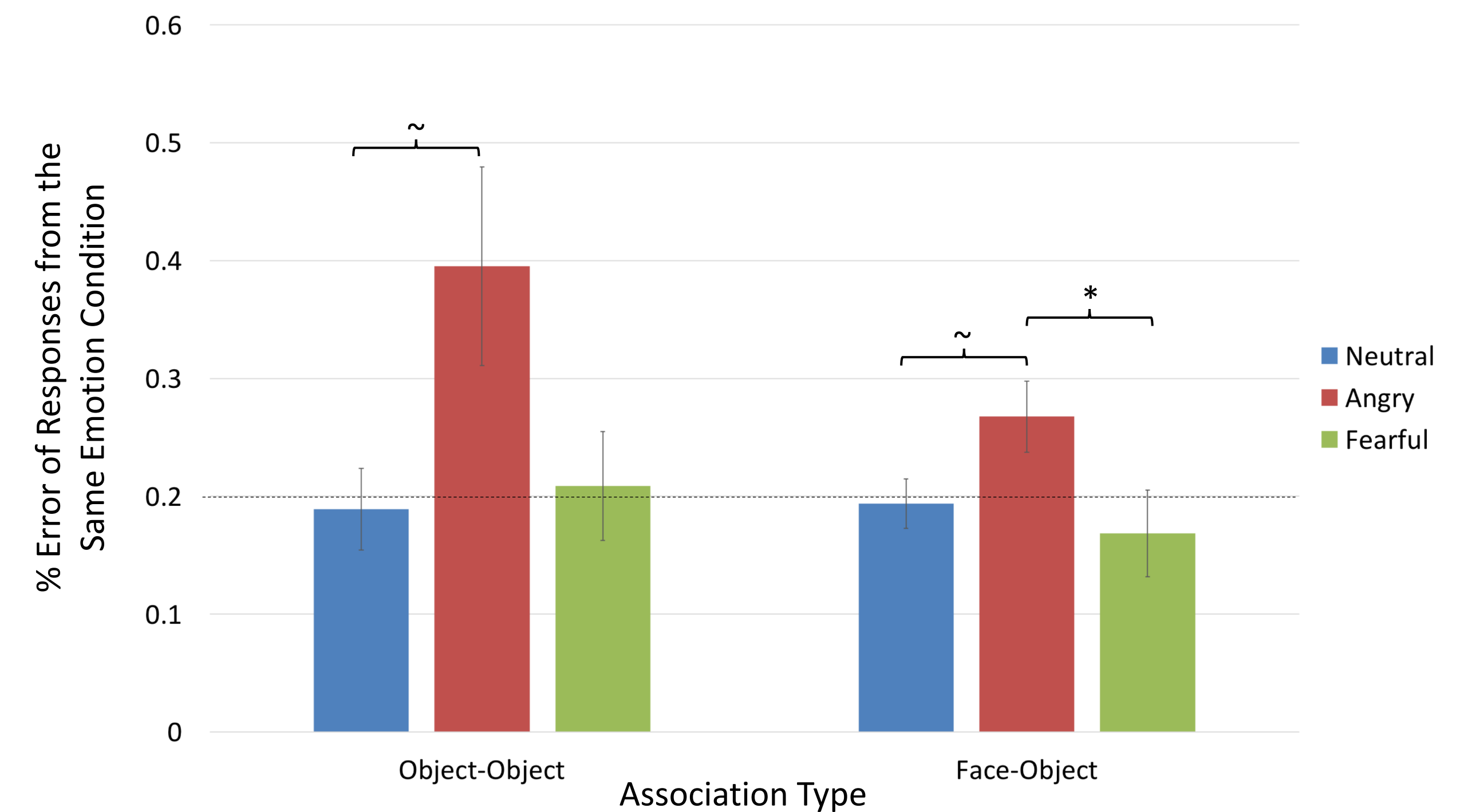
- No significant differences between conditions in the quality rating of stories
- No significant differences between conditions in recognition of objects

## Association Test



- Across all emotion conditions, participants had better memory for Object-Object associations than Face-Object associations
- No significant differences between emotion conditions for either association type (Object-Object, Face-Object)

## Pattern of Associative Test Errors



- Pattern of false alarms suggests that participants remember the angry emotion, but not the specific image

## Preliminary Conclusion

- Overall, negative faces generally seemed to impair memory for associations irrespective of the type of negative emotion
- Angry and fearful faces do have different effects on memory, revealed by differences in pattern of errors

## References

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3. Bisby, J. A., & Burgess, N. (2017). Differential effects of negative emotion on memory for items and associations, and their relationship to intrusive imagery. *Current opinion in behavioral sciences*, 17, 124-132.
4. Bisby, J. A., Horner, A. J., Bush, D., & Burgess, N. (2018). Negative emotional content disrupts the coherence of episodic memories. *Journal of Experimental Psychology: General*, 147(2), 243.
5. Davis, M., & Whalen, P. J. (2001). The amygdala: vigilance and emotion. *Molecular psychiatry*, 6(1), 13.

## Acknowledgments

- Thank you to the Brain and Memory Lab for hosting me Summer 2018
- A special thank you to my mentor, Cait, for guiding me through my project and to my PI, Dasa, for allowing me the opportunity to work in her lab
- This work is supported by the Cal State Fullerton MARC U\*STAR Program grant from the National Institute of General Medical Sciences (NIGMS) [2T34GM008612-22]