

## #fitspo: Cognitive Implications of Interacting with “Fitspiration” Content on Social Media

Jordan Zimmerman,<sup>1,2</sup> Angelica De Rezende<sup>3</sup>, Anna Wright<sup>1</sup>, Kaitlin Lord<sup>1</sup>, Sarah Brown-Schmidt<sup>1</sup>

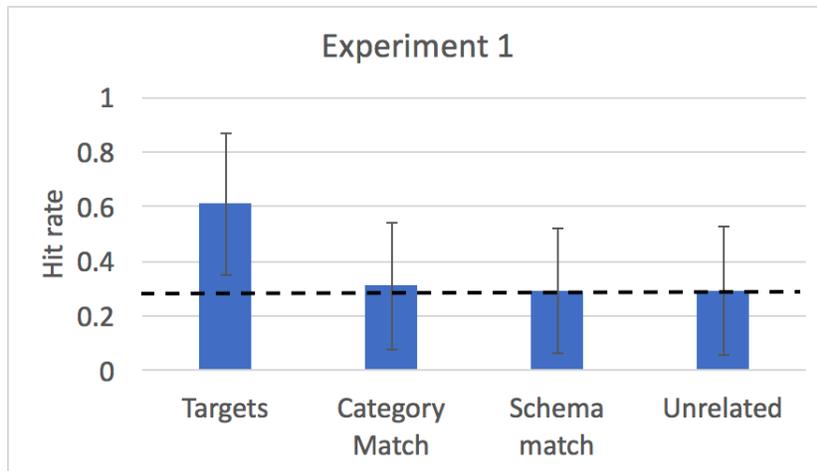
(1- Vanderbilt University, 2- Massachusetts General Hospital, 3- Florida International University)

Social media is a routine part of every-day life for hundreds of millions of people worldwide. Here we examine how communicating on social media shapes enduring memories for that experience<sup>1</sup>. Describing an object boosts memory for that object and other related objects (e.g. a striped shirt when describing “*dotted shirt*”)<sup>2</sup>. Two studies explore whether commenting also boosts memory for related content in the same context. Understanding the cognitive processes involved is important given the ubiquity of social media, and popularity of potentially problematic content such as imagery intended to invoke dieting and fitness inspiration, widely known as “fitspiration.” Prior findings indicate that exposure to #fitspo is associated with unhealthy behaviors<sup>3-4</sup>, and motivates exploratory analyses relating memory for food and fitness social media and individual differences in eating behaviors and self-image.

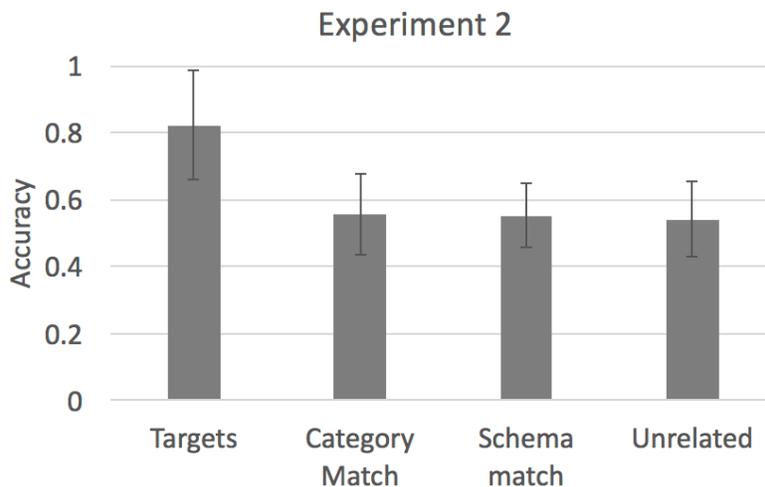
In **E1** (N=210) participants (Ps) were recruited online through Qualtrics Panels. Materials were real Instagram posts featuring “healthy” food, and men and women engaging in fitness activities. Posts featuring dogs, cats, nature were used as control. In total, Ps viewed 270 Instagram posts (60 food, 60 fitness, 150 control), in 30 3x3 arrays, similar to Instagram’s “explore” feature. For each of 30 arrays, Ps were asked to comment on a target image enclosed in a green box, as they would on their own feed. After a brief distractor task, Ps completed a recognition memory test for the critical stimuli (commented-upon and non-commented food and fitness images). They viewed 240 food and fitness images (half old and seen in the exposure phase, half new and closely matched to old items; counterbalanced across lists), and responding old/new. Lastly, Ps completed the Eating Disorder Examination Questionnaire (EDE-Q) to assess eating disorder symptomology. **Results:** Comments were coded for # of words (e.g. “*So yummy!*”, “*She’s really flexible*”). Memory data were analyzed with logistic mixed-effects models. Ps were more likely to correctly recognize images that they commented on vs. ones viewed in the same array ( $b=2.05$ ,  $p<.0001$ ), and correct recognition of targets (but not non-targets) increased with comment length ( $b=.103$ ,  $p<.01$ ). Non-targets from the same category as target (i.e., non-target fitness images when commenting on a different fitness image) were better recognized compared to control images ( $b=.14$ ,  $p<.01$ ). Exploratory analyses of individual differences revealed the memory boost for target images was *negatively* related to EDE global scores ( $r = -0.71$ ) such that individuals with more symptomology had less boost.

**E2** (N=300, MTurk) was a replication of E1 with a 2AFC paradigm. **Results:** As in E1, commented-upon images were better recognized than those viewed in the context ( $b=1.88$ ,  $p<.0001$ ), and correct recognition of targets (but not non-targets) increased with comment length ( $b=.11$ ,  $p<.0001$ ). Unlike E1 accuracy for non-targets from the same category as the target was not higher than unrelated control images ( $b=.075$ ,  $p=.07$ ). Similar to E1, the memory boost for target over context images was *negatively* associated with EDE scores ( $r = -.27$ ).

**Conclusion:** We find that when browsing real Instagram images in arrays similar to the explore feature, that the act of commenting on a post boosts memory for that post, and the longer the comment, the larger the boost. Evidence for a commenting-related boost to related imagery in context (e.g. memory for fitness images in the context when commenting on a different fitness image) was equivocal, suggesting that the effect, if real, may be quite small. We speculate that unlike task-based conversation<sup>2</sup>, social media arrays may demand less consideration of context when generating descriptions. Exploratory analyses of individual differences revealed the higher the severity of reported disordered eating behaviors, the *less* of a boost Ps experienced in memory for target over control images, possibly because persons with higher scores distributed attention more equally to the target and context. This leads to the intriguing possibility that individual differences in what is self-relevant in context may modulate attentional distribution in communication -- observed here in the context of social media.



**Figure 1.** Experiment 1 hit rate on memory test by image type and target type; the false alarm rate (28%) is indicated by the dotted line. Error bars indicate by-participant standard deviation.



**Figure 2.** Experiment 2: Accuracy by image type. Error bars indicate by-participant standard deviation.

## References

- Zimmerman, J. & Brown-Schmidt, S. (2020). #foodie: Implications of interacting with social media for memory. *Cognitive Research: Principles and Implications*, 5:16. <https://doi.org/10.1186/s41235-020-00216-7>
- Yoon, S. O., Benjamin, A. S., & Brown-Schmidt, S. (2016). The historical context in conversation: Lexical differentiation and memory for the discourse history. *Cognition*, 154, 102-117.
- Griffiths, S., & Stefanovski, A. (2019). Thinspiration and fitspiration in everyday life: An experience sampling study. *Body image*, 30, 135-144.
- Holland, G., & Tiggemann, M. (2017). "Strong beats skinny every time": Disordered eating and compulsive exercise in women who post fitspiration on Instagram. *International Journal of Eating Disorders*, 50(1), 76-79.