



How Should Students Engage in Self-Testing to Promote Memory for Course Material?

Amy Q. Pham¹, Michelle L. Rivers¹, Paige E. Northern^{1,2}, & S. Uma Tauber¹

¹Texas Christian University, Fort Worth, TX ²Southeast Missouri State University, Cape Girardeau, MO

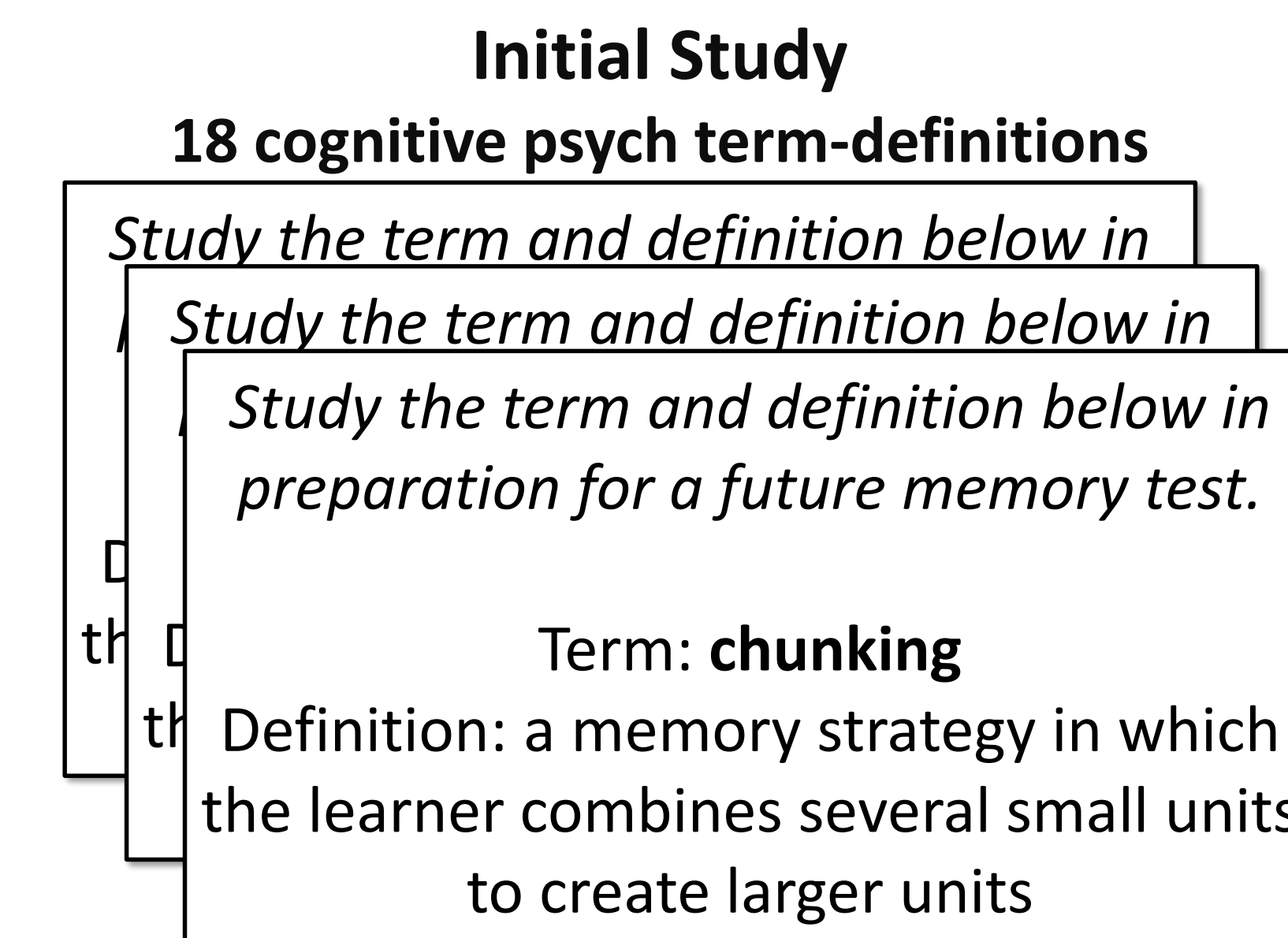


Background

- Testing oneself – engaging in retrieval practice – typically has a robust, positive effect on memory (Roediger & Karpicke, 2006). Retrieval can be practiced either *overtly* (i.e., by producing an outward response) or *covertly* (i.e., by mentally retrieving information).
- Overt retrieval results in better learning compared to covert retrieval for learning complex material (e.g., definitions; Tauber et al., 2018), whereas covert and overt retrieval are equally effective for simple material (e.g., single words; Smith et al., 2013).
- According to the **retrieval dynamics hypothesis**, full retrieval attempts are more challenging and are better for memory than are retrieval attempts that are easy and that are terminated prematurely.
- Simple materials (e.g., key terms) are more easily retrieved than are complex materials (e.g., definitions).
- We predicted minimal differences between overt and covert retrieval with simple materials because the retrieval attempt is easy – in both instances, only a word needs to be retrieved.
- We predicted overt retrieval to outperform covert retrieval with more complex materials because the retrieval attempt is more demanding – multiple units must be retrieved accurately.

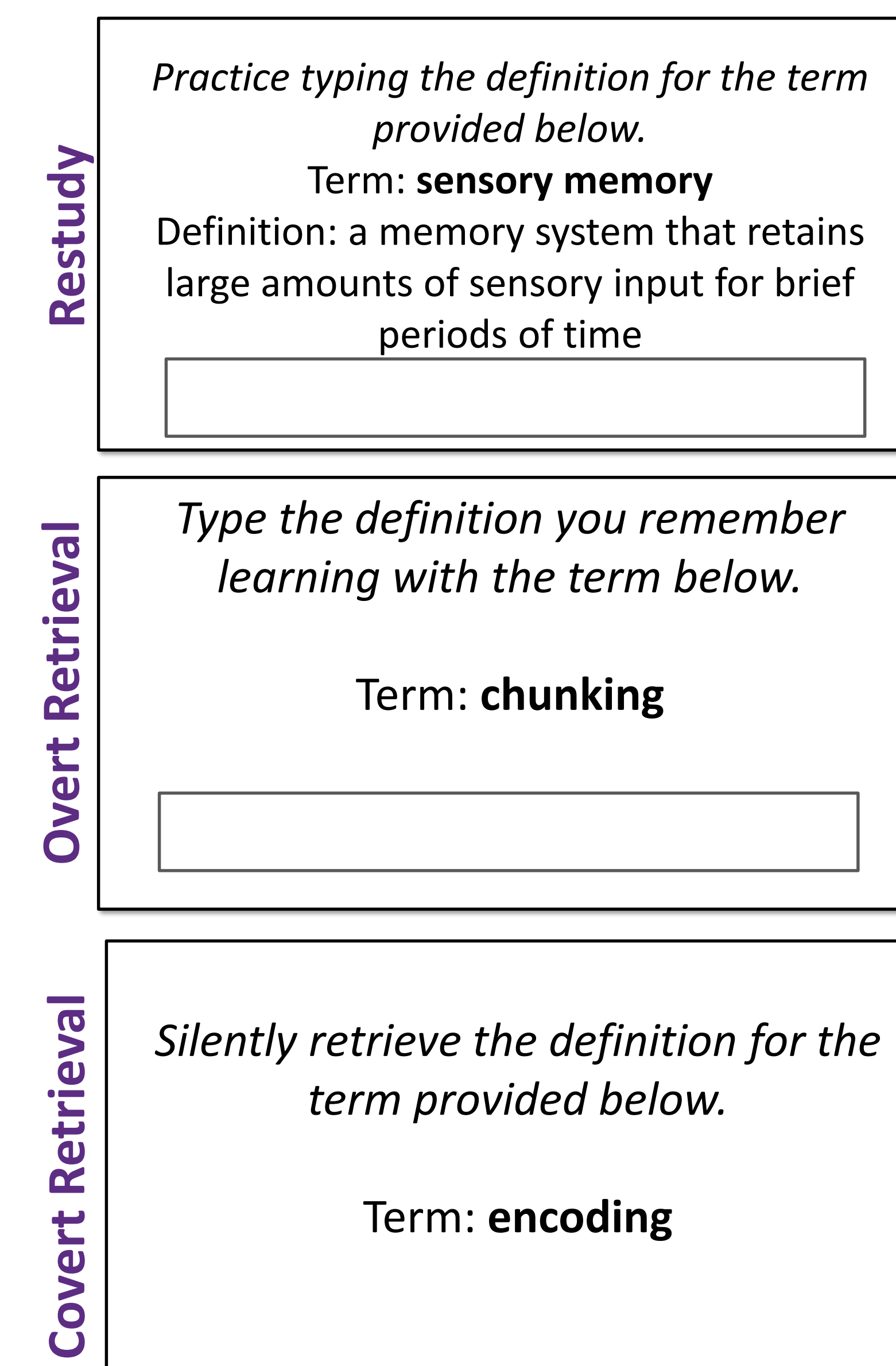
Method

192 TCU undergrads

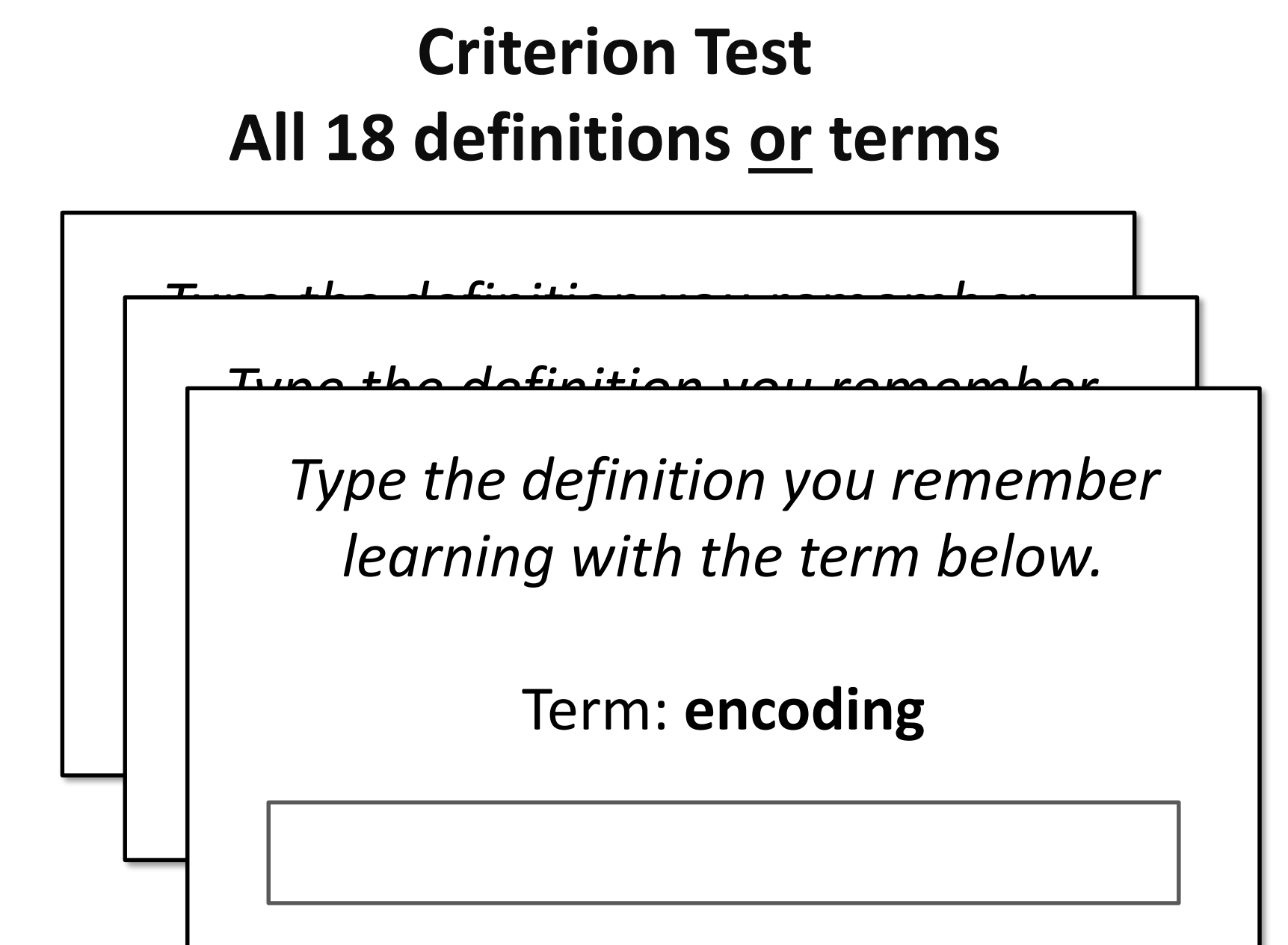


Practice type (restudy, overt retrieval, covert retrieval) was manipulated within participant.

Practice Terms or Definitions x 4 Manipulated between participants



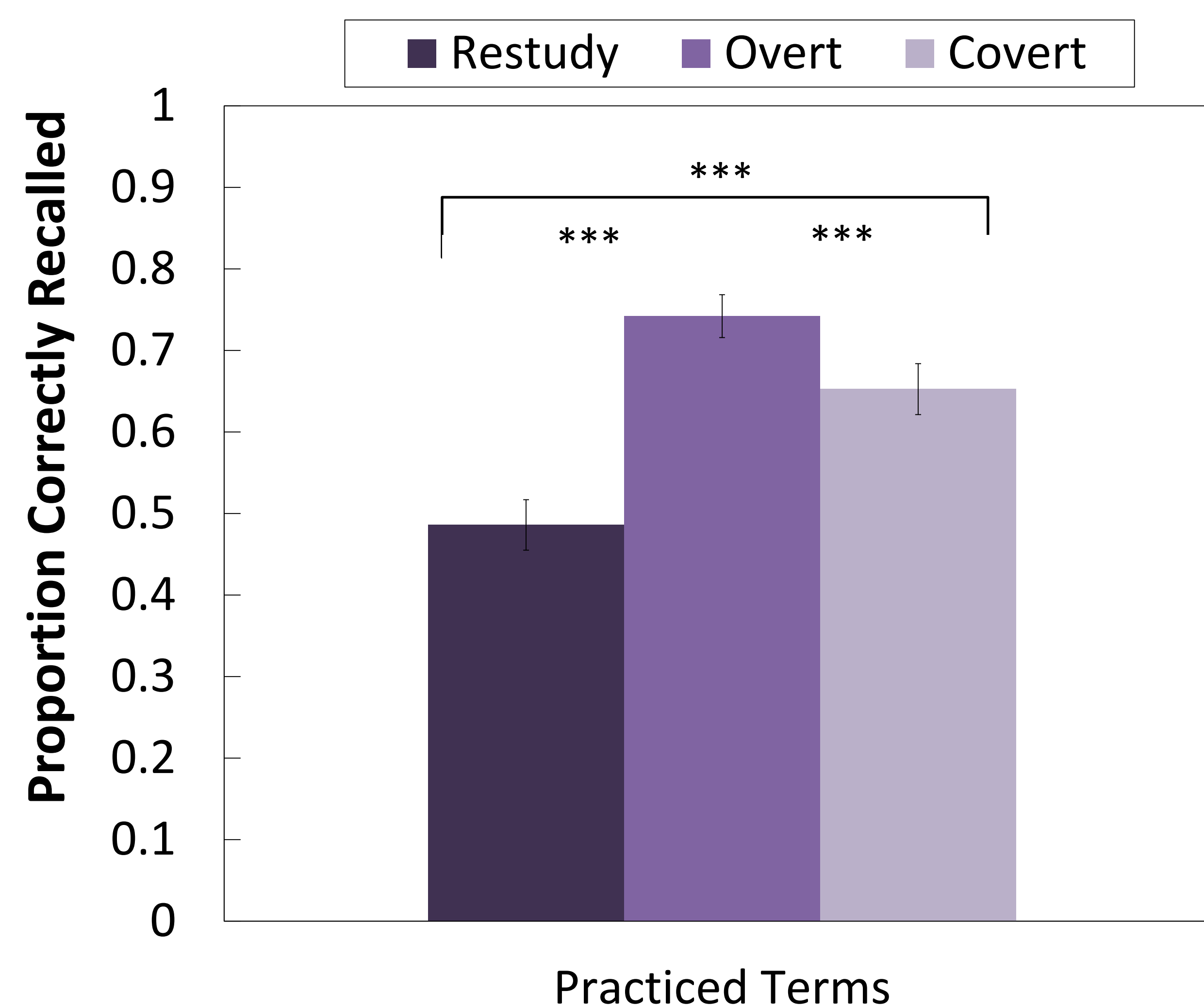
2 days



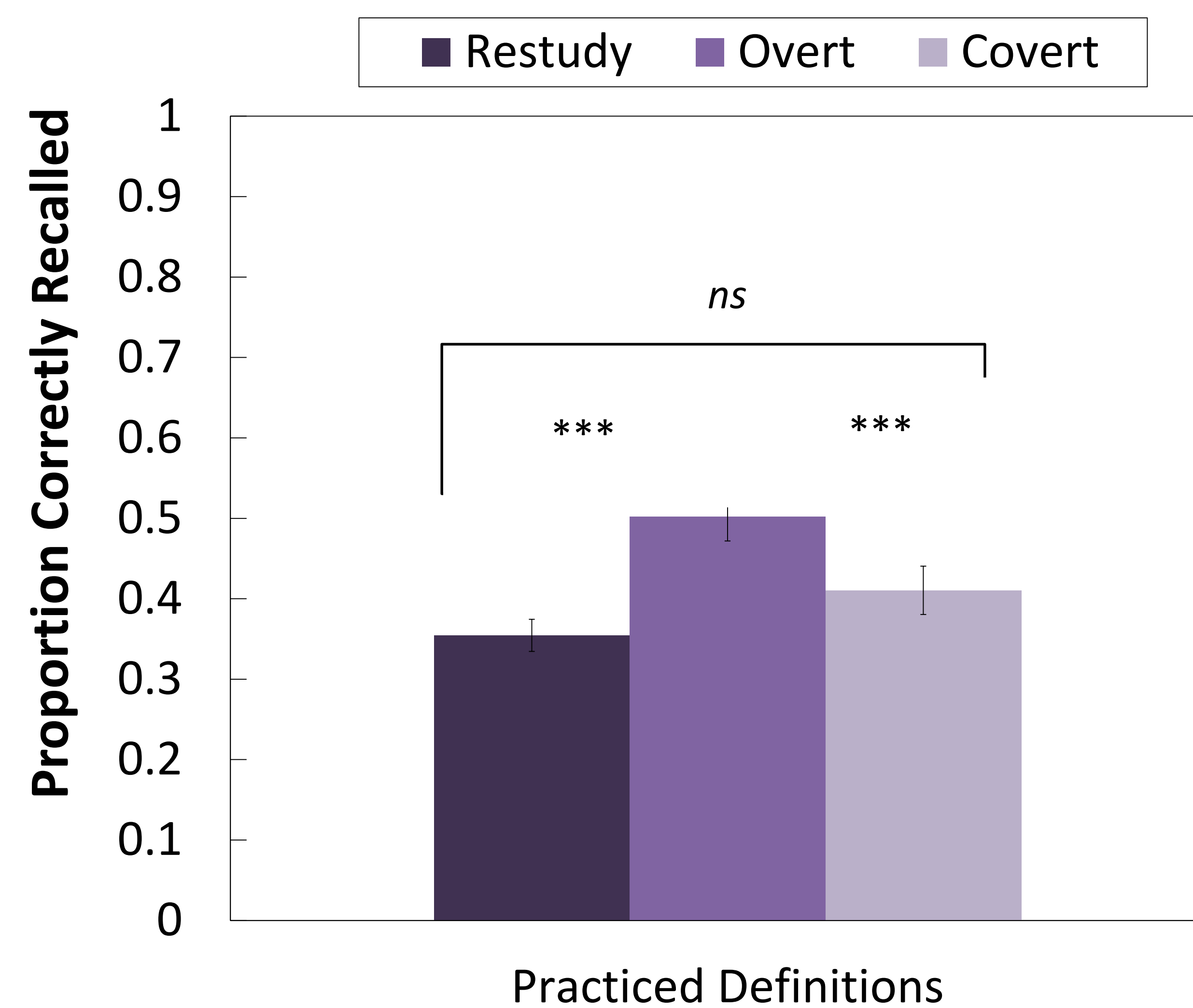
Students underwent four rounds of self-paced practice and received correct-answer feedback following each practice trial.

Results

Test on Terms



Test on Definitions



Conclusions

Overt retrieval was more effective than covert retrieval, and this was especially true for complex material (i.e., definitions).

Our results are consistent with the retrieval dynamics hypothesis.

- Future research should explore methods to increase the effectiveness of covert retrieval practice.
- Until then, students should engage in overt retrieval practice when learning key-term definitions.

References

- Roediger & Karpicke (2006). Test-enhanced learning: Taking memory tests improves long-term retention. *Psychological Science*.
- Smith, Roediger, & Karpicke (2013). Covert retrieval practice benefits retention as much as overt retrieval practice. *JEP: LMC*.
- Tauber, Witherby, Dunlosky, Rawson, Putnam, & Roediger (2018). Does covert retrieval benefit learning of key-term definitions? *JARMAC*.