

Introduction



Tests → retrieval practice → multiple effects

- Positive effects on **long term memory and students' achievement** (Karpicke & Roediger, 2008; Roediger & Karpicke, 2006; Roediger et al., 2011)
- What about its effect on the **Socioeconomic status (SES) achievement gap**?
 - Tests could *reduce* the SES achievement gap (Pennebaker et al., 2013; Smeding et al., 2013)
 - Tests could *increase* evaluative pressure, and thus *increase* the SES achievement gap (Croizet & Claire, 1998; Croizet et al., 2001)

Method

N = 287 (248 women; 37 men) undergraduate psychology students enrolled in a methodology class.

- Control group: **Teaching as usual** (academic year 2017-18)
- Experimental group: Teaching as usual + **tests** (not graded, not corrected) at the end of each 2-hours lesson (academic year 2018-19)

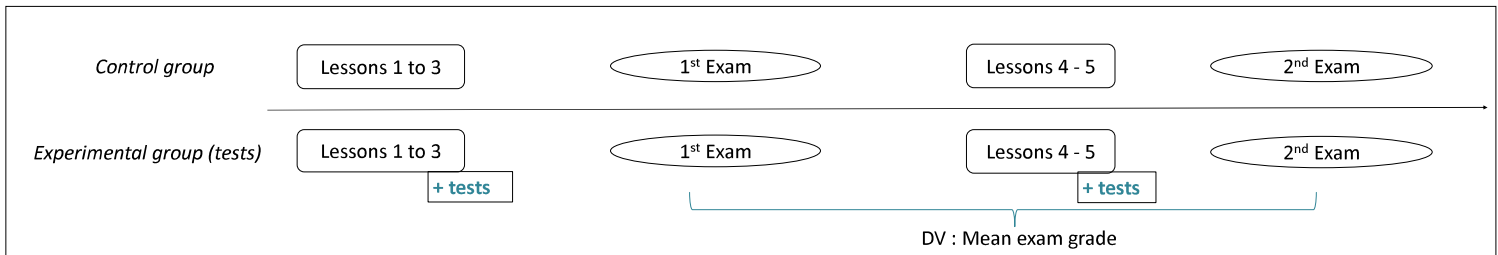
Everything else was identical for both academic years: same teachers, lesson content and exam questions.

Measure of SES (Stephens et al., 2012):

- **First generation students:** none of their parents obtained a higher education degree (N = 128)
- **Continuous generation students:** at least one of their parents obtained a higher education degree (N = 147)

Goal of this pre-registered study:

- 1) Replicating the positive effect of testing in an ecological academic context (real class context, real exam grade)
- 2) Examining whether the positive effect of testing depends on students' SES.



Results

ANOVA test condition X SES

→ Main effect of test

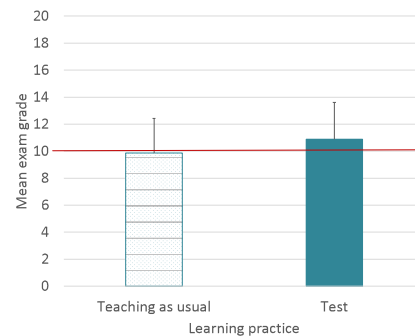
$$F(1, 266) = 11.839, p < .001, \eta_p^2 = .043$$

→ Marginal main effect of SES

$$F(1, 266) = 3.14, p = .078, \eta_p^2 = .012$$

→ The interaction between SES and test was not significant

$$F(1, 266) = 0.31, p = .578, \eta_p^2 = .001$$



Discussion

- This study replicates the **positive effect of testing** (Roediger & Karpicke, 2006) within real classes in which students were tested on the actual lesson content and evaluated with real grades.
- No moderation by SES → **both 1st generation and continuous generation students benefited from the test.**
- Perspectives for future research:
 - What is the best control group in academic contexts (Kornell et al., 2012): Nothing? Students' restudy? Teachers' repetition? Note taking?
 - Are tests the most adaptive retrieval practices in the context of a real class (Heitmann et al., 2018)?
 - Could the positive effects of testing apply to any class content ?

References

- Croizet, J.-C., & Claire, T. (1998). Extending the concept of stereotype threat to social class: The intellectual underperformance of students from low socioeconomic backgrounds. *Personality and Social Psychology Bulletin*, 24(6), 588-594.
- Croizet, J.-C., Désert, M., Dutrévis, M., & Leyens, J.-P. (2001). Stereotype Threat, Social Class, Gender, and Academic Underachievement: When Our Reputation Catches... *Social Psychology of Education*, 4, 41-42295-42310.
- Heitmann, S., Grund, A., Berthold, K., Fries, S., & Roelle, J. (2018). Testing is more desirable when it is adaptive and still desirable when compared to note-taking. *Frontiers in Psychology*, 9, 1-13.
- Karpicke, J.D., & Roediger, H.L. (2008). The critical importance of retrieval for learning. *Science*, 318, 966-968.
- Kornell, N., Rabelo, V. C., & Jacobs Klein, P. (2012). Tests enhance learning – Compared to what? *Journal of Applied Research in Memory and Cognition*, 1, 257-259.
- Pennebaker, J. W., Gosling, S. D., & Ferrrell, J. D. (2013). Daily online testing in large classes: Boosting college performance while reducing achievement gaps. *PLoS ONE*, 8(11).
- Roediger, H.L., & Karpicke, J.D. (2006). Test-enhanced learning: Taking memory tests improves long-term retention. *Psychological Science*, 17(3), 249-255.
- Roediger, H.L., Putnam, A.L., & Smith, M.A. (2011). Ten Benefits of Testing and Their Applications to Educational Practice. *Psychology of Learning and Motivation*, 55, 1-36.
- Smeding, A., Darnon, C., Souchal, C., Toczek-Capelle, M.-C., & Butera, F. (2013). Reducing the Socio-Economic Status Achievement Gap at University by Promoting Mastery-Oriented Assessment. *PLoS ONE*, 8(8), 1-6.
- Stephens, N. M., Fryberg, S. A., Markus, H. R., Johnson, C. S., & Covarrubias, R. (2012). Unseen disadvantage: How American universities' focus on independence undermines the academic performance of first-generation college students. *Journal of Personality and Social Psychology*, 102(6), 1178-1197.