Does Forced Guessing Cause One to Learn the Wrong Answer?

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INTRODUCTION

- Recalling information on a test is beneficial for memory retention. [1, 2, 3, 4]
- Do the same benefits apply if students do not know the answer to a test question, but try to guess? Or, do incorrect guesses become learned by virtue of association to the question? [5]

METHOD

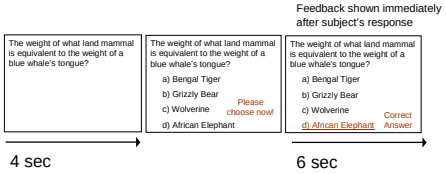
Materials:

- 69 obscure facts in the form of 4-alternative multiple choice questions.
- On Test 1, 23 facts were randomly assigned to one of the three experimental conditions for each subject (n = 132).

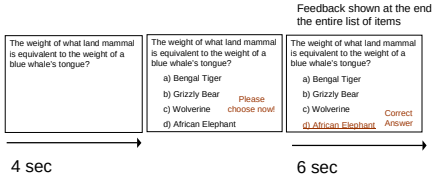
Test 1:

1. No Guess:

2. Guess + Immediate Feedback:

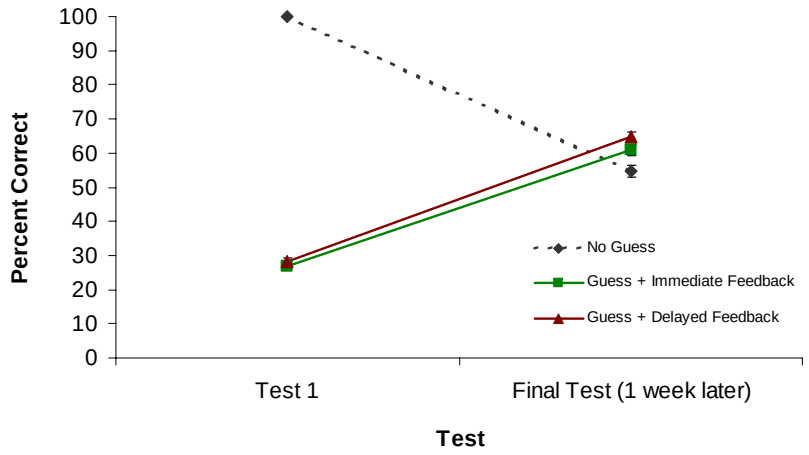


3. Guess + Delayed Feedback:

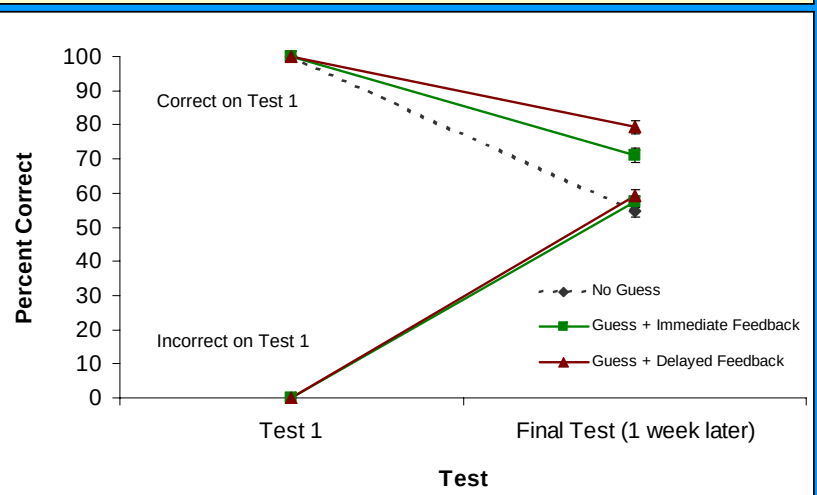


Final Test: 7 days after Test 1, all 69 items given a final test.

OVERALL RETENTION



CORRECT vs. INCORRECT ITEMS



CONCLUSIONS

- Overall, forced guessing led to better retention after one week, relative to no guessing.
  - Main effect of guessing, $F(2, 262) = 25.08$, $p < .001$, $MSE = .014$.
  - No Guess ($M = .55$, $SD = .20$) < Guess + Immediate Feedback ($M = .61$, $SD = .17$) < Guess + Delayed Feedback ($M = .65$, $SD = .18$).
- Forced guessing with delayed feedback was more beneficial than forced guessing with immediate feedback.
- Same pattern of results emerged whether answers were correct or incorrect on Test 1.

REFERENCES

(1) Carpenter, S. K., & DeLosh, E. L. (2005). Application of the testing and spacing effects to name learning. *Applied Cognitive Psychology, 19,* 619-636.

(2) Carpenter, S. K., & DeLosh, E. L. (2006). Impoverished cue support enhances subsequent retention: Support for the elaborative retrieval explanation of the testing effect. *Memory & Cognition, 34,* 268-276.

(3) Carpenter, S. K., & Pashler, H. (2007). Testing beyond words: Using tests to enhance visuospatial map learning. *Psychonomic Bulletin & Review, 14,* 474-478.

(4) Carpenter, S. K., Pashler, H., & Vul, E. (2006). What types of learning are enhanced by a cued recall test? *Psychonomic Bulletin & Review, 13,* 826-830.

(5) Skinner, B. F. (1954). The science of learning and the art of teaching. *Harvard Educational Review, 24,* 86-97.

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