Effects of Feedback Timing on Retention of Facts and Names

Shana K. Carpenter, Hal Pashler, Nicholas J. Cepeda, John T. Wixted, & Edward Vul

University of California, San Diego

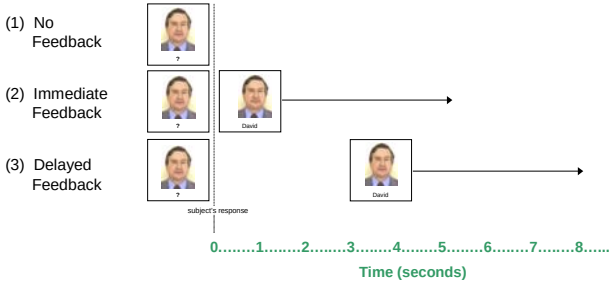
INTRODUCTION

- Correct-answer feedback is important for learning verbal materials such as foreign language vocabulary (2).
- *When* is it best to provide correct-answer feedback?
  - Immediate feedback might be best because it allows errors to be fixed right away (4, 5).
  - Delayed feedback might be best because the delay weakens the memory for the error, making it less likely to interfere with the correct response (1, 6).

METHOD

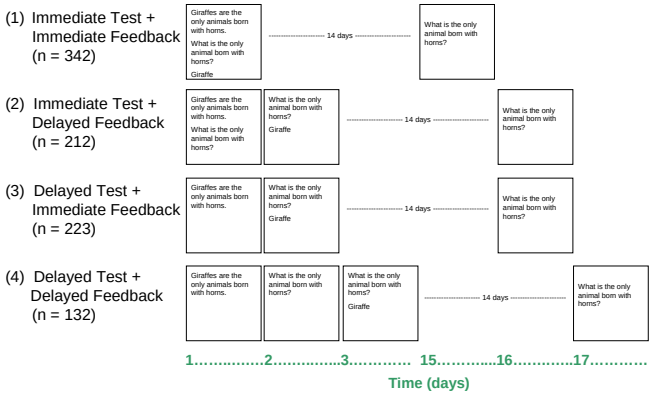
EXPERIMENT 1

3 within-subjects conditions: (n = 167)

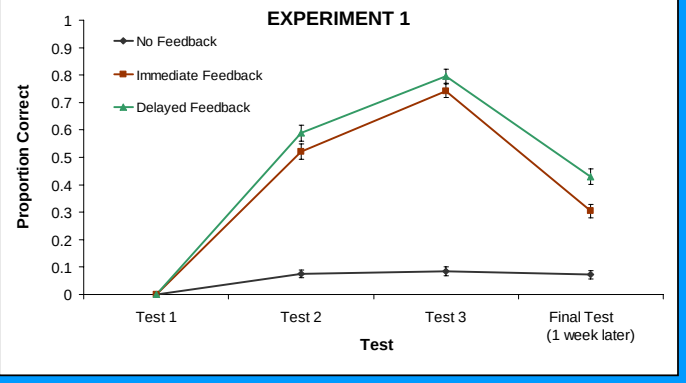


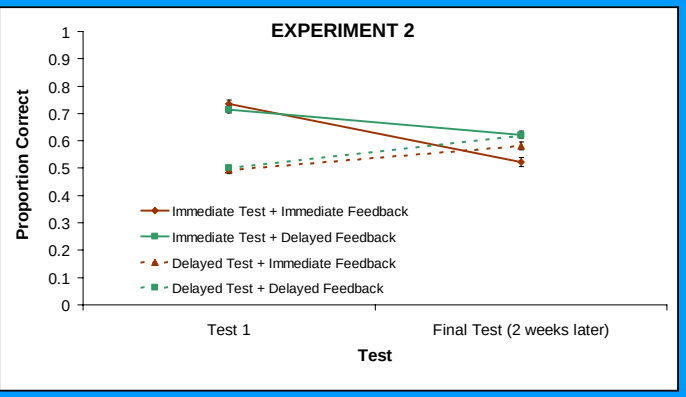
EXPERIMENT 2

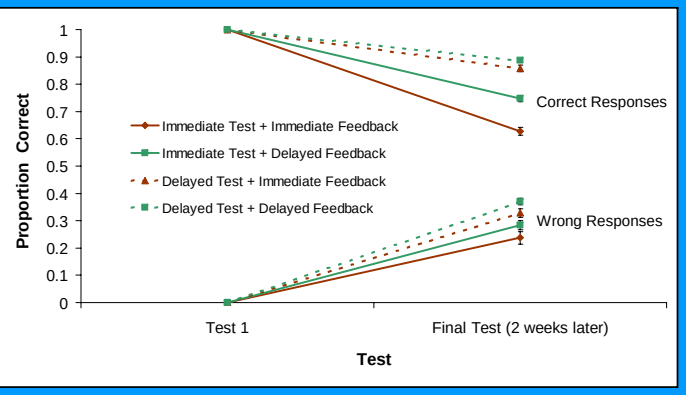
4 between-subjects conditions:



RESULTS







CONCLUSIONS

- Delayed feedback was more beneficial than immediate feedback, and this benefit was observed for both correct responses and wrong responses.
- The feedback delay benefit may have been due to the spaced repetition of feedback in Experiment 2.
- We found no evidence that subjects must forget their wrong responses in order to learn the correct response (1, 6).
  - Feedback delay benefit occurred even for errors of omission in Experiment 1.
  - No harmful effects occurred when subjects were forced to guess and then given immediate feedback (3).

REFERENCES

(1) Kulhavy, R. W., & Anderson, R. C. (1972). Delay-retention effect with multiple-choice tests. *Journal of Educational Psychology, 63,* 505-512.

(2) Pashler, H., Cepeda, N. J., Wixted, J. T., & Rohrer, D. (2005). When does feedback facilitate learning of words? *Journal of Experimental Psychology: Learning, Memory, and Cognition, 31,* 3-8.

(3) Pashler, H., Rohrer, D., Cepeda, N. J., & Carpenter, S. K. (in press). Enhancing learning and retarding forgetting: Choices and consequences. *Psychonomic Bulletin and Review*.

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

(5) Skinner, B. F. (1958). Teaching machines. *Science, 128,* 969-977.

(6) Surber, J. R., & Anderson, R. C. (1975). Delay-retention effect in natural classroom settings. *Journal of Educational Psychology, 67,* 170-173.

Presented at the 47th Annual Meeting of the Psychonomic Society, Houston, Texas, November 16 – 19, 2006. This work was supported by the Institute of Education Sciences (US Department of Education, Grant R305H040108) and the National Institute of Mental Health (R01 MH61549, R01 MH45584).

Address correspondence to: Shana Carpenter (scarpenter@ucsd.edu)