The Effects of Self-Focused Feedback on Students’ Mathematics Problem Solving
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Conclusions

Self-focused feedback provided during an online math lesson can have both positive and negative effects.

When students solved probability problems in a non-evaluative context, self-focused feedback had beneficial effects on posttest performance compared to both task-focused feedback and no feedback, at least for students with sufficient prior knowledge.

When students solved probability problems in an evaluative context, self-focused feedback had hindering effects on posttest performance.

Background

The effects of feedback vary and are not universally beneficial (Mory, 2004). In fact, feedback can hinder learning relative to no feedback (Fyfe & Brown, 2018).

One theory suggests feedback is more likely to have negative effects when it draws attention to one’s self and abilities rather than to the task (Kluger & DeNisi, 1996). Thus, we hypothesize that feedback may be less effective when provided in an evaluative context.

Method

PARTICIPANTS

Experiment 1: 114 undergraduate students enrolled in an introductory psychology course at Indiana University-Bloomington (M age = 20.2; range = 18.0-24.3; 34% female).

Experiment 2: 177 undergraduate students (M age = 20.1 years; range = 18.0-27.1; 34% female).

DESIGN AND PROCEDURE

Pretest

Low-knowledge group (n = 74)
High-knowledge group (n = 40)

Posttest

Feedback by prior knowledge interaction, F(2, 108) = 3.81, p = .03, η² = .07. Main effect of feedback for high-knowledge group, F(2, 108) = 5.40, p = .01, η² = .09.

Posttest

No feedback by prior knowledge interaction, F(2, 171) = 0.31, p = .74, η² = .00. Main effect of feedback across pretest groups, F(2, 171) = 3.32, p = .04, η² = .04.

Experiment 1

Non-evaluative

Context

Feedback

Task

Non-evaluative

Now you’re going to solve a set of problems that are very similar to the problems you just solved...

Self

The purpose of this study is to evaluate your ability to solve these kinds of math problems correctly...

None

The response has been recorded. Proceed next.

Experiment 2

Evaluative

Context

Feedback

Task

Non-evaluative

Now you’re going to solve a set of problems that are very similar to the problems you just solved...

Self

You made a mistake and your response is incorrect. The correct response is 0.9.

None

The response has been recorded. Proceed next.

Experiment 1: Posttest Scores

Number Correct

Low Knowledge

High Knowledge

No Feedback

Self Feedback

Task Feedback

Experiment 2: Posttest Scores

Number Correct

Low Knowledge

High Knowledge

No Feedback

Self Feedback

Task Feedback

References & Contact


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