

ZMATH 2016e.00761

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Support for struggling students in algebra: contributions of incorrect worked examples.

Learn. Individ. Differ. 48, 36-44 (2016).

Summary: Middle school algebra students ($N = 125$) randomly assigned within classroom to a problem-solving control group, a correct worked examples control group, or an Incorrect worked examples group, completed an experimental classroom study to assess the differential effects of incorrect examples versus the two control groups on students' algebra learning, competence expectancy, and sense of belonging to math class. The study also explored whether prior knowledge impacted the effectiveness of the intervention. A greater sense of belonging and competence expectancy predicted greater learning overall. Students' sense of belonging to math and competence expectancies were high at the start of the study and did not increase as a result of the intervention. A significant interaction between prior knowledge and incorrect worked examples on post-test scores revealed that students with low prior knowledge who struggle with learning math benefit most from reflecting on highlighted errors within an incorrect worked examples intervention. The unique contributions of these findings as well as educational implications are discussed.

Classification: H23 H33 I23 D73 C93

Keywords: learning from errors; incorrect examples; worked examples; algebraic problem-solving; sense of belonging; competence expectancy

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