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Minimalism as a guiding principle: Linking mathematical learning to everyday knowledge.

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Summary: Studies report that students often fail to consider familiar aspects of reality in solving mathematical word problems. This study explored how different features of mathematical problems influence the way that undergraduate students employ realistic considerations in mathematical problem solving. Incorporating familiar contents in the word problems was found to have only a limited impact. Instead, removing contextual constraints from the problem goal was found to motivate students to validate their problem solving in terms of their everyday experiences. Based on these findings, what determines the authenticity and relevance of a mathematical problem seems to be whether the problem allows students to freely reconstruct the problem situation by making use of their imagination and everyday experiences. In short, the basic principle seems to be "less is more"; that is, fewer constraints in problem goals could function to help students personally associate problem solving with their everyday experiences. (Contains 4 figures and 8 tables.) (ERIC)

Classification: F80 D50

Keywords: undergraduate students; problem solving; word problems; student attitudes; computation; thinking skills; context effect; data interpretation; interviews

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