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An exploration of grade 8 learners' responses to real-world and standard mathematical problems

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Abstract

This study explored how the use of real-life contexts influences South African Grade 8 learners' responses in solving mathematical word problems. A mathematical task was given to investigate whether the influence exists and if so how. The study falls within a social constructivist framework which emphasizes construction of learners' own knowledge in the learning process. Learners do so when they are able to recognize and interpret a mathematical task as one for which everyday knowledge as well as mathematical knowledge would be a relevant resource on which to draw. The research method employed was a case study. Data for the study was collected through written a mathematical task and individual learner interviews. In the report key issues are identified and discussed. They are concerned with (a) learners representation of a number and (b) learners' mathematical and real-world knowledge. The study concludes that current use of word problems does not foster in learners realistic considerations even though the South African curriculum emphasizes the incorporation of everyday life experiences into mathematics. Rather than providing realistic contexts that encourage learners to use commonsense knowledge and experience in the problem-solving process, school word problems are perceived as artificial, undoubtedly solvable, but also that everything in the problem text is confined to relevance and no-ambiguity. The report concludes with recommendations for classroom practice, teacher education and further research.