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Assessing mathematical problem solving using comparative judgement.

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Summary: There is an increasing demand from employers and universities for school leavers to be able to apply their mathematical knowledge to problem solving in varied and unfamiliar contexts. These aspects are however neglected in most examinations of mathematics and, consequentially, in classroom teaching. One barrier to the inclusion of mathematical problem solving in assessment is that the skills involved are difficult to define and assess objectively. We present two studies that test a method called comparative judgement (CJ) that might be well suited to assessing mathematical problem solving. CJ is an alternative to traditional scoring that is based on collective expert judgements of students' work rather than item-by-item scoring schemes. In study 1, we used CJ to assess traditional mathematics tests and found it performed validly and reliably. In study 2, we used CJ to assess mathematical problem-solving tasks and again found it performed validly and reliably. We discuss the implications of the results for further research and the implications of CJ for the design of mathematical problem-solving tasks.

Classification: D50 D60 G30
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