

ZMATH 2016c.00684

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Students' proportional reasoning in mathematics and science.

Tso, Tai-Yih (ed.), Proceedings of the 36th conference of the International Group for the Psychology of Mathematics Education "Opportunities to learn in mathematics education", PME 36, Taipei, Taiwan, July 18–22, 2012, Vol. 2. Taipei: National Taiwan Normal University. 195-202 (2012).

Summary: Proportional reasoning is increasingly being recognised as fundamental for successful operation in many topics within both the mathematics and science curriculum. However, research has consistently highlighted students' difficulties with proportion and proportion-related tasks and applications, suggesting the difficulty for many students in these core school subjects. As a first step in a major research project to support the design of integrated curriculum across these two disciplines, this paper reports on students' results on a proportional reasoning pretest of mathematics and science items. Administered to approximately 700 students across grades 4 to 9, results anticipated increased gradual progression in results, but surprising similarities in performance on particular items for student groups at each year level.

Classification: F80 M50 M60

Keywords: proportional reasoning; students' difficulties; proportion; integrated curriculum