

**ZMATH 2010c.00111**

**Petocz, Peter; Reid, Anna; Wood, Leigh N.; Smith, Geoff H.; Mather, Glyn; Harding, Ansie; Engelbrecht, Johann; Houston, Ken; Hillel, Joel; Perrett, Gillian**

**Undergraduate students' conceptions of mathematics: an international study.**

Int. J. Sci. Math. Educ. 5, No. 3, 439-459 (2007).

Summary: In this paper, we report on an international study of undergraduate mathematics students' conceptions of mathematics. Almost 1,200 students in five countries completed a short survey including three open-ended questions asking about their views of mathematics and its role in their future studies and planned professions. Responses were analysed starting from a previously-developed phenomenographic framework (Reid et al.: Mathematics students' conceptions of mathematics, New Zealand Journal of Mathematics, 32 (Supplement), 2003, [ME 2005d.01405]) which required only minor modification. Students' conceptions of mathematics ranged from the narrowest view as a focus on calculations with numbers, through a notion of mathematics as a focus on models or abstract structures, to the broadest view of mathematics as an approach to life and a way of thinking. Broader conceptions of mathematics were more likely to be found in later-year students ( $p < 0.001$ ) and there were significant differences between universities ( $p < 0.001$ ). The information obtained from the study not only confirms previous research, but also provides a basis for future development of a monitoring questionnaire.

*Classification:* C25 C35 A45 B40

*Keywords:* conceptions of mathematics; mathematics in careers; mathematics in tertiary study; research; empirical investigations

doi:10.1007/s10763-006-9059-2