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Proceedings of the Annual Meeting of the Cognitive Science Society

Title

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Permalink

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Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 40(0)

Authors

Trezise, Kelly

Reeve, Robert A.

Publication Date

2018

Patterns of anxiety in algebraic problem solving in Australian adolescents: A three-step latent variable analysis

Kelly Trezise

University of Melbourne, Melbourne, Victoria, Australia

Robert A. Reeve

University of Melbourne, Melbourne, Australia

Abstract

Adolescents math anxiety is commonly assessed using questionnaires that identified the anxiety experienced solving arithmetic problems. A more nuanced understanding of math anxiety would be gained by investigating anxiety associated with math problems encountered in school at the time they are encountered. To this end, we investigated the anxiety associated with algebraic problem solving ability relationships in 129 14-year-olds. We varied problem difficulty and the time allowed to solve problems, and assessed students anxiety concurrently as they solved problems. Latent variable mixture modelling revealed meaningfully different patterns of algebra ability and anxiety relationships that changed as a function of problem difficulty and time pressure. A second study, examining 257 13- to 15-year-olds, successfully replicated the Study 1 findings. The results highlight the value of using latent variable analysis to identify subgroup patterns of abilities and caution against making overly general claims about the role of anxiety in math problem solving.