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Assessing a modeling process of a linear pattern task.

Lesh, Richard (ed.) et al., Modeling students' mathematical modeling competencies. ICTMA 13. Proceedings of the 13th international conference on the teaching of mathematical modelling and applications, July 22–26, 2007. London: Springer (ISBN 978-1-4419-0560-4/hbk; 978-1-4419-0561-1/ebook). 213-221 (2010).

Summary: This research investigated the process of generalizing a pictorial linear pattern problem, as done by fifty-three mathematically promising students participating in an after school math club. The students' work revealed a range of solution paths and representations, and a cycle of expressing – testing – revising. While the majority of them found the constant difference property of the pattern, they experienced difficulties in expressing the general rule. The majority of students applied recursive strategies, even when more global strategies were called for. Although the aforementioned task lacks a real-life context that is essential for modeling problems, the advantages of such problems in multi-cultural classes are discussed.

Classification: I33 D53

Keywords: patterns; sequences; generalization; problem-solving strategies; educational research

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