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Choosing and using examples: how example activity can support proof insight.

Lindmeier, Anke M. (ed.) et al., Proceedings of the 37th conference of the International Group for the Psychology of Mathematics Education “Mathematics learning across the life span”, PME 37, Kiel, Germany, July 28–August 2, 2013. Vol. 2. Kiel: IPN–Leibniz Institute for Science and Mathematics Education at the University of Kiel (ISBN 978-3-89088-288-8). 265-272 (2013).

Summary: The results of two studies aimed at identifying the ways in which successful provers (students and mathematicians) engage with examples when exploring and proving conjectures. We offer a framework detailing the participants’ actions guiding a) their example choice and b) their example use as they attempt to prove conjectures. The framework describes three categories for example choice (choose examples that test boundaries, emphasize mathematical properties, and build a progression of example types) and three categories of uses (identify commonality, see generality, and anticipate change).

Classification: E55

Keywords: proof; proving; role of examples