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Herbert, Sandra; Vale, Colleen; Bragg, Leicha A.; Loong, Esther; Widjaja, Wanty
A framework for primary teachers' perceptions of mathematical reasoning.

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Summary: Mathematical reasoning has been emphasised as one of the key proficiencies for mathematics in the Australian curriculum since 2011 and in the Canadian curriculum since 2007. This study explores primary teachers' perceptions of mathematical reasoning at a time of further curriculum change. Twenty-four primary teachers from Canada and Australia were interviewed after engagement in the first stage of the *Mathematical Reasoning Professional Learning Program* incorporating demonstration lessons focused on reasoning conducted in their schools. Phenomenographic analysis of interview transcripts exploring variation in the perceptions of mathematical reasoning held by these teachers revealed seven categories of description based on four dimensions of variation. The categories delineate the different perceptions of mathematical reasoning expressed by the participants of this study. The resulting outcome space establishes a framework that facilitates tracking of growth in primary teachers' awareness of aspects of mathematical reasoning.

Classification: E50 D39 C39

Keywords: phenomenography; mathematical reasoning; mathematical thinking; primary mathematics curriculum; mathematical content knowledge; professional learning

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