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Generating procedural and conceptual knowledge of fractions by pre-service teachers.

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Summary: Knowledge that teachers bring to the teaching context is of interest to key stakeholders in improving levels of numeracy attained by learners. In this regard, the centrality of, and the need to investigate, the quality of teachers' mathematical knowledge for teaching mathematics has been gaining momentum in recent years. There is a general consensus that teachers need a robust body of content and pedagogical knowledge related to mathematics and that one impacts on the other. However, in current debates about this interconnection between content knowledge and pedagogical content knowledge, there is limited analysis about the procedural-conceptual nature of content knowledge that, we argue, has significant impact on the development of pedagogical content knowledge. In this report, this issue is investigated by examining the state of procedural and conceptual knowledge of two cohorts of pre-service teachers and analyzing the impact of a representational reasoning teaching and learning (RRTL) approach aimed at supporting a balanced development of these two dimensions of content knowledge.

Classification: F49 D39

Keywords: pre-service teacher knowledge; fractions; procedural knowledge; conceptual knowledge; mathematical knowledge for teaching

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