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Developing the Big Ideas of Number

Chris Hurst[1], Derek Hurrell[2]

[1]*Dr. Chris Hurst, School of Education, Curtin University, Perth, Western Australia.*
[2]*Dr. Derek Hurrell, University of Notre Dame Australia, Fremantle, Western Australia*

ABSTRACT

The mathematical content knowledge (MCK) and pedagogical content knowledge (PCK) of primary and elementary teachers at all levels of experience is under scrutiny. This article suggests that content knowledge and the way in which it is linked to effective pedagogies would be greatly enhanced by viewing mathematical content from the perspective of the 'big ideas' of mathematics, especially of number. This would enable teachers to make use of the many connections and links within and between such 'big ideas' and to make them explicit to children. Many teachers view the content they have to teach in terms of what curriculum documents define as being applicable to the particular year level being taught. This article suggests that a broader view of content is needed as well as a greater awareness of how concepts are built in preceding and succeeding year levels. A 'big ideas' focus would also better enable teachers to deal with the demands of what are perceived to be crowded mathematics curricula. The article investigates four 'big ideas' of number – trusting the count, place value, multiplicative thinking, and multiplicative partitioning – and examines the 'micro-content' that contributes to their development.

Keywords:
mathematical content knowledge, teacher knowledge, pedagogical content knowledge, number
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[1] Corresponding author's address: School of Education, Curtin University, Kent Street, Bentley, Western Australia
Telephone : 61 8 9266 2196
Fax : 61 8 9266 2547
e-mail: c.hurst@curtin.edu.au
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