

# THE ROLE OF ASSESSING COUNTING FLUENCY IN ADDRESSING A MATHEMATICAL LEARNING DIFFICULTY

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In 1992, Fuson argued that automatization of the number word sequence is essential for the conceptual structures associated with advanced strategies for solving basic addition and subtraction problems to develop (Fuson, 1992, p.76). This presentation will explore the relevance of Fuson's claim for students with learning difficulties in mathematics, who are characterised by an inability to develop either automatized number facts, or fast and effective solution strategies (e.g. Russell & Ginsburg, 1984). Through the case study of a Year 4 boy, I will demonstrate how the assessment of the student's counting fluency was crucial in explaining his puzzling degree of difficulty in learning mathematics, and in the design of a successful intervention to assist him in learning advanced strategies (including memorization) for computing addition facts.

A current Australian assessment framework for young children allows us to directly explore the relationship between counting development and the development of strategies to solve basic addition and subtraction problems (Wright et al., 2000; 2002). In his Learning Framework in Number (LFIN), Wright presents tasks to measure students' levels of fluency of the forwards and backwards counting sequences, level of identification of written numerals, and stage of strategy development. Assessment data will be presented to show that at the age of 8-7 years the student still had poor mastery of the counting sequences, including a persisting confusion between teen/ty numbers in both oral and written work. These difficulties appeared to be constraining his conceptual development.

Quantitative and qualitative data will be discussed from an intervention designed to assist the student in building an understanding of numbers as *abstract*? composite units and in seeing the tens/ones structure of 2 digit numbers. A turning point in confidence for the student came as he spontaneously partitioned 10 when asked to make the number ten from other numbers: "I want to try it the hard way, not the easy way!" as he now referred to the ten facts he had previously been unable to remember.

## References

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