

The mathematical strengths and weaknesses of children with dyslexia

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Abstract

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- Dyslexia;
- mathematics;
- arithmetic;
- phonological processing;
- number module

This paper reports the findings of two related studies that examined the mathematical strengths and weaknesses of children with dyslexia. In study one, dyslexic children were compared to children without special educational needs on tests that assessed arithmetic fact recall, place value understanding and counting speed. Study two used the same methodology, but matched the dyslexic children with the non-dyslexic children on a number of factors, including intellectual ability. This excluded the possibility that confounding variables accounted for the differences between the groups in study one. Both studies indicated that the dyslexic children had slower and less accurate number fact recall than the non-dyslexic children, but had unimpaired place value understanding. The results for counting speed were more equivocal, but there was a trend for the dyslexic children to be slower counters. The results suggest that dyslexia is not normally associated with a general mathematical impairment, but rather an uneven profile of skills. This profile can be explained in terms of the phonological processing weaknesses associated with dyslexia. The finding that dyslexic children have a specific difficulty recalling arithmetic facts suggests that a teaching programme that emphasises mental methods may disadvantage them.