

15 November 2007

**By email**

**REVIEW OF MATHEMATICS TEACHING  
IN PRIMARY SCHOOLS AND EARLY YEARS SETTINGS: CALL FOR  
EVIDENCE**

The Association of Directors of Children's Services is pleased to submit these brief comments to the William Review of mathematics teaching in primary schools and early years settings.

ADCS is the national leadership organisation in England for directors of children's services appointed under the provisions of the *Children Act 2004* and for other children's services professional in leadership roles. The Association provides a national voice as a champion for children, with local and central government, and with the public.

ADCS welcomes the Review's terms of reference which whilst wide-ranging do not appear to address some of the fundamental and pressing issues which confront teachers on a daily basis. In the context of 'age not stage' there appears to be little opportunity to consider developmental age teaching as opposed to chronological age teaching. The recent KS3 pilot has shown that pupils are able to make considerable progress in mathematics achieving not just the expected KS3 level a year early but beyond the expectation too. We would encourage the review to draw upon evidence which evaluates the impact of developmental age not just chronological age at primary ages. This would balance the question regarding the need for early intervention (point 3 in the terms of reference). The May 2006 Ofsted report on mathematics indicated that teachers were teaching to the test in secondary schools and the Review needs to consider the impact of the current assessment framework within the primary sector.

There appears to be no reference to other factors which might affect learning in mathematics such as gender and ethnicity.

The current emphasis on qualified teacher having level 2 equivalent in mathematics as their own academic standard does not necessarily imply that they have an understanding of the way primary children think and develop mathematically. Future training should include mathematical concepts to child development.

In particular the review should consider the findings of the two research paper below.

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**The Association of Directors of Children's Services**

Ellen Wilkinson Building, University of Manchester, Oxford Road, Manchester, M13 9PL  
Tel:0161 275 8810 Fax: 0161 275 8811 Email: info@adcs.org.uk Website: www.adcs.org.uk

**Graham E., Rowlands S., Jennings S. and English J., 1999. Towards Whole-class Interactive Teaching. J Teaching Mathematics & its Applications, Vol. 18 No 2, pp 50-60**

This paper considers an approach to addressing the decline in the level of achievement of British pupils in mathematics. It looks in detail at the differences between the teaching methods of Britain and Hungary, as research studies have indicated the high level of achievement of Hungarian pupils in mathematics. The paper outlines three theoretical perspectives (radical constructivism, social constructivism, and Vygotsky's zone of proximal development) that are helpful in considering the important differences. The major differences are considered under four categories: expectation and consistency, assessment, continuity and differentiated teaching. The paper proposes the method of whole-class interactive teaching as a way forward that would improve pupils' achievement, and gives practical suggestions for developing such a teaching strategy.

**Sahlberg P. and Berry J., 2002, One and One is Sometimes Three in Small Group Mathematics Learning, Asia Pacific Journal of Education, Vol 22 No 1, pp 83 - 94**

In recent years, mathematics teaching has been confronted by demands for higher standards and better pupil achievement in several parts of the world. Researchers have suggested a shift from teacher-centred instruction towards more active participatory learning methods as one way to improve the quality of the learning process. The tension between whole class teaching versus small group learning in mathematics has been particularly apparent in many education systems. This article analyses the development of mathematics teaching by asking whether small group learning is an effective arrangement in teaching school mathematics. We conclude that although there is no unanimity about the effects of small group learning on student achievement in school mathematics, it seems that it produces at least equal academic outcomes among all students compared to more traditional methods of instruction. Working in pairs is a particularly effective form of learning mathematics and that small groups are beneficial for developing mathematical problem-solving skills. We also conclude that the present educational policies and increased quality assurance structures in many countries conflict, or are not consistent with scientific-professional thinking and research on the teaching of mathematics.

This Review obviously parallels the Primary Review and there will be links between research arising from the Primary Review which will be relevant to this Review.

We trust that you will find these comments useful and should you so wish, the Association is willing to give further evidence to the Review should the opportunity arise to do so.

We look forward to reading the Review's interim report, due for publication in March 2008 and to the final report in June 2008.

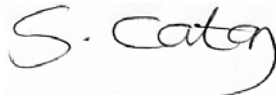
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These comments have been prepared by the Association's Educational Achievement Policy Committee, chaired by Steve Beynon Strategic Director of Children's Services for the Isle of Wight Council. However, if you have any queries about this submission of evidence to the Review, please contact me in the first instance.

Yours faithfully

A handwritten signature in black ink that reads "S. Caton". The signature is written in a cursive style with a large, sweeping 'S' and a trailing flourish.

Sarah Caton  
Assistant Director

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Ellen Wilkinson Building, University of Manchester, Oxford Road, Manchester, M13 9PL  
Tel:0161 275 8810 Fax: 0161 275 8811 Email: [info@adcs.org.uk](mailto:info@adcs.org.uk) Website: [www.adcs.org.uk](http://www.adcs.org.uk)