

Intervention in Mathematics in Primary Schools

The Foundation for Science and Technology

23rd April 2008

Peter Williams

Website: www.standards.dcsf.gov.uk/primary/mathematicsreview

Email: WilliamsMaths.Review@dcsf.gsi.gov.uk

department for
children, schools and families

*3. The review should specifically make recommendations to inform the development of an early intervention programme for children (age 5 to 7) who are failing to master the basics of numeracy – “**Every Child Counts**” - as recently announced by the Prime Minister.*

Intervention : NNS 'Waves'

Wave 1	Quality First Teaching	Majority
Wave 2	Small group additional support	Just below average
Wave 3	Individual or very small group support with a trained Teaching Assistant	Struggling
	Intensive Numeracy Support on an individual and/or very small group basis with a trained teacher	Lowest attaining

department for
children, schools and families

.....but before we come to Intervention

The first thing to remember is that the best way to reduce under attainment at KS1&2 is to make 'Wave 1' Quality First Teaching even better!

department for
children, schools and families

The Mathematics Specialist and CPD

- Renew the emphasis on CPD required by practitioners and local authorities
- Focused on both in-school activities and third party 'market' provision (including HEIs)
- Responsibility delegated to school level

Phase 1: Strengthen the mathematics expertise at Local Authority level, via a 'refresher' CPD course for all mathematics consultants.



Phase 2: Within five years, each primary school should have at least one **Mathematics Specialist** with deep mathematical subject and pedagogical knowledge, making appropriate arrangements for small and rural schools.

department for
children, schools and families

Intervention : Every Child Counts

- The Every Child Count programme is intended to reach the lowest-attaining 5% - 10% of pupils
- As the statistic below demonstrate, the numbers failing to achieve level 3 at key stage 2 have remained consistent

% failing to achieve level 3 at key stage 2

1998	1999	2000	2001	2002	2003	2004	2005	2006
7	6	6	5	5	6	6	6	6

department for
children, schools and families

So what are the causes?

- Dyscalculia (cf. dyslexia)
- Attitudes to learning
- Social deprivation
- Class sizes
- The genuine challenge in learning mathematics

..... or all of the above?

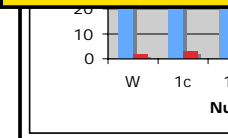
WHAT CAN BE DONE ABOUT IT?

department for
children, schools and families

Intervention

Numeracy Recover

And it's global – 'Maths Recovery' has been used in the USA, New Zealand, Canada, Ireland and the UK



department for
children, schools and families

**So Intervention works.....
.....but questions remain**

- *'Age and Stage' of the child*
- *Intensity and length of intervention*
- *Teacher/child ratio*
- *Costs*
- *Methodology – what works and what doesn't*
- *Classroom absence during intervention*

department for
children, schools and families

Age & Stage?

- *The consensus is 'intervene as soon as the problem is diagnosed' – usually KS1 age 5-6*
- *Numeracy intervention often follows literacy/reading intervention*

BUT

department for
children, schools and families

What do you think?

department for
children, schools and families

.....and the optimum Teacher/Child ratio?

- One to one is favoured (e.g Numeracy Recovery, Maths Recovery)
- But the review has observed 1:3 and 1:4

QUESTION:

IS 1:1 THREE TIMES AS EFFECTIVE PER INDIVIDUAL CHILD AS 1:3? BECAUSE.....

department for
children, schools and families

Intervention : Annual cost estimates £M

But Question : Does 1:1 for 3 days per week produce equivalent benefits to 1:1 for 5 days @ 60% of the costs?

department for
children, schools and families

Intensity and Length of Intervention

- 'Intensive' intervention implies individual or very small groups (i.e. 1 to 3 children)
- Daily for 20 minutes or so is the norm
- One whole term can show dramatic progress e.g Hackney

Academic year	NC Sub-levels/year gain
2004/5	2.3
2005/6	2.94
2006/7	3.15

department for
children, schools and families

So what works and what doesn't?

- *The good news is that all the interventions seem to work – the question is 'how effectively'?*
- *The final report will lean heavily on 'Numeracy Recovery' and on 'Mathematics Recovery' for intensive intervention and perhaps 'Catch-up Numeracy' for the next cohort of struggling children*
- *Resources matter, especially multi-sensory and IT-based; familiar surroundings are also vital*
- *Parents matter even more; their support is vital*
- *The child's commitment matters most of all*
- *So repeated withdrawal from class is an issue*

department for
children, schools and families

And finally.....

The effectiveness of all the above ultimately rests on the ability, experience and specialist training of the intervention teacher.

department for
children, schools and families

Intervention - recommendations

Recommendation 6: *Intervention in Every Child Counts should be led by a qualified teacher, normally with a single child, but in the research and development phase, there should also be investigation of the potential benefits of working with small groups of up to three children.*

Recommendation 7: *Before any intervention programme is implemented, it is vital that the child is fully committed and that the parents or carers are involved and understand the nature of the programme. These issues and the question around the integration of intervention teaching and classroom teaching for pupils should be considered carefully in the research and development phases of Every Child Counts.*