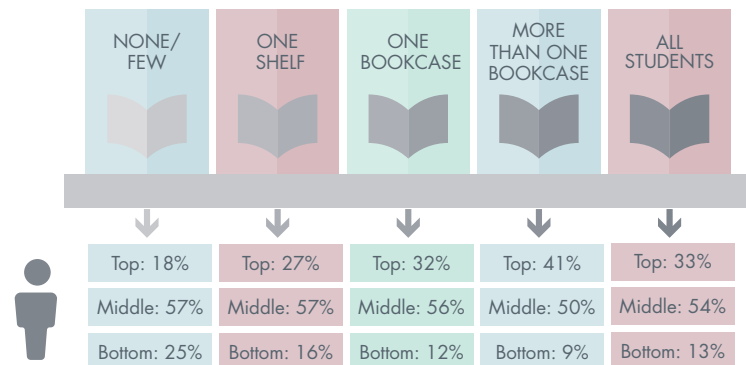


TALKING POINT:

WHAT ARE THE
EFFECTS OF
ATTAINMENT GROUPING
ON MATHEMATICS
LEARNING?

Data from Taylor & Sloan (2016)



% OF PUPILS WITH NUMBER OF BOOKS IN THEIR HOME
in top, bottom and middle (all other) maths sets

IN SUMMARY

- There are many ways to group pupils by attainment; in-class grouping is the most flexible
- Setting and grade repetition appears to replicate existing socio-economic inequality
- Grouping by attainment can have negative effects on motivation and restrict expectations of pupils
- Mixed attainment grouping may increase teacher planning time and be associated with more behavioural problems
- There is mixed evidence on attainment outcomes from different forms of grouping; no overall difference in effectiveness is clear
- Grouping pupils by attainment may suggest a fixed mindset view of mathematical learning

"I want to see setting in every single school. Parents know it works. Teachers know it works."
David Cameron (2006)

'ability grouping appears to benefit higher-attaining pupils and be detrimental to the learning of mid-range and lower-attaining learners' **EEF**

1

The notion of mathematical ability is difficult to define¹. A fixed view of mathematical intelligence is based on the flawed idea that 'innate mathematical ability' is independent of context, cultural knowledge or formal and informal education². The idea of streaming or setting is based on theories of intelligence testing which suggest that ability is fixed and can be objectively tested³.

IMPLICATIONS: The idea that mathematical ability can be reliably measured by standardised testing may be an oversimplification and may not provide a meaningful basis for grouping students

2

There are several ways to group pupils by attainment in schools; *streaming* (known as *tracking* in the US) which is general ability grouping for the majority of subjects; *setting* (*regrouping*) which refers to subject-specific attainment grouping; banding, where one year group is separated into different bands differentiated by attainment (which may then have classes with the bands); and finally *within-class grouping*, where pupils are grouped by attainment within a class³ – and they all have interplay with one another⁴. Within-class grouping allows pupils to be moved most flexibly of these⁵. In some countries grade repetition is also used, although this appears to be in decline in OECD countries and 'may not only be ineffective ... but may also reinforce socio-economic inequities'⁶.

IMPLICATIONS: Grouping by attainment in mathematics can be done at the system, school, year and class level and all have interplay with one another; within-class grouping is the most flexible for pupils.

3

Even after accounting for mathematics performance, students who are socio-economically disadvantaged are much more likely to repeat a grade in countries where this system is in place⁴. It has been suggested that tracking (streaming within schools) also replicates existing social and economic inequities, as socio-economically disadvantaged students tend to be disproportionately grouped into lower tracks⁷ and that the earlier this is done, the greater is the resulting social inequality⁸. Educational reforms in Poland which made selection later for students had a positive impact on mathematics achievement⁹. At age 15, more pupils in the UK are set by mathematical attainment than the OECD average⁸. There are social and equitable benefits to teaching maths in mixed attainment groups at primary level¹⁰.

Setting or repeating a grade are likely to replicate socio-economic inequality for students; delaying the setting process until pupils are older may have a positive effect on mathematics achievement.

4

Students across the range of attainment grouping in mathematics are susceptible to being disaffected because of expectations and limits placed upon their attainment and students who move from mixed-attainment classes to setting report negative repercussions¹¹. Students in lower sets often report negative effects on self-esteem and motivation, although this is hard to measure¹². Students in top sets, particularly girls, often express a wish to move down so that they can slow down and experience the maths curriculum in greater depth¹¹.

Setting/tracking in mathematics can have negative effects on motivation and self-esteem for all levels of attainment.

5

In primary schools, students in mixed attainment classrooms display more positive attitudes towards school in general¹³. Teaching mathematics in mixed-ability groups may also be associated with more behavioural problems¹⁴. Teaching in mixed ability groups, in principle, provides pupils with greater equality of opportunity but could increase planning time for teachers³.

IMPLICATIONS: Teaching mathematics in mixed attainment groups may be associated with more behavioural problems and more planning time for teachers, but supports positive attitudes towards mathematics.

6

Several studies on academic achievement comparing setting with mixed attainment grouping have found no benefits to setting but some positive effects for lower-attaining pupils who are taught in mixed attainment groups¹²; other meta-analyses across both primary and secondary have found no discernible effect at all¹⁵ (although a few studies have shown that, in mathematics, there is some positive effect on attainment for pupils¹⁶). The advantages to setting students are limited and appear to be mostly restricted to higher-attaining pupils¹⁴. The effects of grouping pupils in different ways are 'highly complex' but attainment group should not be a default without enough clear evidence to support it¹⁴.

IMPLICATIONS: The evidence is mixed and meta-analysis suggests overall there is very little difference in attainment when setting is compared with mixed attainment grouping.

Lucy Rycroft-Smith, 2017

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