Mathematics Mastery: Primary

Key Conclusions

1. On average, Year 1 pupils in schools adopting Mathematics Mastery made a small amount more progress than pupils in schools that did not. However, the effect detected was not statistically significant, meaning that it is not possible to rule out chance as an explanation.

2. There is little evidence that the effect of Mathematics Mastery differs between children with different levels of prior achievement.

3. Combining the findings from this study and a second randomised controlled trial of Mathematics Mastery involving Year 7 pupils strengthens the overall evidence for the approach.

4. Given the low per-pupil cost, Mathematics Mastery may represent a cost-effective change for primary schools to consider.

5. It would be worthwhile to track the medium and long-term impact of the approach, in part to assess the degree to which the test used in this evaluation is predictive of general mathematics attainment and performance in high-stakes tests.

What is the impact?

Overall, the findings from this evaluation are judged to be of moderate security. The evaluation was set up as an effectiveness trial, meaning that it aimed to test the programme under realistic conditions in a large number of schools.

The evaluation used a randomised controlled trial design, with schools randomly allocated to begin the programme in 2012 or 2013. Randomisation reduced the likelihood that there were unobservable differences between schools in each group, and increased the security of the findings.

To help assess whether the improvement should be attributed to the programme, it is possible to combine the findings from this trial with other evaluations of Mathematics Mastery. This approach, known as a ‘meta-analysis’, can lead to a more accurate estimate of an intervention’s effect. However it is also important to note the limitations of meta-analysis, and the care needed when interpreting findings based on studies that may vary in important ways. Combining the findings from this study and a second randomised controlled trial of Mathematics Mastery involving Year 7 pupils shows a statistically significant average impact of one additional month’s progress. This combined finding strengthens the overall evidence for the approach, and is discussed in further depth in a summary report on the EEF’s website.

Ninety-two per cent of schools and 82% of pupils who initially enrolled in the trial were successfully followed through to completion. There was a notable average difference in the initial level of attainment of pupils who participated in the programme compared to those in the comparison group, however the evaluators attempted to account for this difference through statistical analysis. Participating schools volunteered to take part in the project, so it is not possible to say whether similar effects would be seen in all schools.

Some caution is also needed since the test used to measure the impact of the intervention focused on some but not all aspects of pupils’ mathematical skills. The extent to which these test results can be generalised to mathematics attainment in the longer term is difficult to assess.
<table>
<thead>
<tr>
<th>Group</th>
<th>No. of pupils (schools)</th>
<th>Effect size (95% confidence interval)</th>
<th>Estimated months' progress</th>
<th>Evidence strength</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics Mastery vs. comparison</td>
<td>4,176 pupils (83 schools)</td>
<td>+0.10 (-0.01, +0.21)</td>
<td>+2 months</td>
<td>✮✮✮✮✮</td>
<td>£££££</td>
</tr>
</tbody>
</table>

How secure is the finding?

On average, pupils in schools adopting Mathematics Mastery made more progress than similar pupils in schools that did not adopt the programme. The small positive effect can be estimated as equivalent to approximately two months’ additional progress. However, the effect was not statistically significant, meaning that it is not possible to determine that it did not occur by chance.

It is not possible to assess at this stage whether the programme had a stronger or weaker impact on pupils eligible for free school meals compared to their peers. There is little evidence that the effect of Mathematics Mastery differs between children with different levels of prior achievement.

However, in a follow-up study Key Stage 2 data will be used to evaluate long-term impact of the programme on different groups of pupils.

How much does it cost?

The cost of the approach is estimated to be approximately £7,460 in the first year for a two-form primary school, including teacher training costs. The average ‘per pupil’ cost of the intervention is therefore around £131 per year, in the first year, with cost per pupil likely to reduce in future years.