
Synthesis

Mastery learningⁱ

Moderate impact for very low cost, based on moderate evidence



+5

Traditional teaching keeps time spent on a topic constant and allows pupils' 'mastery' of curriculum content to vary. Mastery learning keeps learning outcomes constant but varies the time needed for pupils to become proficient or competent at these objectives.

Mastery learning breaks subject matter and learning content into units with clearly specified objectives which are pursued until they are achieved. Learners work through each block of content in a series of sequential steps and must demonstrate a high level of success on tests, typically about 80%, before progressing to the next unit. Those who do not reach the required level are provided with additional tuition, peer support, small group discussions, or homework, so that they can reach the expected level.

How effective is it?

There are a number of meta-analyses which indicate that, on average, mastery learning approaches are effective, leading to an additional five months' progress.

»»» Mastery learning appears to be a promising strategy for narrowing the gap.

The effects of mastery learning tend to cluster at two points; two of the meta-analyses show little or no impact, while the rest show an impact of up to six months' additional progress. This variation implies that making mastery learning work effectively is challenging.

Mastery learning appears to be particularly effective when pupils work in groups or teams and take responsibility for supporting each other's progress (see also Collaborative learning and Peer tutoring). It also seems to be important that a high bar is set for achievement of 'mastery' (usually 80% to 90% on the relevant test). By contrast, the approach appears to be much less effective when pupils work at their own pace (see also Individualised instruction).

Mastery learning may also be more effective when used as an occasional or additional teaching strategy: programmes with durations of less than 12 weeks have tended to report a higher impact than longer programmes. Schools may wish to consider using mastery learning for particularly challenging topics or concepts, rather than for all lessons.

Mastery learning appears to be a promising strategy for narrowing the attainment gap. Low-attaining pupils may gain one or two more months of additional progress from this strategy than high-attaining students. Teachers need to plan carefully for how to manage the time of pupils who make progress more quickly.

Latin American evidenceⁱⁱ

Research on mastery learning is scarce in Latin American and the Caribbean. A study conducted in Chile with a sample of 175 students shows no effect of this intervention on learning outcomes. Using an experimental design, this study concludes that when comparing the gains achieved by the students subject to the experimental strategies, to those achieved by the comparison group subject to conventional instruction, there are no statistically significant differences.

More studies in the region are required to know the expected effect of mastery learning on learning outcomes in Latin America. The current lack of regional evidence means that schools wishing to use mastery interventions should give particular consideration to how they can be implemented in a Latin American context.

How secure is the evidence?

The evidence base is of moderate security. There is a large quantity of research on the impact of mastery learning, though much of it is relatively dated and findings are not consistent. In addition, most meta-analyses examining mastery learning use older statistical techniques that may be less accurate.

Despite these potential limitations, the average effect size is consistent with a more recent study in the US, which found that mastery learning approaches can increase learning by six months or more in mathematics for pupils aged 13 to 14.

What are the costs?

Few additional resources are required to introduce a mastery learning approach. Professional development and additional support for staff is recommended, particularly in the early stages of setting up a programme. This should not result in additional costs if schools use existing staff, but teachers should think carefully about the extra support they will require.

What should I consider?

Before you implement this strategy in your learning environment, consider the following:

1. Implementing mastery learning is not straightforward. How will you plan for changes and assess whether the approach is successful within your context?
2. A high level of success should be required before pupils move on to new content – how will you monitor and communicate pupil progress?
3. How will you provide opportunities for pupils to take responsibility for helping each other with mastering content?
4. Mastery learning seems to be effective as an additional teaching strategy. How will you decide which topics and concepts are appropriate for a mastery learning approach?
5. How will you provide additional support to pupils who take longer to reach the required level of knowledge for each unit?

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