Education Endowment Foundation

SUMMA Innovación en Educación

Synthesis

Metacognition and self-regulation[i]

High Impact for very low cost, based on extensive evidence

+7

Metacognition and self-regulation approaches aim to help pupils think about their own learning more explicitly, often by teaching them specific strategies for planning, monitoring and evaluating their learning. Interventions are usually designed to give pupils a repertoire of strategies to choose from and the skills to select the most suitable strategy for a given learning task.

Self-regulated learning can be broken into three essential components:

- cognition - the mental process involved in knowing, understanding, and learning;
- metacognition - often defined as 'learning to learn'; and
- motivation - willingness to engage our metacognitive and cognitive skills.

How effective is it?

Metacognition and self-regulation approaches have consistently high levels of impact, with pupils making an average of seven months' additional progress.

These strategies are usually more effective when taught in collaborative groups so that learners can support each other and make their thinking explicit through discussion.

The potential impact of these approaches is high, but can be difficult to achieve in practice as they require pupils to take greater responsibility for their learning and develop their understanding of what is required to succeed.

The evidence indicates that teaching these strategies can be particularly effective for low achieving and older pupils.

Latin American Evidence[ii]

There is research conducted in Latin America which shows a clear positive effect between metacognitive strategies in math and reading outcomes: using a quasi-experimental design, one of the studies concludes that there were significant differences in favour of the experimental group in performance of operations with fractions. Another study showed that there was a significant correlation between cognitive style, self-regulation and mathematic achievement among high school students. These findings suggest that when using strategies of metacognition and self-regulation there are higher chances of improving learning outcomes.

It is important to highlight that in addition to a positive relationship between metacognitive strategies and particular outcomes such as writing or reading comprehension, mathematics and the development of students' self-regulation skills. There could also be positive spill over effects on other outcomes when implementing these strategies, because when there is an improvement in one skill (i.e. writing), there can be a related positive effects on another skill (i.e. reading).

The most used methodologies in the reviewed studies were quantitative approaches with a quasi-experimental design. These were mostly focused on metacognitive and self-regulation strategies' impact on students' academic performance. Studies that used qualitative methodologies emphasize the effect of metacognition on more intangible dimensions which are associated with students' personal and cognitive development, for example, in their confidence.

It should be noted that the implementation of these strategies does not seem to be associated with a significant cost, however, when developing them, teachers' role and their abilities to implement them properly must be taken under consideration.

How secure is the evidence?

A number of systematic reviews and meta-analyses have consistently found strategies related to metacognition and self-regulation to have large positive impacts. Most studies have looked at the impact on English or mathematics, though there is some evidence from other subject areas like science, suggesting that the approach is likely to be widely applicable.

The approaches that have been tested tend to involve applying self-regulation strategies to specific tasks involving subject knowledge, rather than learning generic 'thinking skills.

What are the costs?

Overall, costs are estimated as very low. Many studies report the benefits of professional development for teachers, and using an inquiry approach where teachers actively evaluate strategies and approaches as they learn to use them in their teaching.

What should I consider?

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

1. Which explicit strategies can you teach your pupils to help them plan, monitor, and evaluate specific aspects of their learning?
2. How can you give them opportunities to use these strategies with support, and then independently?
3. How can you ensure you set an appropriate level of challenge to develop pupils' self-regulation and metacognition in relation to specific learning tasks?
4. In the classroom, how can you promote and develop metacognitive talk related to your lesson objectives?
5. What professional development is needed to develop your knowledge and understanding of these approaches? Have you considered professional development interventions which have been shown to have an impact in other schools?

SUMMA (2019) Latin American Evidence, Metacognition and self-regulation.