

Brownlow Fold Primary School



Metacognition



Metacognition is an individual's ability to identify their current thought process and select helpful strategies to tackle challenges more effectively. It is often divided into three parts – before, during and after a task. Research suggests that metacognition is one of the most effective and cost efficient ways to help pupils make gains in their learning.

What is metacognition?

Metacognition is the ability to reflect and critically analyse how you think. Essentially, it is best thought of as having self-awareness that enables individuals to monitor, reflect and analyse their performance. Pupils who can do this are more likely to learn more efficiently and more effectively and therefore make additional progress. Research, much of which has been evaluated by the Education Endowment Foundation, suggests that metacognition is one of the most effective and cost efficient ways to help students make gains in their learning.

Metacognition is much more than just 'thinking about thinking' or 'learning how to learn'...

The science behind metacognition

The science behind metacognition (especially in education) has been extensively researched, as it covers a very broad area. Metacognition can be enhanced by improving your ability to predict how well you will perform on a task. Recent research has revealed that those with strong metacognitive abilities have more grey matter in the part of the brain known as the anterior prefrontal cortex. Researchers still remain unsure as to whether the prefrontal cortex develops as individuals become better at introspection, or whether individuals who are better at introspection have greater development in this area in the first place. However, this does not mean that those with a lower functioning prefrontal cortex cannot demonstrate metacognitive abilities; everyone can improve.

The science is now clear – developing metacognition leads to better learners.

Metacognition in schools

Metacognition has become a particularly hot topic in education since the Sutton Trust Education Endowment Foundation Toolkit highlighted it as one of the most cost-effective strategies to help students improve their learning. Being aware of this process and its impact on the cognitive development of children and young people can actively improve their abilities in a range of different subjects. Developing metacognitive skills encourages independent learning, resilience and grit in children. This is because it helps students identify what does and does not work as well as helping them

deduce what they would do differently next time if they experience a setback, failure, or make a mistake.

On average, students who develop metacognitive skills have been found to make 7 months additional progress.

How to develop metacognition in your classroom

Teachers can encourage the development of metacognition in the classroom by giving pupils the opportunity to use metacognitive strategies at key stages of a task. This ensures that they improve both their self-awareness and ability to choose effective thought processes in the future. One way to do this is to break down the strategies into the three stages: before a task, during a task and after a task. Coincidentally this approach is similar to the 'Plan, Do, Review' cycle that has been adopted by many high performing sports teams. Put simply, planning happens before a task, monitoring takes place during it, and reviewing occurs afterwards.

Planning Before a task most people understand that preparation is key, but whether they know how to best prepare is another matter. Good preparation involves: - thinking about similar tasks; - setting clear goals; - working out how long a task may take to complete; - selecting appropriate strategies. Through carrying this out individuals are able to allocate their effort more efficiently.

By establishing clear processes before, during and after a task, students will get into the habit of self-reflection.

Monitoring during a task

Pupils need to assess how they are progressing on a task, to ensure they are on the right path. This self-monitoring is made easier if they spend time on the planning stage and know exactly what they want to be working towards.

Reviewing after a task

After completing a task, students should spend time reflecting on what went well and what they would do differently next time. This ensures that they are learning as much as possible from the experience and as such, are developing and improving.

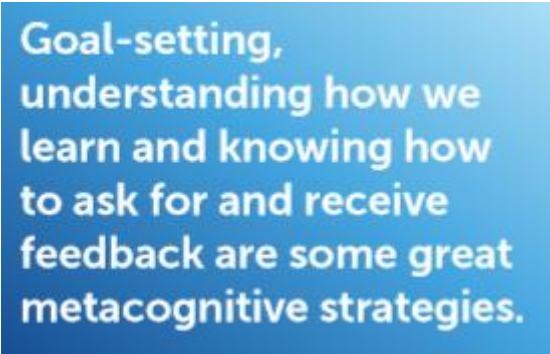
What are metacognitive strategies?

Metacognitive strategies improve pupils learning by improving their self-awareness and selecting the appropriate strategy. They often fall into one of three categories: planning, monitoring and reviewing, which are representative of the different stages needed to successfully complete a given task.

Metacognition, goal-setting and reviewing goals is one of the most significant ways that a pupil can make and monitor progress. This can be done by setting both short- and long-term goals, ensuring they are both challenging and realistic, and also placing a strong emphasis on skill development as well as on outcome.

Metacognition and goal-setting

Setting and reviewing goals is one of the most significant ways that a pupil can make and monitor progress. This can be done by setting both short- and long-term goals, ensuring they are both challenging and realistic, and also placing a strong emphasis on skill development as well as on outcome. Metacognition and Feedback can be one of the best ways to help someone improve their learning, yet research suggests that 38% of feedback interventions actually do more harm than good. Making feedback an integral part of the learning process is a key way to encourage metacognition in the classroom. Teachers should create an environment in which pupils appreciate that feedback from the task at hand is not a judgement on who they are as a person.



Goal-setting,
understanding how we
learn and knowing how
to ask for and receive
feedback are some great
metacognitive strategies.

Metacognition and self-questioning

Metacognition can be enhanced if pupils know how to talk to themselves in a helpful and constructive way. Asking yourself good questions is one way to encourage this. One fascinating study looked at this by dividing participants into two groups. One group asked themselves questions ("Will I do well?"), whilst the other gave themselves declarations ("I will do well"). When these groups were then faced with a set of challenging anagrams, the group who had asked themselves questions answered significantly more than their peers in the other group. So what are the best questions to ask yourself? Here are our top 5:

1. What do I need to do first?
2. Why is this true?
3. How can I get better?
4. Who can I ask for help?
5. Where do I do my best work?

Teaching metacognitive strategies within each subject is essential - metacognition in Maths or in French may look different from each other.

Metacognition and self-reflection

Self-reflection enhances self-awareness, as it makes it easier to be able to monitor one's performance (which is a central tenant of metacognition). Benjamin Franklin reportedly kept a journal where he would reflect at the end of each day what he did well and what he could do better. This process made it easier for him to form more effective habits. Evidence suggests that keeping a diary helps improve a range of factors, which include, but are not limited to, self-awareness, ability to manage nerves, mental well-being and metacognition. Diary keeping helps people in all walks of life and it's a really easy way to improve your well-being. Just as Benjamin Franklin did, by writing down your targets, reflecting on how well they went or consciously trying to improve them for the next day, you give yourself the best chance of success.

Encouraging students to keep a diary is one of the simplest ways to improve self-reflection.

Applying metacognition to different subjects

Improving metacognition is something that is helpful across all subjects, as it looks at the way that people learn rather than what they learn. Therefore, teachers should encourage pupils to use metacognitive strategies across subjects, as the more they practice, the more effective they are. Although some general trends exist, it is easier to apply effective strategies if one knows the context they are applying it to. For example, here's how you can use metacognition to solve a maths problem (although this process is not unique to helping with maths)

Planning: The pupil thinks about similar maths problems they have solved before and about the strategy, they used.

Monitoring: The pupil then assesses the progress they are making in solving the problem and asks questions to their teacher if they need help.

Reviewing: The pupil considers whether they chose the best approach or strategy to solve that particular problem.