Metacognition : Tree of thinking

How could you develop these within your subject?

Successful pupils are highly metacognitive. Teachers can support pupils to improve their metacognitive practices. In order to do this, teachers must first understand the components and inter-related nature of metacognition. This can then be used to entwine metacognitive development with subject learning.

- Learning about how people learn
- Developing an awareness of one's own learning processes
- Monitoring one's learning strategies and assessing their effectiveness (this is called self-regulation, self-monitoring, or self-assessment)
- Consciously managing one's own motivation and attitudes toward learning
- Making adjustments to one's learning strategies when appropriate

Pupils need to be unpicking, analysing, and reflecting on their learning. Teachers need to be supporting the development of the internal dialogue that takes place throughout the learning process and explicitly teaching pupils strategies to support learning in the subject being studied.

1 Mindset and beliefs

Some children, and adults, believe that many of their qualities are fixed at birth and that they are born with a set of 'gifts', 'talents' and 'resources' and an intelligence quotient that cannot be changed. In contrast, some children, and adults, believe that these traits are not simply a 'hand you are dealt', but that they are a starting point for development. This growth mindset is based on the belief that your basic qualities are things you can cultivate through your efforts and with the support of others, e.g. teachers and peers.

Developing a growth mindset helps pupils to lay the foundations needed to be more metacognitive. The two work hand-in-hand. You first need to believe 'change can be achieved' before trying to make those changes. You first need to understand that feedback can help you to improve, before you are ready to listen to the advice.

2 Internal dialogue and self-questioning

Successful learners ask themselves complex and comprehensive questions before they start a task, during the task and after the task. They literally ask themselves thousands of questions, some of which are processed almost simultaneously and others that are pondered on. These questions focus on pupils thinking about their thinking. This is at the heart of metacognition. Pupils often don't realise that not everyone has the same internal dialogue when faced with a learning task. Your more successful learners will undertake deeper, wider and more complex internal questioning that allows them to change and adapt as they learn.

3 Accurate self-assessment

The starting point of learning something new is knowing what you already know and don't know. It sounds simple, but often both children and adults have an inaccurate judgement as to their own competence. Where to start, what to focus on, and how long to spend on a task are all influenced by the pupils' self-assessment. So is the amount of time and energy they spend on a task before they quit. In a mastery approach to learning, getting to full understanding is the goal – making self-assessment a critical tool.

4 Goals

Linking in to accurate self-awareness is the ability to set goals and to consider how these might be achieved. The mindset provides the high aspirations, but this can lead to frustration if it is not also matched with the skills of learning in order to be able to reach the goal! For some pupils, learning appears to be a mystery. Their techniques are lacking and their approach unsound. Improving their metacognitive skills will help them achieve higher goals.

5 PLAN

"What do I know already?", "What is the most important part of the task?", "What equipment might be useful?", "How long will the task take?", "When have I tackled something like this before?"

Successful learners ask themselves questions that help them to plan their approach, they seek out examples of what a good quality solution looks like, they use success criteria to guide them, they break down tasks into chunks, and they see planning as a key element in achieving success, etc.

6 MONITOR

"Do I need to re-read that last paragraph?", "Am I on the right track?", "Is my strategy working?", "Do I need to speed up?", "Do I understand this?", "Do I need to read the work I have completed so far before moving on?", "Where did I go wrong last time?"

Teachers often find helping pupils to extend their monitoring dialogue the most difficult aspect of metacognition to develop. Successful learners ask themselves questions and modify their actions constantly as their learning is evolving and the task is progressing.

7 CHECK

"Was my strategy successful?", "Could I have approached the task in a different way?", "How could it be improved?"

Successful learners evaluate **their approach** and **strategy** as well as the 'end product'. They review the elements of the task systematically and in-depth. How do you develop the reflective skills of pupils? How do you help them to move from simple to more sophisticated forms of reflection? Do they reflect on their ability to reflect?

8 Metacognitive knowledge of TASK

Task information can be plentiful or scarce, familiar or unfamiliar, reliable or unreliable, interesting or not, organised in a clear or unuseable fashion. Tasks can be demanding, require creativity, need a problem solving approach, be completed in one sitting or require a longer term approach. Successful pupils have built up knowledge and understanding of different types of task– for example, knowledge that it will take more time to read, comprehend, and remember a technical article than it will a similar-length passage from a novel. They can assess the variables and use this to predict the likely success in achieving the goal and consider what strategies are likely to work in this specific situation.
Pupils need to develop an understanding of different types of task they encounter within each subject and have the opportunity to analyse them, break them down and consider the variables involved.

9 Metacognitive knowledge of STRATEGY

Successful learners are aware of their strengths and weaknesses in relation to the task. They have an understanding of what might be more difficult to solve, comprehend, and remember, and how this compares to other pupils' abilities to carry out these tasks.
Successful pupils are aware of a range of strategies that can be applied, e.g. different strategies for memorising, different strategies for generating ideas, different strategies for note taking. They can select the best strategy for the task. They also modify strategies as they are being used, stop using unsuccessful strategies and are prepared to try new strategies. Some pupils find giving up a current 'preferred' strategy, even if it is not the most effective for the task they are undertaking, very difficult. When a pupil repeatedly receive a low score in an activity, such as a spelling test, do they say 'oh, perhaps I need to change my strategy'or do they jump to the conclusion that they will never improve their ability in spelling without considering strategy choices or their approach to success?

10 Subject specific thinking

What does thinking in a subject look like? What is scientific thinking? What is historical thinking? Pupils need to know and develop subject discipline thinking and be able to reflect on their own knowledge and understanding of this.

They need to consider their thinking in relation to decision making, revision, problem solving, creative processes, etc.

Metacognition is about explicitly thinking about how you are thinking like an historian, a musician, an artist, a designer, a writer, etc.

www.ictwand.com Vicky Crane