Metacognition: The Foundation to Good EF Skills

by Surina Basho, Ph.D., Director of Research

What is metacognition? Often metacognition is defined as "thinking about thinking," but what does this really mean?

Metacognition is when a person has awareness or insight into what they know or don't know (about a task, a topic, their performance) and then uses this information to control and manipulate their own cognitive processes accordingly. "Driving their own brains" is a metaphor used to help younger kids understand metacognition (Wilson, 2014).

A Framework for Metacognition

Metacognitive "knowledge" (Flavell, 1979) can be divided into three categories, which may be a useful framework for identifying where a student needs support:

1. **Person variables,** or what one knows about their own strengths and challenges in learning, in processing information, and in different kinds of tasks. "I have attention difficulties, so I often get distracted when doing homework," or "I have working memory weaknesses, so it is difficult for me to remember my assignments in my head."

2. **Task variables,** or what one knows about the task (or doesn't know). For instance, the processing demands (e.g., the big picture/framework of a task, materials that will be needed, steps to take to complete the task) and the expectations around the task (e.g., when does it have to be completed? What quality is expected?). "To write any essay there are four main steps: brainstorm, organize, write, and edit," or "A draft does not need to be perfect, but the final needs to have no mistakes," or "I am not clear on what the steps are to complete this project."

3. **Strategy variables:** The strategies that one can use to complete the task successfully. This includes individualized strategies that work specifically for the student. "Writing notes during class actually helps me to pay more attention to what the teacher is saying," or "It is difficult for me to manage taking notes and paying attention at the same time in class, so I will ask my teacher for prepared notes so that I can follow along better."

Metacognition is the Foundation to Good EF Skills

Metacognition and Executive Functions (EFs) are two sides of the same coin. EFs are a set of skills

that help us manage our cognition (learning), behavior (what we do), and emotions (how we feel) to actively solve problems/situations, complete tasks, and achieve goals. Having good insight into what one knows or doesn't know is the building block for effectively using one's higher-order EF skills.

Where does Metacognition Break down for Students with EF Difficulties?

Their perception is different: "I turned in my homework." Many students with EF difficulties perceive or interpret situations differently than people with typically developing EFs. For instance, a student will say they turned in their homework even when they didn't. However, when you have the student go back and think through what happened (i.e., that they brought their homework to school but didn't remember to take it out and turn it in because their teacher didn't ask them to) they perceive that they did it because they remember the part about bringing their homework to school or they thought it wasn't due because the teacher didn't ask for it.

Cause and effect disconnection: "I got a C on my test…I don't know why." This is where students with EF difficulties get stuck the most. They can't identify or pinpoint the specific cause. For example, they get their test grade back and they think, "I got a C because I didn't try hard enough" instead of, "I got a C because…my study strategies were not effective, I didn't understand the information as well as I thought I did, I didn't give myself enough time to study for the test," or "I studied the wrong information."

They do not understand their own cognitive and learning profiles: "I have ADHD, so what does that really mean?" Many students with EF deficits and co-morbid diagnoses (e.g., ADHD, learning differences, depression, anxiety, etc.) do not fully understand how their differences impact their daily functioning and learning. For instance, if a student has ADHD and EF deficits, they may have difficulty sustaining attention and have working memory (WM) weaknesses. Therefore, when they are in class, they may zone out or get distracted, which leads to missing information presented in class and ultimately not understanding the material. Once a student gains knowledge about their own strengths and challenges they can use this knowledge to build effective strategies.

Build Metacognition by Tapping into their Frontal Lobes

Ask meta-questions. These are questions that help the student to think about their thinking. These are not meant to make the student engage in judgments about themselves or to place blame:

- "What strategy could you use to help keep you focused during homework?"
- "Do you think you need a strategy for getting started?"
- "Where are you getting stuck on the assignment?"

Note: Some students may not be able to identify the answers to these meta-questions. If this is the case, ask the question and give possible answers that they can choose from.

Encourage your child to engage in self-monitoring. This can be a difficult area to approach with students because it can be challenging for them. You can ask, "How do you think your progress is

going? Do you feel stuck? Do you feel you understand what you are reading?" Students can ask themselves, "Am I spacing out or getting distracted? Am I on track? Do I need to slow down? Do I understand what I am reading?"

Model metacognition by problem solving through self-talk. Verbalize your thinking out loud for your child. "How are you planning the next step, thinking through a problem, adjusting to a situation in real time?" Verbal skills are important for developing self-organization.

Guide them through problem-solving.

> Step 1: What is the current issue? Example: missing assignments.
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> Step 2: Identify the cause. What do we think is leading to the missing assignments?
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> Step 3: Co-create a strategy. Now that we know the cause, what strategy can we use to help?
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> Step 4: Try the strategy. Let's try the strategy for a week and see how it goes.
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> Step 5: Reflect on the strategy. Ask them to reflect on whether the strategy worked or not, is it effective?

If things are working, give them lots of praise for using a strategy and working on the issue. If things have not worked, then go back through the problem-solving process with them and help them identify why the strategy did not work.

Be patient. Metacognition is something that many students with EF difficulties struggle with. It is a long-term process to develop effective metacognition and EF skills. The more that you can encourage them to tap into their frontal lobes (and not yours), the better.

References

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