

## Metacognition: How to Make Learning Even Smarter

*“So few people are really aware of their thoughts. Their minds run all over the place without their permission, and they go along for the ride unknowingly and without making a choice.”*

~ **Thomas M. Sterner**, *The Practicing Mind: Developing Focus and Discipline in Your Life*

If we can define learning as a process of understanding concepts and then using this understanding to solve problems, then metacognition plays a central role in how well we can learn. So, what is all this hype about metacognition? Well, most common definitions of the term “metacognition” refer to it as “thinking about thinking.” Unfortunately, that definition doesn’t really make a lot of sense to most of us. To put it simply, metacognition, a term coined by John Flavell of Stanford University as far back as 1976, refers to an awareness of one’s own knowledge. When we develop knowledge about how we learn and gain the ability to apply this knowledge, we become better able to apply learned concepts to solve problems. So, the processes we use to monitor, plan and assess our understanding, learning and performance comprise our metacognitive abilities.

The good news for teachers and educationists everywhere is that metacognitive abilities can be taught and developed. Research also shows that such abilities can be identified and measured as well. As a teacher and mentor, you can teach how to hone one’s mental abilities to recall information more effectively, make association and compare different pieces of information, interpret information and make inferences and so on. From planning how to tackle a specific learning goal to using just the right strategies to solve a specific problem and even self-monitoring and self-assessing one’s comprehension of concepts and then self-correcting accordingly to ensure progress can be invaluable skills for every student.



### Metacognition and its Different Aspects

Most researchers talk about metacognitive abilities in terms of two aspects – knowledge and regulation. Metacognitive knowledge basically refers to an awareness of one’s own cognitive processes and the different ways in which one learns and solves problems or even assesses the needs of a specific learning task. On the other hand, metacognitive regulation involves the knowing how to adjust one’s learning strategies

for better comprehension and acquisition of concepts, including information management, planning, monitoring comprehension and evaluating progress towards one’s learning goals.

John Flavell, the father of metacognition, described metacognitive knowledge in terms of three aspects:

1. **Person variables:** This is the ability to recognize one’s own strengths and limitations while processing information and learning.
2. **Task variables:** This is the ability to evaluate what one knows as well as the demands of the task at hand. This means that the student should be able to assess how much time and

what type of skills will be needed to read through and comprehend a particular learning task.

3. **Strategy variables:** These include the strategies that the individual knows that s/he can come up with to complete the task at hand successfully. So, while learning a particular technical concept, one could look at the existing knowledge related to the concept, learn the meaning of unfamiliar terms and even re-read specific parts of the text before it actually makes sense.

### Teaching Such Skills for Better Learning

*“It is not your business to teach him the various sciences but to give him a taste for them and methods of learning them when this taste is more mature. This is assuredly a fundamental principle of all good education.” ~ Rousseau, 1762*

Research over the past few decades has provided irrefutable proof that the use of metacognitive skills helps improve learning. According to an article on *Promoting Student Metacognition*, written by Kimberley Tanner and published in 2012 in the Life Science Education journal of the American Society for Cell Biology, there are some specific activities that teachers can assign to students to enhance learning:

- **Pre-assessments:** Through this, the teacher encourages students to examine their thinking – what do they already know about the concept being learned that could help comprehend the learning assignment better.
- **The Muddiest Point:** Helping students identify parts of the learning material that confuses them.
- **Retrospective Post-assessments:** Encouraging students to recognize the change or evolution in their concepts or how their thinking about a specific topic has changed over time and with learning.
- **Reflective Journals:** Teachers need to provide students a forum to monitor their thinking. This is where the students can ask relevant questions of themselves, such as did their learning ensure that they will recall concepts when needed? What learning strategies worked and what didn't, therefore what should be changed for the next learning assignment?

The best course of action for teachers and educationists formulating study content, therefore, is to integrate metacognitive activities into the learning program and instruction.

### How to Incorporate Metacognition in Instruction

*“To make an individual metacognitively aware is to ensure that the individual has learned how to learn.” ~ Garner, 1988*

Instruction can be modified to inculcate and encourage the use of metacognitive skills for improved learning. Some things that can be included in the teaching content include:

- Encouraging students to develop a plan before taking on a learning assignment, such as reading related material for better comprehension.
- Teaching students to monitor their understanding of concepts. This helps students evaluate how well they have understood a concept and where strategies need to be tweaked to improve comprehension.

- Teaching students the value of and the method to evaluate their comprehension on completion of the learning assignment.

Essentially, the instruction can be moulded to include application questions that students can ask themselves to review and monitor learning, as well as practice questions that encourage students to apply their understanding. While many of us might be taking care of most of these aspects without actually thinking of metacognition, a conscious effort to encourage metacognitive thinking will inculcate the right study habits and better learning in students. All an educator needs to do is to incorporate teaching of metacognitive learning into their instruction and learning content.

*“Teaching children to become effective thinkers is increasingly recognised as an immediate goal in education.” ~ Robinson, 1987*

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