

Metacognition: How to Make Learning Even Smarter - by Harish Agrawal, Director, Product Development, Magic Software

"Teaching children to become effective thinkers is increasingly recognised as an immediate goal in education."

~ Robinson, 1987

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/EINPresswire.com/ -- If we define learning as a process of understanding concepts and use this to solve problems, then metacognition plays a central role in how well we learn. So, what is this hype about metacognition? Most common definitions of the term "metacognition" refer to it as "thinking about thinking." Unfortunately, that definition does not



Smarter learning

always make sense to all. 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 a teacher and mentor, you can teach the honing of one's mental abilities to recall information more effectively, make associations and compare different pieces of information, interpret information and make inferences. From planning how to tackle a specific learning goal to using just the right strategies to solve a specific problem, to self-monitoring and self-assessing one's comprehension of concepts and then self-correcting accordingly to ensure progress, can be invaluable skills for students.

Metacognition and its Different Aspects

Researchers talk about metacognitive abilities in terms of two aspects – knowledge and regulation. Metacognitive knowledge basically refers to awareness of one's own cognitive processes and the different ways in which one learns and solves problems or assesses the needs of a specific learning task. While metacognitive regulation involves 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, Father of Metacognition, described metacognitive knowledge as:

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 and the demands of the task at hand. This means that the student should be able to assess the amount of time and the type of skills needed to read and comprehend a particular learning task.

3.Strategy variables: These include the strategies that the individual can come up with to complete the task successfully. 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 Kimberley Tanner in her article 'Promoting Student Metacognition', published in 2012 in the Life Science Education journal, for the American Society for Cell Biology, there are some specific activities that teachers can assign to students to enhance learning:

- Pre-assessments: Here the teacher encourages students to examine their thinking – what 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 could confuse them.
- Retrospective Post-assessments: Encouraging students to recognize the change in concepts or how their thinking about a specific topic has evolved over time and with learning.
- Reflective Journals: Teachers need to provide students a forum to monitor their thinking. This is where students can ask relevant questions like: Did their learning ensure recall of concepts when needed? What learning strategies worked? What did not? Therefore, what should be changed for the next learning assignment?

The best course of action for teachers and educationists formulating study content, 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. Things that can be included in the teaching content include:

- Encouraging students to develop a plan before taking on a learning assignment, like reading related material for better comprehension.
- Teaching students to monitor their understanding of concepts, helps students evaluate how well they have understood 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, besides practicing questions that encourage students to

apply their understanding. While many take 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.

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About Magic Software: Magic, a K-12 EdTech major, provides consulting, platforms and tools, product design and development, and product testing solutions to publishers, technology companies and content providers. Its cloud-based mobile learning and distribution platform MagicBox, and digital curriculum products developed for publishers are used in schools in North America, UK, Europe, Australasia and Latin America. Truly reinventing learning while bringing it to life!

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