

Promoting Learning

by Dr. Marvin Marshall

Metacognition

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Thinking about Thinking Is Essential for Learning

Metacognition is awareness of one's own thinking.

Metacognition is essential for developing critical thinking skills. The objective of metacognition is to have the learner become aware of his own cognitive processes and to become involved in understanding what he is thinking as he proceeds. The student is reflecting to see whether or not what he or she is doing is working.

Reflect on whether or not you hear yourself talking to yourself while solving this problem: **How much is half of two plus two?**

When we hear ourselves thinking, we are metacogitating. But do not assume that every student does it. For example, a student works on and solves a problem, and the teacher says, "Tell us how you solved that problem." And the student says, "I don't know; I just did it." This shows a lack of metacognitive awareness.

Students often attempt to solve a problem or analyze a situation without thinking. The answer may be so obvious that they just say it. There are many situations that can be dealt with successfully in this way. However, a problem arises when this approach does not work because the task has become too complex. For students who are habituated to thinking at the perceptual level, and who have not developed cognitive tools, such problems appear to be "too much" for them to deal with, and they just give up. **The inability to take charge of one's own cognitive processes is a very large part of the at-risk/dropout problem--as well as discipline problems.**

Although mastering subject matter is important, strategies to increase thinking power are equally important. Schooling today emphasizes "correct" answers and single solutions. But in so many situations, it is not how many correct answers one knows, but rather how one proceeds when one does

not know--as when confronted with problems, dilemmas, enigmas, and situations to be addressed, the answers to which are not immediately known or readily available. This is becoming truer every day in the rapidly changing information age.

When faced with a task, most of us just start doing that which seems to be the proper thing, giving thought to what we do **only if it becomes necessary**. For example, when driving an automobile, we stop at a red light “automatically” because we have habituated the process. If we encounter a flashing red light, a situation that is not quite so common, we then start thinking. In school, the difference between those who succeed in doing the more complex tasks of cognition and those who do not is that successful students have learned to be conscious of what they are doing. They do not act impulsively or intuitively when it is inappropriate to do so.

As soon as a routine has been developed, the amount of thinking is reduced. This is the time to introduce a more difficult or complex task. Conscious thinking is forced back into play. This oscillation between a routine way of dealing with a task and the development of different approaches to deal with more complex tasks increases thinking power.

A good way to build awareness and improve thinking skills is to **have students talk about what is going inside their heads when they are approaching a task**, instead of focusing on their getting the right answer. Practice with the intent of keeping the thinking process going--to sustain “openture” rather than coming to closure.

Ask questions such as, “What was going inside your head to come up with that answer?” “What was your strategy?” “How else could you have done that?” **Talking about thinking begets more thinking**. Teachers can model their own metacognition process to help students become more aware.

Still another approach is to ask questions such as, “Give me three reasons why this is the wrong choice.” In answering such a question, students learn to make comparisons--one of the essential cognitive functions. In the process, students not only learn to develop criteria for making comparisons, they **become aware** that they are doing so.

Notice that asking questions, which encourage thinking and reinforces understanding, is more effective than the common approach of giving praise. Specific feedback is most useful. For example, rather than saying to a student, “That is a good job,” the teacher would say, “You seem to be

getting the hang of it, don't you think? Would you like to show me another example?" The student learns that he is gaining competence.

Rather than focusing on judging and ranking, the teacher becomes a mediator who helps students draw useful lessons from their own experiences. This includes understanding **why** success was attained or **why** there was a failure and what to do about it. The objective of metacognition becomes--not one of testing for information--but rather of gaining insight into how the student is reasoning.

Ideas for implementing the discipline system that promotes both responsibility and learning using concepts of **proaction** (Stephen Covey), **noncoercion** (William Glasser), **collaboration** and **empowerment** (W. Edwards Deming) and **hierarchy** and **autonomy** (Abraham Maslow) is described at <http://www.MarvinMarshall.com>

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