



Climbing the Metacognitive Staircase

The human species is known as *Homo sapiens, sapiens*, which means “a being that knows their knowing” (or maybe it’s “knows *they are* knowing”). What distinguishes humans from other forms of life is our capacity for metacognition — the ability to examine our thoughts while we engage in them.

Occurring in the neocortex, metacognition, or thinking about thinking, is our ability to know what we know and what we don’t know. It is our ability to plan a strategy for producing what information we need, to be conscious of our steps and strategies during problem solving, and to reflect on and evaluate the productiveness of our thinking.

When confronted with a problem, we develop a plan of action, we maintain that plan in mind over a period, and then we evaluate the plan upon completion. Planning a strategy first helps us consciously track the steps for the entire activity. It facilitates making temporal and comparative judgments, assessing the need for more or different activities, and

monitoring our interpretations, perceptions, decisions, and behaviours. An example would be what superior teachers do daily: Develop a teaching strategy for a lesson, keep that strategy in mind throughout the instruction, reflect on the strategy to evaluate its effectiveness, and modify the plan for future applications.

Students do not progress from “awareness of our thinking” to getting into the habit of good thinking in one easy step. It takes practice, reflection, evaluation and persistence. Teachers can help students become more metacognitive by inviting students to be

aware of, reflect on, talk about and evaluate their thinking. Learning to think about their thinking can be a powerful tool in shaping, improving, internalizing and habituating their thinking.

Think of this progression as a staircase. Each step represents progressive levels of metacognition that facilitate the internalization of skillful-thinking habits and their self-directed use by good thinkers. I represent the staircase as:

“Occurring in the neocortex, metacognition, or thinking about thinking, is our ability to know what we know and what we don’t know.”



MAKING A COMMITMENT TO BETTER THINKING: INTENTIONALLY TAKING CHARGE of my own thinking in future situations.

APPLYING MY THINKING: PREDICTING AHEAD to times and situations when this type of thinking would be useful.

EVALUATING MY THINKING: MONITORING the effectiveness of the strategy--before, during and after.

THINKING STRATEGICALLY: KNOWING THE STRATEGY that I am going to use/are using/have used as I do/did the thinking.

BECOMING AWARE OF MY THINKING: NAMING the kind of thinking I am going to do/am doing/have done.

The Metacognitive Staircase

Becoming Aware of our Thinking

The first step is being aware of the kind of thinking we are doing by recognizing, identifying and labeling our thinking. Are you comparing, contrasting, hypothesizing, predicting, evaluating? Most of us understand those terms, and, if our students don't, we can teach the terms to them through repeated explicit use, by formal introduction of standard thinking terminology and by instruction in the process steps — what you do when you compare, contrast, summarize, predict, etc.

Thinking Strategically

Climbing up on the second step of the staircase involves not only knowing the name of the type of thinking we are doing, it involves knowing the thinking strategy we are using. We can describe how and why we are doing this kind of thinking. We can analyze the ingredients, the sequence of steps of the process of thinking we are using. We can link this thinking process with others we intend to use. When we are on this stair step, we can give reasons why we are using this thinking skill, what clues in the problem

prompted us to use it and what questions we might be trying to answer as a result.

Evaluating our Thinking

On step three, the thinking shifts from descriptive and analytical thinking to evaluative thinking and critical thinking. We must monitor the effectiveness of the strategy to determine if it is producing the effect we desire: Is this a good and effective way to do this kind of thinking? We must apply a set of criteria to judge the effectiveness of our thinking strategy.

Applying our Thinking

On step four, the thinking becomes predictive. We are sensitive to situations in which this kind of thinking may be employed again. We predict the consequences of such thinking and are aware of times when this type of thinking is not appropriate. We plan how we will apply this kind of thinking in the future when we need it based on everything we have done so far.

Making a Commitment to Better Thinking

At the top of the staircase, we take matters into our own hands, and this involves committing ourselves to this way of thinking. We decide to deliberately follow the steps we think will work best for us in the future. We gather and evaluate data about the effectiveness of this kind of thinking and modify our thinking accordingly. We voluntarily set goals for ourselves with the intention of employing this kind of thinking the next time it is called for. When we follow this thinking plan on a specific occasion, we are taking charge of our own thinking.

Prompting the Climb up the Metacognitive Staircase

Keeping the staircase in mind, the teacher can invite students to think at each level by posing invitational questions. Following are examples of how a teacher might prompt students to ascend the metacognitive staircase before, during and after the thinking task is completed. ►

Up The Metacognitive Staircase: Questions That Prompt The Climb

STEP	METACOGNITIVE LEVEL	TEACHER POSES SUCH QUESTIONS AS...
5th	Making a Commitment to Better Thinking	“When else in (this course) (school) (life) (work) might this strategy prove useful?” “Why is it important to you to.....?” “What goals are you setting for yourself to become more mindful of your own thinking?”
4th	Applying our Thinking	“How might you do this thinking next time?” “As you anticipate similar problems in the future, what insights might you carry forth about how to think them through?” “What makes you think that strategy will work in this situation?” “What has worked for you in the past that you might draw upon?” “When else in (this course) (school) (life) (work) might this strategy prove useful?” “What situational cues will remind you to think this way?”
3rd	Evaluating our Thinking	“How well did your strategy work for you?” “How do you know your strategy is working?” “What corrections, alterations in your strategy are you making as you.....?” “What will you pay attention to while you are solving this problem to let you know your strategy is working?” “What alternative strategies might you employ if you find your strategy is not working?” “Why do you think this is the best strategy?” “What has worked for you in the past?” “What makes you think that strategy will work in this situation?” “By what criteria will you judge that this is the best way to approach this problem?”
2nd	Thinking Strategically	Going to Use “What approaches will you employ...?” “As you approach this problem, how will you try to solve it?” Are Using: “As you consider the steps in the skillful problem solving process, where are you.....?” “What patterns are you noticing in your approach to solving this problem?” “What questions are you asking yourself?” Did use: “As you reflect on your problem solving strategy, what did it involve?” “What led you to this decision to.....?” “What questions were you asking yourself?”
1st	Becoming Aware of our Thinking	“Describe the kind of thinking you will be / are / were doing.” “What type of thinking was going on in your head when....?” “While you were thinking about_____, what mental processes were you using?”

We can think about our own thinking in a variety of ways. The metacognitive staircase is a framework for a series of repeated experiences with metacognition that helps students become more reflective

and able to take charge of how they engage in the thinking processes. Teaching students to think more critically, creatively and skillfully should also include the goal of thinking independently and

spontaneously. Teachers helping to develop students’ habits of ascending this staircase will help them achieve this bigger, even more important goal as they make their way through life.