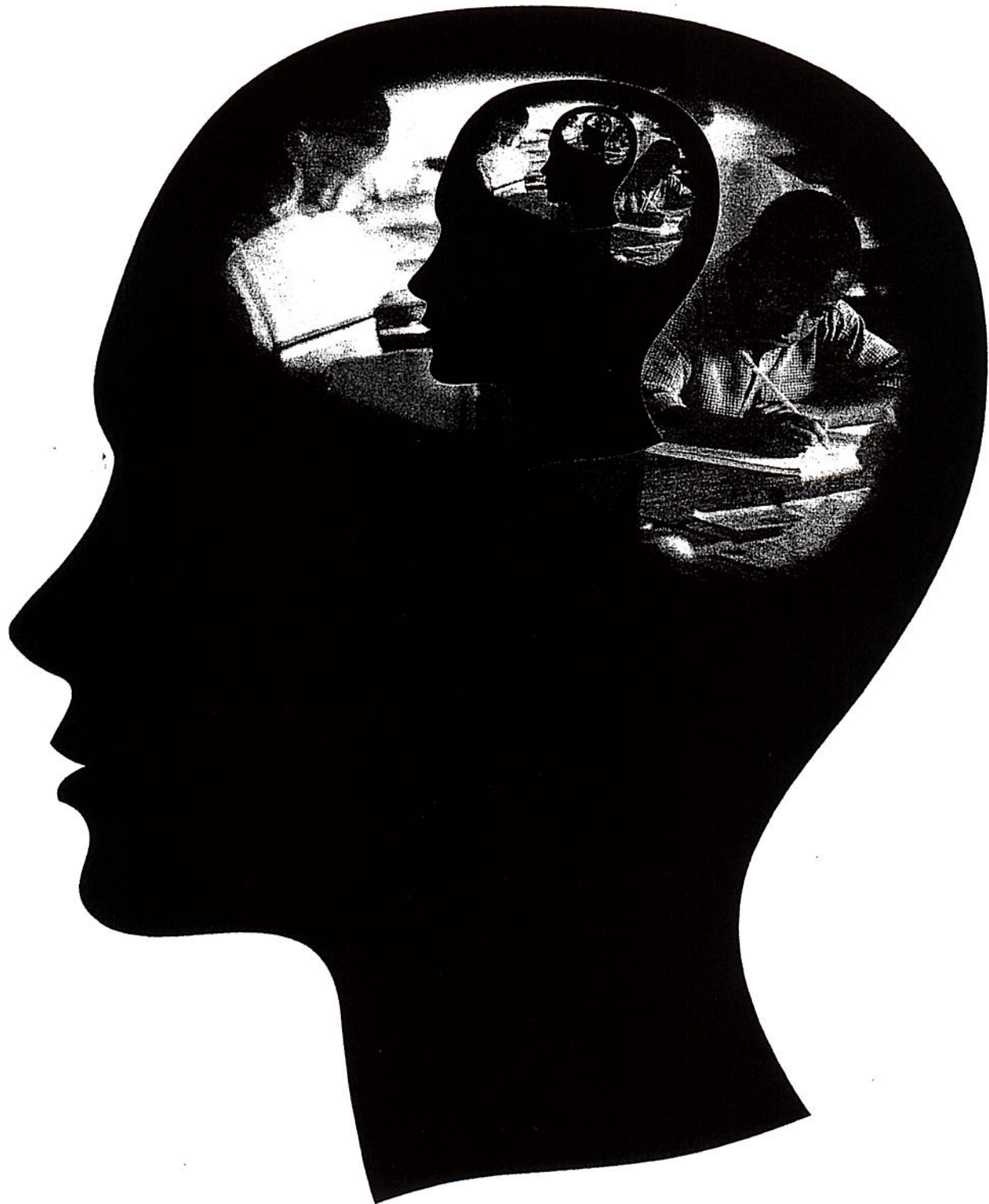


I Think, Therefore I Learn!

Graham Foster, Evelyn Sawicki, Hyacinth Schaeffer and Victor Zelinski



1

A Powerful Way of Thinking

Students naturally approach learning tasks in many different ways. Some students aim to get through their learning tasks as quickly and painlessly as possible. They do their work with little regard for options and alternatives—they often seem to be operating by rote. Some students prefer constant direction and guidance to complete tasks. They want to know that they are on the right track, and they expect the teacher to tell them exactly what to do next. Still other students are willing to explore different possibilities or options for getting work done. They may consider how their learning strengths, preferences, and background knowledge will help them succeed in the task. This latter group of students is the most *metacognitive*.

In the past few years, many curriculum developers and textbook writers have placed an increasing emphasis on metacognition. Although teachers are always aware of such helpful curriculum trends, those who have been giving their teaching a metacognitive dimension would likely do so whether prescribed curriculum documents and resources recognized it or not. These teachers know that students are more successful when they are metacognitive.

So, just what does that mean? Before considering key aspects in detail, let's unpack the word "metacognition." *Cognition* refers to the process of knowing. *Meta*, derived from the Greek, means beyond or from. Metacognition, then, refers to knowing how we learn best and consciously controlling our learning—which is surely what we want for our students.

Analyzing Tasks

What do metacognitive students do? Possibly the most important thing is that they analyze what they have to do and do that often. *What do I have to do? What are my options and strategies? How well did my choices work? What might I keep or change for next time?* Opportunities for task analysis include informal conferences between the student and teachers as well as between the student and peers. Students

may also analyze tasks through written comments made throughout a task or project. You can encourage such thinking by inviting students to reflect before, during, and after their assessments. Students thus learn to think about their thinking.

How can teachers foster task analysis? Here are some of the many ways.

- Show students examples of work related to the task—print, recorded, or videotaped.
- Have students confirm their understanding of a task by explaining it to peers or putting it into their own words on paper.
- Encourage students to identify their strengths and, for group tasks, the strengths of other members as these relate to task completion.
- Encourage students to brainstorm options and seek advice or information from print and non-print resources, as well as from other people, about options and strategies for completing a task.
- Involve students in the creation of rubrics.
- Provide time for students to note personal learning goals—possibly on a chart titled “Goals Achieved/Goals Still to Be Achieved.”

Self-Regulating Learning

A key characteristic of metacognition is self-regulation of one’s learning. Metacognitive learners think about their choices, monitor the effectiveness of their choices, and regularly set goals for future learning. Non-metacognitive learners depend excessively on directions from others, complete tasks with little or no regard to alternatives, and seldom set goals for future learning.

The following chart sets out extreme differences between metacognitive and non-metacognitive learners. Most students will fall between the extremes presented.

Metacognitive Learners	Non-metacognitive Learners
• Describe their strengths as learners	• Are unaware of their strengths as learners
• Analyze learning tasks to consider options	• Complete learning tasks by rote
• Explain their choices in completing learning tasks	• Complete learning tasks without explaining their approach to the task

Metacognitive Learners	Non-metacognitive Learners
<ul style="list-style-type: none"> • Monitor the effectiveness of choices during and following the learning activity 	<ul style="list-style-type: none"> • Pay little attention to their choices in learning
<ul style="list-style-type: none"> • Regularly set goals for learning 	<ul style="list-style-type: none"> • Do not set goals for future learning

Knowing Yourself

Knowing yourself as a learner, that is, knowing your strengths and preferences in learning, is a critical characteristic of the metacognitive learner.

Teachers, as well as students, can explore the importance of understanding themselves as learners by thinking about these questions:

1. *What do I find easy to learn?*
2. *What do I find difficult to learn?*
3. *What conditions help me to learn challenging materials?*

Reflect on these questions. How would you answer them? Do you think others might differ in their answers? Of course they will! If you doubt this, discuss the questions in a small group. Doing so has particular value for groups of teachers who are learning about metacognition.

At workshops, teachers often mention that they find something easy to learn when they have background for the learning and when they are confident with the subject matter. They indicate that when they have little background or confidence, the learning is difficult. For example, some teachers will say that learning something new about history is easier than learning something new about mathematics due to their background and confidence.

Responses to the third question are especially interesting. They reveal that learners employ different strategies, especially when they confront challenging material. Teachers might mention a favorite approach, such as creating a chart or diagram or using hands-on materials. They often emphasize the importance of having access to someone they trust to help them with difficult learning. What works for one person does not work for another, but successful learners know what works best for them.

The third question enters the territory of metacognition, where you discover how you learn best and how you deal with challenges. This question also leads teachers to reflect on how they can assist students to discover and use those learning strategies and options that work best for them.

Teachers who are familiar with Howard Gardner's work on multiple intelligences will note an obvious link between multiple intelligences and metacognition. It is useful for teachers and students to recognize and encourage a variety of intelligences that can be employed to complete tasks. If students recognize intellectual strength in linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, naturalistic, or environmental forms, their self-knowledge will help them complete tasks and to divide the labour wisely during group work. The question *How will my strengths as a learner help me and possibly my group complete this task?* is valued by advocates of multiple intelligences and metacognition alike.

How Important Is Metacognition?

Metacognition has a critical role to play in many areas, including school, employment, and personal life. Before affirming the value of what is essentially thinking about thinking, though, one issue must be dealt with. Many students may do well in school without being particularly metacognitive. Does that reality diminish the value of metacognition? No.

An essential tool for challenging tasks

One of the authors of this book worked with a group of teachers who wondered about this latter question. The teachers decided to coordinate instruction to foster metacognition in reading in their elementary school. Early in the year, they administered a reading comprehension test, as well as a survey that required students to identify favorite reading strategies. Several students who scored highly on the reading comprehension test were unable to identify strategies that worked well for them. Teachers wondered whether these successful students would benefit from an emphasis on metacognition since they were already doing well. Why bother adding a metacognitive dimension?

At the end of the year, the teachers concluded that metacognitive reading benefited *all* students in the class. A parallel test was given. The same students who did best earlier proved to be far more capable of identifying preferred reading strategies.

Struggling learners benefit from an emphasis on metacognition, but so do gifted learners. In a *Gifted Child Quarterly* article titled "What Gifted Students Can Learn," Thomas Scruggs and colleagues reported that increases in learning have followed direct instruction in metacognitive strategies and that independence develops gradually. Metacognition rewards learners when the task challenges them and when an automatic or intuitive response is not enough. The successful young

readers described above will confront texts in the future that will require them to know and select from a repertoire of strategies. With certain texts, *all* of us are remedial readers.

A means to meet desired learning outcomes

Metacognition helps students meet what many educators view as tough curriculum expectations. For example, students are increasingly required to compose, to solve problems, to complete experiments, to defend positions on a variety of issues, and more. Since curriculum guidelines are usually non-negotiable, teachers need to provide students with strong ways to meet them. As students learn to think about their thinking, they learn more actively, decisively, and reflectively.

In a sense, metacognition involves challenging students to take responsibility for their learning: they do this by discovering strategies that work best for them.

Teachers encourage metacognition when they recognize the viability of several approaches to complete a task. Those who always insist on a single approach—probably that which works best for them—discourage metacognition. In reflecting on metacognition, teachers have often pointed out that they will continue to teach and to model strategies that students can use to complete tasks, for example, the use of graphic organizers to plan writing. However, they will invite students to suggest and use alternatives and modifications. More than that, they will encourage students to employ the strategy that works best for them.

A benefit to classroom atmosphere

A group of senior high teachers agreed to promote metacognition across grades and subjects in their urban school. They reported a surprising benefit to their shared commitment. Although initially students resisted efforts to have them take more ownership of their learning, as time went by and teachers persisted, students became increasingly reflective. Teachers noted that as students became less dependent on them for direction, classroom management became easier, disciplinary issues declined, and time on-task improved. Classroom atmosphere improved, as well as quality of student work.

A way to develop skills valued for work

The Conference Board of Canada, an association of leading Canadian educational and business organizations, suggests that metacognitive students demonstrate life skills that will serve them well in their employment years. In a document titled *Employability Skills 2000+*, it notes the following skills under this heading: "The skills you will need to enter, stay in, and progress in the world of work—whether

you work on your own or as part of a team.” Below are selected fundamental and personal management skills that resonate with metacognition.

Think & Solve Problems

- Assess situations and identify problems.
- Seek different points of view and evaluate them based on facts.
- Be creative and innovative in exploring possible solutions.
- Evaluate solutions to make recommendations or decisions.
- Check to see if a solution works, and act on opportunities for improvement.

Learn continuously

- Set your own learning goals.
- Identify and access learning sources and opportunities.
- Plan for and achieve your learning goals.

The Conference Board statement implicitly warns students that quickly selecting an option to complete a task or depending regularly on a supervisor to direct work will not serve them well. To have successful careers, they will have to systematically explore options to complete tasks, reflect on how well their choices work, and set goals related to learning from their experiences. The characteristics noted are important descriptors of metacognition.

A way to cultivate citizenship

Just as metacognition benefits employment prospects, it promotes responsible citizenship. Effective involvement in social issues depends on a thorough issue analysis, where various points of view are assessed; an exploration of options or choices; and a weighing of costs and benefits to various choices before decisions are made. Citizenship depends upon a willingness to become informed and a willingness to become involved: these are both hallmarks of metacognition. Chapter 5 elaborates on this theme.

A way to understand yourself

Even more important than its value to employment and citizenship, metacognition relates to what many people would see as the most important mission in their lives—self-understanding. When people in the midst of tasks think about their preferences, strengths, and goals, they come to know themselves as persons, to understand their similarities and differences to others. It is possible to complete tasks without reflection. However, if you value self-understanding, as you face the tasks of life and, indeed, when you determine which tasks are most worth pursuing, you will take time to think about your preferences, strengths, and goals.

A means to hone instructional practice

Beyond having value for your students, taking a metacognitive approach allows you, as a teacher, to improve your teaching practices. The characteristics of metacognitive learners apply equally to metacognitive teachers: the abilities to describe strengths, to analyze instructional tasks, to articulate choices for a group of students, to monitor consistently the effectiveness of their choices, and to set goals for future instruction for the class. It can be argued that effective teaching is a metacognitive act.

Fostering a Metacognitive Approach

Teachers who attempt to control all of their students' learning processes could well be teaching strategies without helping students become metacognitive. Imagine a classroom in which a teacher directs the reading of a text. First, the class is directed to a reading purpose. Then the class is directed to predict the text's theme from an illustration. After students read to a certain point, the teacher directs them to summarize what they have read. Setting a purpose for reading, predicting, and summarizing are powerful reading strategies; however, until these strategies have been selected and controlled by students rather than teachers, students are not being metacognitive. They need to control their own learning.

Modelling strategies and flexible thinking

Do not expect students to learn strategies by osmosis, though. Guided reading of texts and modelling of strategies by teachers are critically important for students to learn about strategies and options. An emphasis on metacognition places a special accent on direct instruction: attention to options and possibilities. For example, you could ask: "What different reading purposes might be appropriate for this text? Besides predicting and summarizing, what strategies might you use to read with purpose?"

Even with a focus on a selected strategy, you should help students recognize that readers predict and visualize differently. For example, to help them see this, you could use the "unfolding method" with a short text, possibly a poem. Ask students to cover the text with a piece of blank paper. Following your directions, have students uncover, or unfold, the text bit by bit. You might choose to have them read to the end of the first sentence in a poem (if the poem has punctuation). Then ask students to predict what comes next or to summarize or sketch what they see in the unfolded section. It quickly becomes apparent that while predictions and

visualizations vary from student to student, predicting and visualizing are valuable reading strategies.

In the modelling of strategies, you can encourage metacognition when you think aloud about “what works for me.” For instance, a teacher shared with a class the observation that a thought map or thought web worked better for him than an outline when he was planning expository writing. He told the story that when he was forced to submit outlines in school, he often wrote the essay first and then completed the outline. He then demonstrated one or two favorite thought webs. In the spirit of metacognition, he inquired whether some students preferred outlines. A few students expressed their preference for outlines rather than webs.

The implicit message is that modelled strategies might also work well for certain students with certain tasks, but that students must *discover* what works for them. Instead of constantly saying, “Do this,” say, “This is what I’m doing now for this particular task. What else could I do to complete the task?” In discussing and modelling alternative strategies, and in showing students how you deal with challenges and uncertainties, you foster metacognition.

Metacognitive instruction acknowledges the vulnerability of the learner as well as the power of well-chosen strategies in dealing with that vulnerability. You can demonstrate to students the value of recognizing the intelligences that are your strengths and how you can use your strength in certain intelligences to help you complete tasks and to work with others to complete tasks.

As mentioned earlier, students are often resistant to metacognition at first: some students would rather not take responsibility for their learning. The key to overcoming resistance is to demonstrate that students can do better work when they are metacognitive. Since students often heed peers more than teachers, it may be helpful in a given task for students to share what they have done and how they have done it.

Encouraging thoughtful work

In all subjects and in all grades, teachers’ instructional strategies will encourage students’ thinking about the best ways to complete learning tasks. The following list, a summary of points elaborated in this chapter, notes specific instructional strategies designed so that students may improve how they regulate their own learning.

- Model strategies with an emphasis on “*What works for me . . .*” and “*What else could I do?*” Encourage students to model strategies for other students.
- Encourage students to analyze tasks and to select strategies and skills to complete tasks. (See “Thinking About My Work Written Response” on pages 14 and 15 for

a valuable student form that can be used to guide analysis of specific tasks in many grades and subjects.)

- Invite students to reflect on how well their choices and strategies have worked throughout their efforts to complete the task.
- Encourage students to learn about their strengths and learning preferences and to comment about themselves as learners.
- Include student self-assessment (see “Student and Teacher Assessment Checklist” on pages 16 and 17 bearing in mind that this versatile form for prompting reflection is intended mainly to monitor growth and development); call for goal setting.

The key word “encourage” underlines that teachers cannot force students to think about their thinking; they can only nurture it and guide it in their students. They should also appreciate that students are far more likely to become metacognitive if thinking about thinking is encouraged at home as well as at school. Schools are wise to use information sessions, parent-teacher conferences, and newsletters to foster parental support. Also, a form such as “A Parental Guide to Promoting Reflective Learning” (see pages 87–88) may help. Students vary in their willingness and ability to be metacognitive; however, you will gain great professional satisfaction when more students are more metacognitive more often.

Weighing pluses and minuses with colleagues

A worthwhile professional development activity for teachers is to work together to list advantages and disadvantages of metacognition in their school’s instructional program.

Typically, teachers mention benefits for students, such as divergent thinking, deeper understanding of strategies, greater confidence and independence, and improved classroom climate.

Overwhelmingly, the negative list usually focuses on time. Metacognition develops slowly and therefore promoting it demands time within a crowded curriculum. While items are constantly added to mandated programs, they are seldom deleted. Teachers are wise to address the fundamental management question about metacognition: Is it worth the time? They need to be convinced that, while progress may be slow at first, over time, student learning will be much improved when students take increased responsibility for their learning.

A group of high school English Language Arts teachers decided to co-coordinate implementation of metacognition across the grades. They decided that each teacher would revise a favorite unit of work to emphasize metacognition. These revised units were subsequently discussed at a workshop with a focus on the question: How much time will an emphasis on metacognition demand with this unit? The teachers realized that their understanding of metacognition prompts them to

X

Thinking About My Work

Written Response

Criteria Appropriate for This Task ✓	Thinking About My Work
	<p>1. I have a good idea of what I am supposed to do and I can explain it in my own words.</p> <p>In this task I am asked to</p> <hr/> <hr/> <hr/>
	<p>2. I can think of and list different ways to complete this task.</p> <p>Another way I could complete this task:</p> <hr/> <hr/> <hr/>
	<p>3. I can describe my plan for completing the task.</p> <p>Here is my plan:</p> <hr/> <hr/> <hr/>
	<p>4. I have selected or adapted methods, approaches, or strategies I have used before to help me complete this task.</p> <p>Something I did before that helped me decide how to complete this task:</p> <hr/> <hr/> <hr/>

	<p>5. I have considered my strengths and learning preferences to complete this task. One strength or learning preference that I will use to complete this assignment is</p> <hr/> <hr/> <hr/> <hr/>
	<p>6. I have considered different ways in which to communicate my work. One way to show/tell other people what I did is to</p> <hr/> <hr/> <hr/> <p>Another way would be to</p> <hr/> <hr/> <hr/>
	<p>7. I have focused on my personal learning goal of</p> <hr/> <hr/> <hr/> <p>Next time I need to complete a task like this I will</p> <hr/> <hr/> <hr/>
	<p>8. _____</p> <hr/> <hr/> <hr/> <hr/> <hr/>

Student and Teacher Assessment Checklist

Name of Task _____ Student Name _____

Criteria Appropriate for This Task ✓	Thinking About My Work	Student Assessment ✓	Teacher Assessment ✓
	1. I have a good idea of what I am supposed to do and I can explain it in my own words.		
	2. I can think of and list different ways to do this task.		
	3. I have considered how my strengths and learning preferences will help me complete this task.		
	4. I can describe my plan for completing the task.		
	5. I understand how my work will be marked.		
	6. I am able to use the scoring guide (rubric) to evaluate my own work and the work of others.		
	7. I have used a method that I have seen my teacher use.		
	8. I have adapted methods I have used before to help me complete this task.		

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Criteria Appropriate for This Task ✓	Thinking About My Work	Student Assessment ✓	Teacher Assessment ✓
	9. In completing my task, I have considered the following questions: <ul style="list-style-type: none"> • What did I do? • What could I have done instead? • What will I do next time? 		
	10. My plan worked and I can explain why.		
	11. I have considered different ways in which to communicate my work.		
	12. I have considered my personal learning goals to improve my work on this task.		
	13.		
	14.		
	15.		

encourage it every day with a variety of tasks. They agreed that the extra time required at first would probably be time well spent.

Below is a brief summary of the pluses and minuses associated with metacognition.

Pluses	Minuses
• Students' commitment to learning	• Time required
• Improved work over time	• Resistance from students and some colleagues
• More thinking about strategies	• Resistance from parents who stress a "right answer" approach to schooling
• Improved self-confidence	• Lack of emphasis in many learning resources used in schools
• Increased independence	
• Improved classroom atmosphere	

Making Students Aware of Strategies

Being metacognitive in learning skills specified in mandated curricula means being aware of the strategies or options available in completing tasks. Students benefit when they learn that strategies refer to the "know how" of successful practitioners—effective readers, writers, social scientists, scientists, mathematicians, hairdressers, athletes, and so on. As a teacher, you are wise to help students understand the importance and meaning of the word "strategies." While skills refer to what students are expected to learn, strategies refer to how students complete learning tasks.

Teachers need to be clear about skills and strategies across grades and subjects. They can thereby help students explore two significant metacognitive questions in their completion of learning tasks:

1. How can I go about completing this task? (strategies)
2. What abilities do I need to activate or develop to complete this task? (skills)

Many teachers have studied Bloom's taxonomy to reflect on skills required in specific learning and to plan for higher order thinking skills. Bloom's taxonomy presents a hierarchy of thinking skills, including knowledge, comprehension, application, analysis, synthesis, and evaluation. Learning about the level of

*Metacognitive
tasks
helps to
improve*

*Comprehension
what
why?*

*Skills:
Apply
abstract*

*When
is it
a problem?*

*Strategy how to
apply skills*

thinking required in a specific learning task—especially through examples of effective student work—should help students understand the requirements of the task as well as to consider options and strategies that may be helpful in completing the task.

Several sources on metacognition stress that considering both strategies and skills benefits learners throughout the learning process—not simply at the planning stage. Students should select and monitor options when they analyze a learning task, when they plan their work, when they work their plan, and when they reflect on the final product. *What strategies and skills did I employ? How well did they work? What might I keep or change for next time?*

Providing Students with Choice

In response to the reality of ever-widening ranges of student ability in the classroom, many educational organizations have emphasized differentiated instruction over the past several years. A major theme of differentiated instruction is planning for the varied learning needs of students in the class. Consider how metacognition might enhance each of the following possibilities for differentiation: differentiated assignments, resources, learning activities, time allotments to complete tasks, assessment, and degrees of mediation or assistance to individual students (provided by the teacher, other adults, and peers). Students' involvement in decisions about differentiation makes the choices metacognitive. When students enjoy a measure of decision making about their assignments, about the print, human, and media resources they will use to complete them, and about the options and strategies they will choose to fulfil those assignments, they are empowered to take responsibility for their own learning.

Differentiated instruction implies that students will complete self-assessment and goal-setting tasks related to their own learning goals. Individual students will vary in self-assessment criteria and will set individual goals. Differentiated self-assessment and goal setting are *metacognitive* self-assessment and goal setting.

Helping students understand their strengths as learners and employ these strengths to complete learning tasks fosters metacognition. For instance, if the learning expectations focus on techniques used to persuade, visual learners might prefer to analyze videos or print advertisements; auditory learners might work with songs or tape-recorded speeches; kinesthetic learners might dramatize persuasive techniques. If they were organizing a persuasive essay, verbal learners might prefer to use a traditional outline; visual learners, on the other hand, would probably select a graphic organizer. The message to teachers is clear: In completing educational requirements, students benefit when they understand themselves as learners *and* when they are able to employ their strengths.

Assessing Performance Using Relevant Criteria

The increasing emphasis on performance assessment, evident in several disciplines, also argues for metacognition.

A general review of forms of assessment may be useful here. Essentially, a teacher has three options for assessment as illustrated by the following chart:

Assessment Type	Definition	Examples
Observation	Informal, sometimes casual assessment of students often rotationally scheduled and focused	<ul style="list-style-type: none"> • Anecdotal records • Observations of students working in groups • Checklists
Pre-specified Response	Assessment that requires students to approximate a predetermined response	<ul style="list-style-type: none"> • Multiple choice • Short answer • True/False • Matching • Dictation • Numeric responses
Performance Assessment	Formal assessment that demands the use of criteria which are communicated directly to learners and used as guidelines by both students and teachers	<ul style="list-style-type: none"> • Analytical or holistic forms for marking and representing • Rubrics for projects, research, experimental design, role play, debate, and writing

As a challenge, examine any recently developed curriculum or program document that you are expected to implement. How many expectations or outcomes imply observation for assessment? How many imply pre-specified response? How many imply performance? All forms of assessment are required. However, you will probably notice that performance assessment is required for many, if not most, of the expectations or outcomes.

Metacognition matters more than ever because it makes students' performances better. For example, dramatic performance improves when actors and directors consider appropriate gestures, movements, and voice features. What are the options? Which options work most effectively? These questions are metacognitive. On the other hand, a metacognitive approach alone is not enough. A student who is preparing an oral interpretation of literature, for example, would also need to have a sense of the emotional meaning of the piece. This understanding would affect choices about tone, volume, speed of delivery, words emphasized, gesture, and eye contact.

Performance assessment demands the use of criteria related to the assignment's purpose. Examples of learning activities that require performance assessment include acting, the composition and performance of music, artistic compositions, problem solving, research, readers' theatre, debating, oral interpretation of literature, audio-visual presentations, and all forms of written composition. Students perform better when they know the criteria for effective performance.

An emphasis on metacognition challenges students to use exemplars, or examples of effective performances, to identify appropriate criteria. In many classrooms, students work with teachers to develop rubrics and self-assessment forms for performances. These rubrics and self-assessment forms become even more metacognitive when they call upon students to include personal learning goals as criteria. Students perform better when they practise and refine their work before they present it. Practice and refinement are characterized by reflection on options, choices, and consequences—by metacognition.

The following chart, from *Student Self-Assessment*, illustrates how student self-assessment can be given a metacognitive dimension. Here, a student may list criteria related to personal learning goals for working in small groups. A blank form appears on page 86 as an appendix.

Small-Group Work Student Assessment Form		
	Criteria	My Goals for Small-Group Work
<input checked="" type="checkbox"/>	1. I helped the group review its task.	<i>My goal is to continue to work as well as I worked with my group on this project.</i>
<input type="checkbox"/>	2. I contributed relevant ideas; I stayed on topic.	
<input checked="" type="checkbox"/>	3. I listened carefully to other group members.	
<input checked="" type="checkbox"/>	4. I was open-minded about different interpretations or understandings.	
<input checked="" type="checkbox"/>	5. I helped the group stay focused on its task.	
<input checked="" type="checkbox"/>	6. I contributed to the summary which concluded the group work.	
<input checked="" type="checkbox"/>	7. I encouraged all members of the group to contribute.	

Teachers may choose to employ a related instructional approach to encourage metacognitive self-assessment by students. Have students regularly update a "Goals

Achieved/Goals Still to Be Achieved” page in their work folders or portfolios for different subjects. The primary grades version of this page could be labelled

Can Do	Need to Do

The following example suggests that completing such a goals chart encourages students to be reflective and to take ownership of their learning.

My Personal Learning Goals	
Name <u>Mary Brownley</u>	Grade <u>9</u>
Subject <u>Language Arts</u>	
Goals Achieved	Goals Still to Be Achieved
<ul style="list-style-type: none"> • <i>Writing is organized appropriately.</i> • <i>Words are colourful.</i> • <i>fewer spelling mistakes</i> • <i>correct use of apostrophe</i> 	<ul style="list-style-type: none"> • <i>to write convincing dialogue</i> • <i>to have “smooth” use of quotations in writing</i> • <i>to improve use of commas</i>

Taking a Fresh Look at Familiar Instructional Models

An emphasis on metacognition may challenge you, as an educator, to take a fresh look at the process, inquiry, and problem-solving models in vogue for several years. As useful as such models have been in suggesting learning sequences, educators have sometimes reduced them to recipe-like formulae.

Below is a summary of these instructional models.

Reading Process Model: A model that breaks the act of reading into pre-reading, during-reading, and post-reading stages with an emphasis on strategies employed by successful readers at each of these stages

Writing Process Model: A model that breaks the act of writing into pre-writing, drafting, revision, and publication stages with an emphasis on strategies employed by successful writers at each of these stages

Problem-Solving Model: A model that breaks problem solving into five steps: (1) understanding the problem, (2) devising the plan, (3) carrying out a plan, (4) looking back at one’s solution and process, and (5) communicating the solution

Inquiry Model: A model of instruction that engages students in the search for solutions for problems in society

Scientific Inquiry Model: A model that involves making observations; posing questions; examining sources of information; planning investigations; gathering, analyzing, and interpreting data; proposing answers, explanations, and predictions; and communicating results

A metacognitive viewpoint has little patience for the notion that there is one writing process, one problem-solving model, and one inquiry model that works with cookie-cutter efficiency for all learners all the time. An emphasis on metacognition reminds educators that learners should adapt processes and models to particular tasks and should apply strategies that work best for them in their learning.

Teachers who know the content of subject disciplines and the skills and strategies important in these disciplines can promote subject-specific metacognitive practices better than teachers working outside their area of expertise. Indeed, as noted in *How People Learn*, "The teaching of metacognitive activities must be incorporated into the subject matter that people are learning (White and Frederickson, 1998). These strategies are not generic across subjects, and attempts to teach them as generic lead to failure to transfer" (2000, 19).

Subsequent chapters consider specific applications and examples related to language arts, mathematics, science, and social studies. They will illustrate that solid, familiar practice in these subject disciplines can be enriched when teachers consciously emphasize metacognition in their instruction.

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