Teaching for THINKING Redux

A Curriculum Model for Classroom Practice

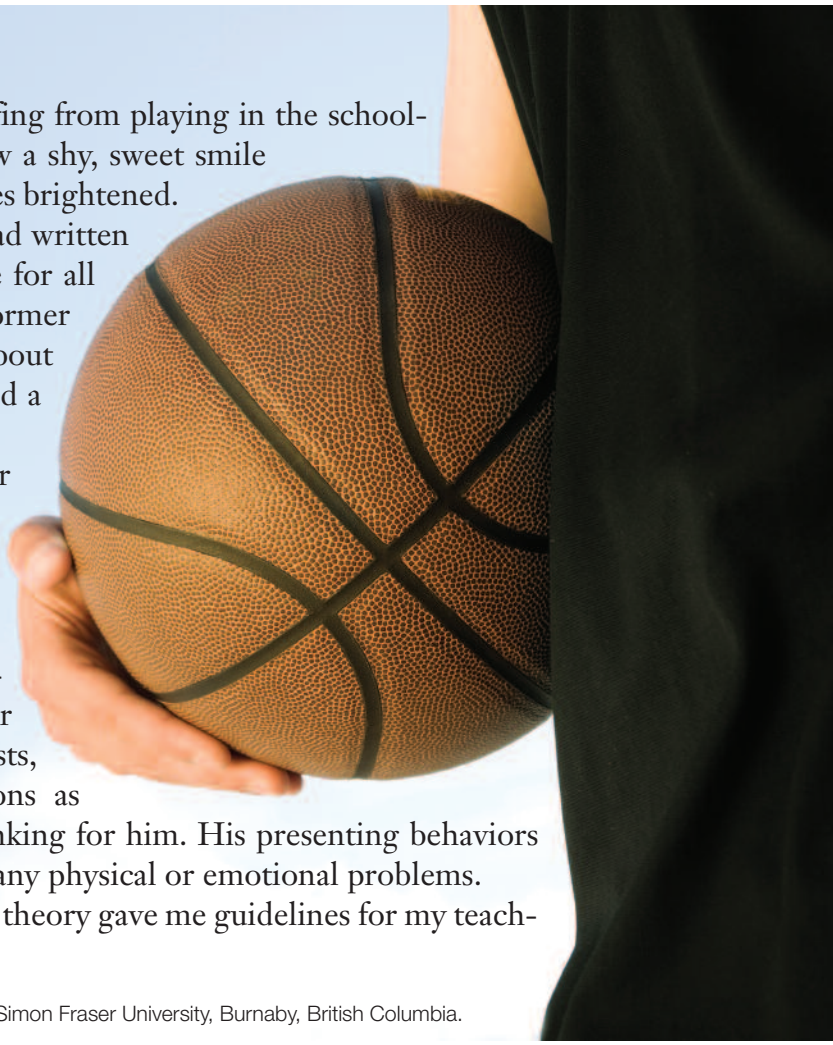
Infusing thinking into instruction enables students to reach deeper meanings and not merely spit back information supplied by teachers.

By Selma Wassermann

Carl shuffled into the room, sweaty and puffing from playing in the schoolyard. He looked me right in the eye, and I saw a shy, sweet smile come to his lips. I returned his smile, and his eyes brightened. I thought of Joey in my last year's class, who had written in his journal, "A good teacher must have love for all the children, even the bad ones." Though his former teachers warned me about him, my worries about Carl melted, and I promised myself that I'd find a way to work with him.

The school records about his earlier behavior were confirmed by my own observations. He seemed unable to function without close supervision and structuring, unable to stick to a job and finish it on his own without calling me over for help numerous times. He seemed unable to make choices, to think things through for himself. I saw too, his racially prejudiced outbursts, his extreme dogmatism in stating his opinions as truths, his dependence on others to do his thinking for him. His presenting behaviors seemed acute, yet there were no indications of any physical or emotional problems.

As I studied his behaviors, the Raths thinking theory gave me guidelines for my teaching plans.



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A THINKING THEORY

Louis E. Raths (1966) spent more than 1,000 hours observing children's behavior in classrooms. His field research has given teachers a framework for understanding the link between inadequate development of thinking abilities and student behavior. Raths suggests that certain maladaptive behaviors, seen persistently and in the extreme, may be a sign that students have had insufficient opportunities to develop their higher-order mental skills. His theory suggests that if teachers provide these students with extensive practice in certain higher-order mental tasks, these counterproductive behaviors would diminish over time and be replaced by more thoughtful ways of behaving (Raths et al. 1986).

Instead of providing information and requiring students to give back that information, the Raths model makes students process information so it's worked, turned, analyzed, and examined in order to extract and understand deeper and richer meanings.

Most teachers understand the relationship between thinking and behavior. For example, when a teacher presents a group of students with a problem — such as "How would you figure out how to measure a puddle?" — the teacher will quickly discern the kind of thinking that goes into student responses by listening to and observing how they reply. Some students might jump at the chance to respond by suggesting several possible ways to figure this out. Other students might not begin at all. Instead, they might say, "I don't get it. What do you want us to do?" or, even worse, "We didn't study puddles yet."

Teachers are likely to observe that the students who come up with viable solutions have a greater capacity for applying learned principles to the solution of new problems. They're also likely to observe that students who depend on the teacher for help at nearly every step are unable to use their cognitive skills in solving problems. When students exhibit such dysfunctional behavior, when they are seen over a long term, and when physical and emotional factors can be ruled out, teachers might hypothesize that such students are lacking skill in their higher-order mental functioning (Raths et al. 1986).

Raths identifies eight behavioral patterns that are indicators of deficits in higher-order mental functioning:

- Extreme impulsiveness: leaping to unwarranted conclusions in the absence of adequate data;
- Overdependence: needing a great deal of help to get started or move from one step to another;
- Inability to concentrate: unable to give thoughtful attention to tasks;
- Missing the meaning: unable to connect the dots from the means to the ends; unable to see the "big picture";
- Extreme dogmatism: certainty in the absence of relevant data, unable to entertain discrepant data ("Don't confuse me with data; my mind is made up!");
- Inflexibility: rigidity in their patterns of thinking; unable to shift gears in new situations;
- Lack of confidence in one's own thinking: uncertain, wary, overly cautious about their ideas; and
- Unwillingness to think: "It's the teacher's job to tell us what to do!"

While it's true that many students are likely to exhibit any of these signs on occasion, some students exhibit such behaviors in persistent, acute, and persevering forms. Ruling out physical or emotional causes, teachers may hypothesize that the students' behaviors are evidence of underdeveloped habits of intelligent thinking.

DON'T GIVE US THEORY!

One of the many positives about Raths' theory is that it's been built on teacher observations and classroom practice. It is clear and unambiguous. It enables teachers to identify certain maladaptive behaviors, and it equips them with valuable tools to deal with those behaviors. Moreover, the theory has contributed in substantive ways to professional discourse about thinking (Raths et al. 1986; Wassermann 1987).

Yet, despite the usefulness of the theory for classroom teachers, classroom practices in the last 40 years have failed to show any systematic attempts to implement teaching for thinking (Goodlad 1984). Although there have been instances in selected and selective classrooms, thinking-skills development has been sporadic. While the "promotion of thinking" is included in virtually every school board list of goals, teaching for thinking is heard more in the rhetoric than seen in practice.

Certainly there are factors that mitigate against teaching for thinking. One is that "theory" still is a dirty word among large groups of teachers. Another is the prevalence of curriculum materials and tests — both teacher-made and standardized — that stress single, correct responses, leaving little room for the open-ended curriculum experiences that teaching for thinking requires. Also, many teachers who sincerely believe that they have been teaching for thinking are actually doing something much dif-

ferent. These factors and others may explain why emphasis on thinking-skills development is largely absent from classroom practice.

EMPHASIS ON THINKING

A great deal of research and development lends support to Raths' theory that thinking skills, like other sets of skills, can be developed and learned. (See, for example: Costa 1985; Paul and Elder 2002; Pogrow 2005; Segal, Chipman, and Glaser 1985; Sternberg 1987.) The caveat in designing curriculum tasks to develop intelligent habits of mind is that the curriculum tasks and teaching strategies we use must be compatible with the goals of elevating more intelligent mental functioning. Not every teaching strategy and curriculum task fulfills this goal.

Here, too, Raths' work is helpful for teachers. He offers 14 "thinking operations" — specific mental functions that serve as guidelines for developing classroom activities (Raths et al. 1986). These operations include:

- Comparing,
- Interpreting data,
- Observing,
- Summarizing,
- Classifying,
- Making decisions,
- Suggesting hypotheses,
- Imagining and creating,
- Criticizing and evaluating,
- Designing projects and investigations,
- Identifying assumptions,
- Applying principles in new situations,
- Gathering and organizing data, and
- Coding to become aware of certain patterns of thinking.

Even a cursory examination of these mental operations reveals that each requires a student to "do something more" with information than merely absorbing it from a page and recalling the facts. The operations require more sophisticated and intelligent analysis that may lead to increased understanding of the important ideas and principles.

While Pogrow (2005) and Paul and Elder (2002) have developed programs where "thinking" is a separate subject to be taught, Raths' position is that thinking should be an integral part of every curriculum area — that is, teaching all subject matter with an emphasis on thinking.

Later research on Raths' work led to the study of the role of teacher-student interactions — specifically, how a teacher's questions and responses either promote and encourage or crush students' opportunities to think. The early work of Parsons (1968) and Flanders (1967) was significant in raising awareness of how certain kinds of questions and teacher responses enable thinking, while others delimit and even terminate student thought. Their work led to the development of a question/response analysis tool (Wassermann 2009) that provides teachers with an "analytical mirror" for studying their own questioning strategies.

NEW DEVELOPMENTS IN CLASSROOM APPLICATIONS: A CURRICULUM MODEL

In the years since the Raths theory was first published, a more useful framework for weaving the thinking operations into a curriculum model has evolved. This new model reconfigures the thinking operations in a way that addresses students' increased knowledge, understanding, and problem-solving abilities. It is a curriculum model for teaching every subject with an emphasis on thinking.

The new curriculum model sets the thinking operations in a progression, taking the learner from gathering data by making observations (knowing), to analyzing information (understanding), to applying what is known to problem solving (knowing how). Thus, in the first stage, students would gather data through their own observations. The examples of the ways in which students can gather knowledge through observing are numerous, and many curriculum experiences, in every subject area, can be introduced by requesting that students gather data by making observations. This is, in fact, the way in which teachers generally introduce new materials — asking students to gather data to increase their knowledge base. No new material is being added to the curriculum.

Certain maladaptive behaviors, seen persistently and in the extreme, may be a sign that students have had insufficient opportunities to develop higher-order mental skills.

The second stage of the curriculum model requires that students process the data they've gathered. That means they'll be comparing, classifying, coding for certain patterns of thinking, looking for assumptions, suggesting hypotheses, summarizing, and interpreting data. These operations allow students to deepen their understanding by subjecting the information to different kinds of analyses. At this second stage, students might compare two historical documents, two stories, or two different ways of solving a math problem. They could classify historical documents or short stories in a collection. This data-processing stage builds students' understanding of the important concepts, the "big ideas." Students are aided in this process through the teacher's use of higher-order questioning.

At the third level, students are given opportunities to use the operation of problem solving to apply

what they know. This involves applying principles to new situations, making decisions, designing projects and investigations, and imagining and creating. In this *knowing how* stage, the teacher's use of higher-order questions plays a major role in developing students' problem-solving skills.

In the fourth stage, the teacher uses higher-order questions to help students reflect on their work. What was good about what they did? What kind of fixing is needed? What new insights were acquired? What additional information is needed? And most important, what are the standards by which these assessments are being made? Reflection on a student's own learning experiences revisits what has been learned, puts a student's work before his or her own critical eye, and opens the door for further inquiry. This stage uses the operations of criticizing and evaluating and puts students on the pathway of becoming critical evaluators and judges of their own work.

This teaching for thinking curriculum model requires no curriculum modifications. The major shift lies in the way teachers offer curriculum opportunities to students. Instead of providing information and requiring students to give back that information, the model requires students to process the information so that the data gathered does not lie inertly in the mind, but is worked, turned, analyzed, and examined so that the deeper and richer meanings can be extracted and understood. Student thinking is further required when they're asked to use that information to solve problems. It's easy to see that — as a result of working the acquired information through these second, third, and fourth developmental stages — students will maintain a greater grasp of that knowledge, understand the meanings behind the facts, and retain the information for a much longer time.

TEACHER'S CHOICE

Not all curriculum experiences have to be designed around this model. Not every classroom activity needs to be, or should be, an activity in which rigorous thinking is applied. There are times to compute algorithms and memorize spelling words; there are times to play games and times to listen and obey, especially with regard to students' health and safety. And there are times to work on improving intelligent habits of mind.

The teacher is the best judge of which, how, and how much. This is not a case of the more the merrier, but rather the teacher's considered judgment in response to the question, Is this a curriculum experience in which students would benefit from thinking more deeply about the big ideas behind these studies? If that is the case, then developing the curriculum experience around the teaching-for-thinking framework is likely to lead to the kinds of results that teachers seek: the search for the meaning of the big ideas and the application of knowledge to solve problems. K

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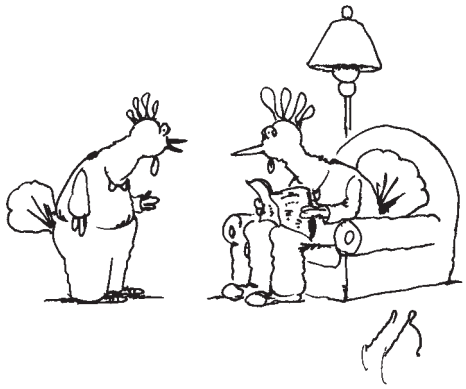

"I want to take some time before college to go free-range, Dad."