

Fostering Thoughtful Self-Direction in Students

Programs to teach students critical thinking, while empowering them to be self-directed, must also stress respect and empathy for the viewpoints of others.

Photograph by John Barell

Mary Jane asked her high school humanities students to reflect upon their thinking processes after they had taken a test. She posed these questions:

- How did you plan and prepare to take the test?
- What kinds of questions were you asking yourself while taking the test?
- What grade did you get, and were you satisfied?

Students responded to the first question by saying they "read over all my notes ... memorized everything I could ... summarized what I knew." To the second question, they had few responses. Most who received low grades were not satisfied with their performance.

Then she asked, "What are you going to do differently next time?" Most students—regardless of their grades—said, "Study harder ... memorize more ... compare notes with a friend to see if we missed anything."

Except for "summarizing" and "comparing notes," students intended to improve their performance by doing more of the same. They showed limited understanding of how to set a goal, design strategies, monitor their progress, and evaluate for self-



Rosemarie Liebmann guides her 9th graders in identifying problems and setting goals at Ridge High School, Basking Ridge, New Jersey.

improvement. In fact, we might conclude they didn't recognize there was a problem.

These processes—problem identification, goal setting, and the like—are fundamental to good thinking. And they are affected by an individual's sense of autonomy. Effective thinking is more likely "when people consider themselves to be agents who can control their own fates than if they think that they are simply pawns in some impossible-to-control system" (Pressley 1987). Helping students learn to control their destinies does not, of course, mean they take over the school. It means that they learn to rely less upon adults and to articulate good reasons for their actions and beliefs.

If students are to move toward this kind of self-direction, our ideas about teaching need to embrace a supportive view. For example, Greene (1973) suggests that real teaching occurs when:

... a person begins learning (on his own) how to do certain things. It happens when that person freely chooses to extend himself in order to find answers to questions he poses for himself, when he acts to move beyond what he has learned by rote ... when a student begins to understand what he is doing, when he becomes capable of giving reasons and seeing connections within his experience, when he recognizes the errors he or someone else is making and can propose what should be done to set things straight.

In other words, students will be free (or expected) to think, to engage in the "mental manipulation of symbols in the service of finding ... or solving a problem" (Sigel 1985). As students encounter perplexities in their daily lives, we can invite them to "try out promising tracks, which will exist, if they ever do exist, only after one has stumbled exploringly over ground where they are not" (Ryle 1979). Thinking is, after all, experimenting with possibilities when we do not know precisely what to do.

Creating the Environment

To foster improved thinking, then, we must create an environment conducive to developing a sense of autonomy within a social context of sensitivity to others. Without concern for others,

we become unable to engage in critical inquiry, which requires that we listen and respond to others' points of view. Students need to feel free to take risks, to experiment with alternative behaviors, to make mistakes without being chastised, and to learn from failure (Liebmann 1987). We can show that we value each other's ways of thinking and that we place a premium upon students' becoming far more reflective about their performance.

When we nurture attitudes such as belief in the power of thinking, persistence, and cooperation and when we develop behaviors such as goal setting, listening empathetically, and sharing control of decision making, we are creating such an environment. For example, here is what a few teachers have done:

● *1st grade: setting high expectations for achievement and cooperation.* Beth announced, "You are all members of the First Raters Club. In

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our class, everybody learns the numbers and letters of the alphabet. And if you cannot do it alone, *we will all help you.*"

● *8th grade: listening empathetically, responding critically.* Meryl reminded her students: "When you re-

Name _____

Class/Grade _____

Date _____

Contents _____

I. Problem Solving (Respond to these questions weekly.)

- What was the problem I had to solve?
- How did I solve it? (Identify thinking strategies, not solutions.)
- Did I solve it? Well?
- What would I do differently next time? Why? What did I learn about my problem-solving abilities?
- What other kinds of problems (in school and everyday kinds) could I solve using these strategies? Where else are the strategies applicable?

II. Problem Finding

- Identify a problem/dilemma/conflict of interest to you. It might be a situation outside of school if you wish.
- What questions do you have about this situation? Generate as many different kinds of questions about the situation as you can. Every week look over the list of questions posed last week, and see how many more you can generate.
- How can strategies learned in class help you solve this problem, resolve the conflict or dilemma?
- What are you learning about responding to real-life situations as a result of recording your thinking processes in this journal?

Fig. 1. Thinking Journal

spond, be sure to state the other person's argument and whether you agree or disagree with it and why."

● *11th grade: modeling belief in thinking, experimentation, persistence.* Rosemarie set up a series of cues: "Watch and listen to me think through this problem ... notice the hypotheses I try, *only some of which will work* ... notice that if I believe I can solve it with persistence, my chances of succeeding are far greater."

All these teachers were communicating to their students, "This is our classroom. We work and think together; we share ideas and learn from each other." Students and teachers alike were working toward an atmosphere of self-direction and problem solving, within a community of shared interest and inquiry.

"It is not sufficient to teach our students to solve problems by rote if, when they leave school, they cannot identify daily problems in their lives and work toward solutions."

Developing Awareness

Since Mary Jane's students were not very aware of their own thinking, they were not likely to improve their performances. If we want to foster self-direction, we need to develop metacognitive behavior—help students become aware of their own use of thinking skills such as problem identification and goal setting. A convenient framework for achieving this awareness is to help students recognize how they *plan* to accomplish a task, how they *monitor* their performance, and how they *evaluate* their results (Baird and White 1984).

A "thinking journal" can help students become more observant about how they approach and complete problems (fig. 1). We ask students to maintain their thinking journals with one section for problem solving and another for problem finding. After students engage in problem solving, we ask them to reflect upon their strategies.

For example, in reflecting, a 10th grade social studies student wrote, "We solved our problem by thinking of alternatives, and then we asked ourselves questions about the validity of the solutions." A 2nd grader wrote that she did not solve her problem "becs I did not open my mind." And a 4th grader, asked what she had learned from her thinking journal, reported, "Adults don't know as much about your problem as you do.... They can't solve it for you."

In high school mathematics one of the authors embarked upon a campaign of asking her students to identify the questions they asked themselves as they solved problems. In double entry journals they recorded their math on the left and their metacognitive explorations on the right. Over the course of several months these entries revealed that the students did indeed become more articulate about how they planned strategies, what kinds of questions they posed to track or monitor their progress, and how they evaluated their overall performance. For example, after months of practice, Rich made these entries while working on an algebra problem:

"Asked what she learned from her thinking journal, one 4th grader reported, 'Adults don't know as much about your problem as you do.... They can't solve it for you.'"

"This problem scared me while reading it. It got better after I read it 6 or 7 times. I just took it step by step.... the problem is very similar to the last one. The hardest part is organizing the variables. [Planning]

When reading the problem I almost got thrown with the word *area*. I'm thinking of the idea of square y, but it's wrong.... Almost forgot that when you square powers, you multiply. [Monitoring]

Piece of cake!" [Evaluating]

At all grade levels we have engaged students in problem solving in various modes: individual, large and small groups, and paired problem solving (Whimbey and Lochhead 1985). When solving problems, it is important that students not just do "more of the same," as Mary Jane's students said they would do, but to reflect and then generate options for action, as experts do (Kilpatrick 1987). We challenge students to

● *plan* an approach to a problem: "What is my problem? What do I need to do? How will I approach it?";

● *monitor* their progress: "How well am I doing? What have I accomplished? Have I restructured the problem, and do I need to revise my strategies?";

● *evaluate*: "How well did I do? What worked well, and what didn't?"

What would I do differently next time?"

When we asked what they were learning about their own thinking, one high school student observed, "I learned my problem-solving abilities are not as good as they could be. I should think through problems more logically and spend more time on them." Another student discovered the similarity between problem solving in mathematics and the process of identifying Jay Gatsby's dilemmas, the strategies he used to solve them, and the results. And another student wrote in her journal, "My dad usually asks me questions to help me focus on the problem. I guess what I need to do is learn to ask myself those questions."

Not Just Thinking, But Thinking for Themselves

In teaching, we find ourselves comfortable with carefully structured text-

book problems. But it is not sufficient to teach our students to solve problems by rote if, when they leave school, they cannot identify daily problems in their lives and work toward solutions. The crucial task is to make it possible for them to learn to set goals and identify strategies for themselves. □

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