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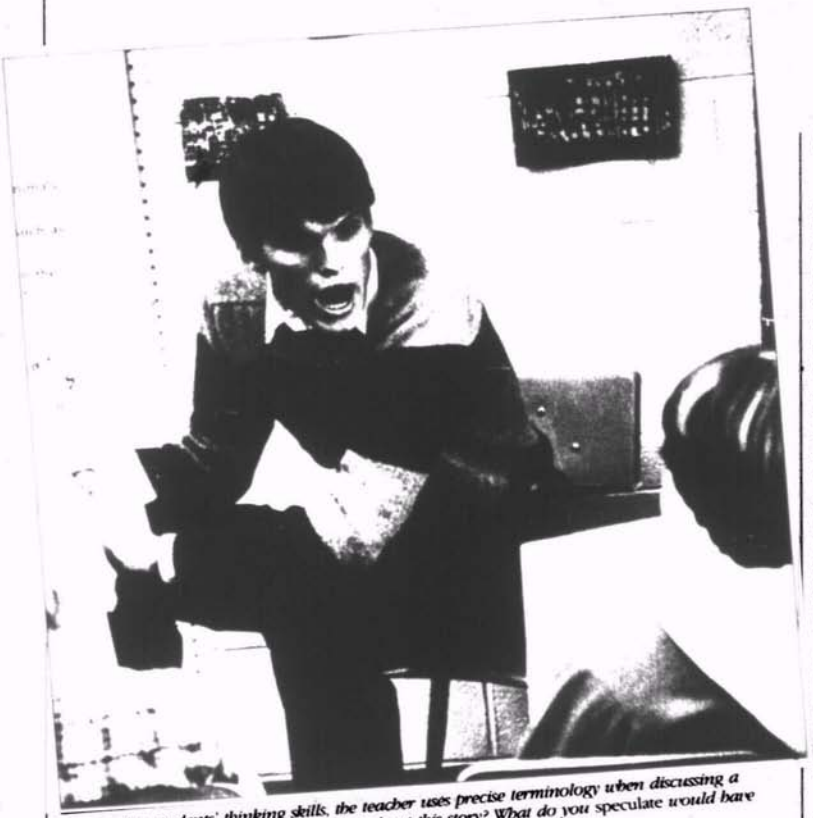
Teaching the Language of Thinking

By using specific terminology, posing critical questions, and creating new labels to structure perceptions, teachers can use the language of thinking to enhance cognitive development.



To develop students' thinking skills, the teacher uses precise terminology when discussing a story: "What conclusions can you draw about this story? What do you speculate would have happened if . . ."

Teaching and learning are predominantly linguistic phenomena; that is, we accomplish most of our learning through the vehicle of language, the daily exchange of words in classrooms. Therefore, language is a tool that teachers can use to enhance cognitive development. If we are to develop a successful program for teaching thinking, we must also develop a language of cognition.

The Linguistic Nature of Instruction

According to Feuerstein (1980), the teacher's interactive role is crucial in the mediated learning experience of children's cognitive development. In their major review of studies of linguistic interactions in classrooms, Green and Smith (1982) conclude that language is used by teachers to "frame" the presentation of content, the tasks students are to perform, and the norms of acceptable and unacceptable conduct. In other words, teachers communicate to students what to do, when to do it, and how to behave when they do it.

Language also creates classroom culture, which is defined as the set of important understandings that class members share. For example, Parelius

Instead of saying:	Say:
"Let's look at these two pictures."	"Let's *compare* these two pictures."
"What do you think will happen when . . . ?"	"What do you *predict* will happen when . . . ?"
"How can you put into groups . . . ?"	"How can you *classify* . . . ?"
"Let's work this problem."	"Let's *analyze* this problem."
"What do you think would have happened if . . . ?"	"What do you *speculate* would have happened if . . . ?"
"What did you think of this story?"	"What *conclusions* can you draw about this story?"
"How can you explain . . . ?"	"What *hypotheses* do you have that might explain . . . ?"
"How do you know that's true?"	"What *evidence* do you have to support . . . ?"
"How else could you use this . . . ?"	"How could you *apply* this . . . ?"

Fig. 1. Precise Terminology

(1980) and Purkey and Smith (1982) have identified such classroom culture variables as "tone of orderliness" and "atmosphere of acceptance" as keys to effective teaching. Burger (1977) asserts that culture actually "lives in language."

Labeling is another fundamental characteristic of language (Condon 1968). When people create a name or a label for something, they also create a reality that previously did not exist for them. Condon uses the example of taking a course in astronomy. Before taking the course, a person will look at a night sky and see only *stars*. After a few weeks of instruction he or she will begin to see *super novae*, *white dwarfs*, and *galaxies*. Thus, when we create labels, we structure our perceptions. New labels foster new perceptions. As Condon observed, "For better or for worse, when names are learned we see what we had not seen, for we know what to look for" (p. 31).

Given the nature and importance of language, creating a classroom language of cognition necessarily involves redefining terminology and perhaps inventing new terminology for specific situations. We have identified seven starting points.

Precise Vocabulary

Teachers often admonish students to "think hard." They sometimes criticize students for not having the inclination to think: "These kids just go off without thinking."

The term *think* covers a range of thought processes. Students may fail to think because the vocabulary is foreign to them or because they may not know how to perform the specific skill implied. Thus, teachers should use specific cognitive terminology and show students how to perform particular skills. For example, instead of saying, "Let's look at these pictures," say "Let's *compare* these two pictures" (fig. 1), and then demonstrate how to find similarities and differences in them.

As children hear these terms daily and develop the cognitive processes that these labels signify, they will internalize the words and use them as part of their own vocabularies. Teachers can also provide specific instruction in cognitive processes so that students will attach precise, shared meaning to the terms (Beyer 1985). Teaching students what goes on in the head when comparisons are made, what are helpful steps in a decision-making process, and what techniques cause creative juices to flow when writing a story are examples of ways teachers can provide specific instruction in thinking skills.

Posing Critical Questions

Teachers often make decisions about which classroom behaviors to discourage and which to reinforce. They do this by posing questions that cause children to examine their behavior, consider the consequences of that behavior, and choose more appropriate actions (Bailis and Hunter 1985). For example, instead of saying, "Be quiet," the teacher can say, "The noise you're making is disturbing us. Is there a way you can work so that we don't hear you?" (fig. 2).

Discussions with children about appropriate behavior, classroom and school rules, and courtesy are necessary if students are to learn respect for other people. The language of thinking will help students determine which behaviors "work" within the culture of the classroom.

Providing Data, Not Solutions

Sometimes teachers rob children of the opportunity to take responsibility for their behavior by providing solutions, consequences, and appropriate

Instead of saying:	Say:
"Be quiet."	"The noise you're making is disturbing us. Is there a way you can work so that we don't hear you?"
"Sarah, get away from Shawn."	"Sarah, can you find another place to do your best work?"
"Stop interrupting."	"Since it's Maria's turn to talk, what do you need to do?"
"Stop running."	"Why do you think we have the rule about always walking in the halls?"

Fig. 2. Questions that Encourage Appropriate Behavior

When children: (for example)	Say:
Make noise by tapping their pencils.	"I want you to know that your pencil tapping is disturbing me."
Interrupt.	"I like it when you take turns to speak."
Whine.	"It hurts my ears."
Are courteous.	"I liked it when you came in so quietly and went right to work."
Chew gum.	"I want you to know that gum-chewing in my class disturbs me."

Fig. 3. Data for Autonomous Decision Making

actions for them. Teachers can teach responsibility by giving data and sending "I" messages (fig. 3). By providing data as input for children to process, teachers will encourage them to act more autonomously, to become aware of the effects of their behavior on others, and to become more empathetic by sensing verbal and nonverbal cues from others.

Giving Directions

When giving directions, teachers often spoonfeed students by providing so much information that they can comply without having to infer meaning (fig. 4). Instead, teachers can ask questions that require students to analyze a task, identify what is needed to complete the task, and then perform the task.

Probing for Specificity

Oral language is rife with omissions, vaguenesses, and generalizations. It is conceptual rather than operational; value laden; and sometimes deceptive. To encourage careful thinking, teachers should try to get students to define terms, be specific about actions, make precise comparisons, and use accurate descriptors (Laborde 1984). They should be alert to vague or unspecified terms, which fall into several categories:

- universals including *always*, *never*, *all*, or *everybody*;
- vague actions such as *know about*, *understand*, *appreciate*;
- comparisons such as *better*, *newer*, *cheaper*, *more nutritious*;
- unreferenced pronouns such as *they*, *them*, *we*;
- unspecified groups such as *teachers*, *parents*, *things*; and

Through what Whimbey calls "Talk-Aloud Problem Solving" students become aware of their thinking processes. When the child says, "I don't know how to solve this problem, the teacher replies, "What can you do to get started?"

Instead of saying:	Say:
"For our field trip, remember to bring spending money, comfortable shoes, and a warm jacket."	"What must we remember to bring with us on our field trip?"
"The bell has rung; it's time to go home. Clear off your desks quietly and line up at the door."	"The bell has rung. What must we do to get ready to go home?"
"Get 52 cups, 26 scissors and 78 sheets of paper. Get some butcher paper to cover the desks."	"Everyone will need 2 paper cups, a pair of scissors, and three sheets of paper. The desk tops will need to be protected. Can you figure out what you'll need to do?"
"Remember to write your name in the upper right-hand corner of your paper."	"So that I easily can tell who the paper belongs to, what must you remember to do?"

Fig. 4. Instructions that Teach Meaning

"To encourage careful thinking, teachers should try to get students to define terms, be specific about actions, make precise comparisons, and use accurate descriptors."

- assumed rules or traditions including *ought*, *should*, or *must*.

Critical thinkers are characterized by their ability to use specific terminology, to refrain from overgeneralization, and to support their assumptions with valid data (Ennis 1985) (fig. 5).

Metacognition

Thinking about thinking begets more thinking (Costa 1984). When teachers ask children to describe the thought processes they are using, the data they need, and the plans they are formulating, students learn to think about their own thinking—to metacogitate. Whimbey (1985) refers to this as "talk aloud problem solving" (fig. 6).

As teachers require students to describe what's going on "inside their heads," students become aware of their thinking processes. Similarly, as they listen to their classmates describing their metacognitive processes, they develop flexibility of thought and an appreciation for the variety of ways to solve the same problem. Teachers, too, may share their thinking by making their inner dialogue external. Verbalizing questions they are asking themselves about ways to solve problems and sharing their lesson plans and how they check their own accuracy are ways teachers can model their metacognitive processes to students.

Analyzing the Logic of Language

Effective thinking can be fostered by having students analyze the logic implied by linguistic expressions. Certain words and phrases—linguistic cues—indicate logical relationships between ideas (fig. 7).

By examining these linguistic cues (and, or, but, after, because), students can learn to identify related ideas in a sentence and understand the relationship between the ideas (addition,

When you hear:	Say:
"He *never* listens to me."	"Never?" "Never, ever?"
"*Everybody* has one."	"Everybody?" "Who, exactly?"
"*Things* go better with . . ."	"Which things specifically?"
"Things *go* better with . . ."	"Go? Go—how specifically?"
"Things go *better* with . . ."	"Better than what?"
"You *shouldn't* do that . . ."	"What would happen if you did?"
"The *parents* . . ."	"Which parents?"
"I want them to *understand* . . ."	"What exactly will they be doing if they understand . . .?"
"This cereal is *more* nutritious . . ."	"More nutritious than what?"
"*They* won't let me . . ."	"Who are 'they'?"
"*Administrators* . . ."	"Which administrators?"

Fig. 5. Avoiding Generalizations

"As teachers require students to describe what's going on 'inside their heads,' students become aware of their thinking processes."

When children say:	Teachers say:
"The answer is 43 pounds, 7 ounces."	"Describe the steps you took to arrive at that answer."
"I don't know how to solve this problem."	"What can you do to get started?"
"I'm ready to begin."	"Describe your plan of action."
"We're memorizing our poems."	"What do you do when you memorize?"
"I like the large one best."	"What criteria are you using to make your choice?"
"I'm finished."	"How do you know you're correct?"

Fig. 6. Thinking About Thinking

Relationship	Description	Example of Linguistic Cue
Addition	Two ideas go together in some way.	"He is intelligent AND he is kind."
Comparison	Common attributes are shared.	"Shawn AND Sarah BOTH play the violin."
Contrast	Two ideas don't go together.	"He is healthy BUT he doesn't exercise."
Sequence	One event happens before, during, or after another event.	"He went home, THEN he went to the library, checked out some books, and returned to school."
Causality	One event occurs as a result of another.	"SINCE no one was home, he went to the gym."

Fig. 7. Linguistic Cues

comparison, contrast, sequence, or causality).

How to Grow Intelligent Behavior

Teaching students to be alert to the cognitive processes embedded in written and spoken language can help them become aware of their own language and thought. It can help them decode the syntactic, semantic, and rhetorical signals found in all languages; and it can help them integrate the complex interaction of language, thought, and action (Marzano and Hutchins 1985). By asking questions, selecting terms, clarifying ideas and processes, providing data, and withholding value judgments, teachers can stimulate and enhance the thinking of their students.□

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