

# STAFF DEVELOPMENT FOR BUILDING STUDENT THINKING SKILLS

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I think Jonathan was probably frightened when he found he was alone on the island. I think so because I remember he jumped when he heard the owl hoot. I know that little noises in the house sometimes frighten me when I'm at home alone. The two situations are alike in that both include being alone and hearing unexpected sounds. So I think that Jonathan was frightened.

Michael, a fifth-grader, has just successfully responded in a lesson on inferring attributes. His response includes his inferred characteristic and supporting facts from a story he read and from a parallel situation he experienced. In order to make a response like Michael's, a student needs to be able to hold several related ideas in his or her mind and be able to verbalize the relationships among them. Michael's response demonstrates previously acquired skills in recalling, comparing, and explaining his thinking.

## The QUEST Program

Michael is one of nearly 2,000 students whose teachers participated in a staff development program designed to improve student reading comprehension by improving teacher questioning skills. The program included 60 hours of staff development sessions in which strategies for teaching thinking skills, ranging from simple recall to complex problem solving, were presented and modeled. During the sessions, participating teachers analyzed the model lessons, planned similar lessons with the guid-



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## The QUEST Program gives teachers theory, support, and strategies for developing students' reasoning abilities.

ance of training leaders, and practiced teaching the lessons to their peers. Teachers also planned other lessons for using the strategies with their own classes.

The program was not limited to the formal staff development sessions. Training leaders made at least four visits to the classroom of each participating teacher. There they observed the teachers using the strategies with their own students. Sometimes teachers asked the leaders to team teach with them or give demonstration lessons so the teachers could watch their students respond to the strategies. In conferences with the teachers, the leaders provided encouragement and feedback.

Materials for the program, known locally as QUEST (Questions to Upgrade and Encourage Student Thinking) are based on the work of Lyle and Sydelle Ehrenberg (1978). Developed from funds provided under ESEA Title IV-C by the Ohio Department of Education, the QUEST materials include a staff development manual with complete plans and materials for 20 three-hour staff development sessions and a teacher's manual with guidelines for lesson planning and model plans for teaching reading, social studies, language, science, and mathematics.

Goals of the QUEST staff development program included improving teacher questioning skills, improving student ability to ask and answer higher order questions, and improving student reading comprehension. Comparisons to teacher and student behavior before and after the program were based on analyses of written questions and classroom observations in September and May. This evaluation data indicated that teach-

ers had indeed made significant changes in their teaching behavior.

Students of participating teachers also demonstrated differences. They asked more questions above the literal level ( $p < .001$ ); gave more complex responses ( $p < .05$ ); and more frequently supported inferences by citing evidence from experiences, generalizations, or authorities ( $p < .025$ ). While students of participating teachers did not vary significantly from a control group in test scores on standardized and criterion-referenced tests of reading comprehension, they were better able to give oral explanations of the reasoning behind their test responses.

### Better Teaching Methods

Some of the changes participating teachers demonstrated could help any teacher make a positive difference in student thinking. These changes include use of overview statements; beginning lessons with broad, open questions and moving toward more specific, direct questions; use of follow-up questions based on initial student responses; and specific teaching of the vocabulary and processes of thinking.

Teachers prepare students for each lesson by giving an overview statement that tells students what they will be doing and why. For example: "Today we are going to be recalling as much information as we can from our reading about the First Continental Congress. Being able to recall specific, accurate information about this congress will help us when we try to understand how it affected colonial relations with England." Sharing the rationale seems to help teachers and students feel more purposeful. It also communicates to stu-



dents that the teacher respects them enough to share with them the reasons for what they are doing. The need to write an overview helps teachers think more carefully about what they ask students to do. Some have reported they decided against an activity when they realized they couldn't think of a good reason for doing it.

Several teaching behaviors seem to have worked together to increase student willingness to risk oral responses. After two months of using the new approaches, one fourth-grade teacher commented, "Two or three children used to do nearly all the talking in class. Now they all have their hands up, and most of them have something relevant to say." She used to ask a series of specific questions, such as, "Where did the First Continental Congress meet?" "When did the First Continental Congress meet?" "Who attended the First Continental Congress?" Each question was answered by one student whose response was followed immediately by another question from the teacher.

Now she asks, "What do you remember about the First Continental Congress?" She encourages a number of responses, and she records these on the chalkboard. This process helps reduce the tendency of students to forget what they were going to say while they listen to others. It also helps students feel their responses have been heard. Students can see *and* hear all responses so that both auditory and visual learners have an opportunity to consider the ideas.

As responses to the starter questions are being recorded, the teacher mentally classifies each one as to the kind of follow-up questioning it may indicate. Student use of a word that the teacher feels is not commonly un-



Photo: Michael Sexton

derstood by all the students indicates need for a clarification question. If a student recalls that 56 delegates came to the First Continental Congress, the teacher is likely to ask, "What do you mean by the word 'delegate'?" Student presentation of information that is not common knowledge may lead to a verification question such as, "How do you know that the First Continental Congress lasted for seven weeks?" When specific information the teacher believes is important has not been elicited in response to the starter question, a more specific, direct question can narrow the focus: "What do you remember about where the First Continental Congress met?" Classification, verification, and narrow focus are three of the 17 kinds of follow-up questions teachers learned to use during the program.

The process of beginning a lesson with broad, open starter questions and moving toward more specific, direct, follow-up questions provides more opportunities for all students to experience success in oral participation. The process also yields a richer harvest of related ideas than is possible when the teacher asks a series of independent questions. Teachers have reported that student attention improves when they anticipate that they, too, may be asked to respond to a question a peer has just answered.

### Better Student Thinking

Students' responses reflected their growing understanding of the language and processes of thinking. One group of fifth-graders engaged in a heated discussion of whether the fact that a tricycle was green was *relevant* to making an *inference* about what had happened in a picture showing a crying child beside an overturned tri-

cycle. Some children argued that the color was not relevant since red tricycles can tip over as easily as green ones. The child who insisted the color was relevant inferred that the tricycle was so close to the color of the shrubs beside it that someone did not see it and, hence, ran into the tricycle, knocking it over. The words "relevant" and "inference" helped these students articulate their own thoughts and question the ideas of others. Words such as "specific," "accurate," "clarify," and "verify" are posted on charts around the classroom. Each chart has a short definition of the word in "kid language" plus a simple cartoon to help students remember what it means.

Teachers provide students with additional help in understanding thinking by using diagrams designed to illustrate each thinking strategy. These diagrams show the situation requiring the strategy, the mental processing required, and possible phrasing to help students express the product of their thinking. Such diagrams are especially critical in developing student skill in complex inferring strategies. Michael's inference about Jonathan being frightened, cited earlier, was made using such a diagram.

Comprehensive staff development that provides teachers with theory, modeling, analysis, guided practice, and supported classroom application of specific teaching strategies can lead to significant changes in teaching behavior. When these strategies are focused on thinking skills they can make a positive difference in students' intellectual development. ■

### References

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