Designing Staff Development Programs To Improve the Teaching of Thinking

Four critical issues must be considered as long term staff development programs are developed to improve the teaching of thinking.

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We are now in the throes of a "thinking skills" mini-revolution. Articles about the teaching of thinking proliferate, as do thinking skill staff development programs and conferences. A myriad of approaches, special programs, and projects have been designed and developed to incorporate effective thinking skill goals, strategies, and methods into schools and classrooms (Costa, 1985). This proliferation of models, rationales, concepts, methods, and strategies has created an often confusing network of eclectic and conflicting approaches for the teaching of thinking. It can be very difficult for districts to decide on a specific way to develop and implement a plan for improving the teaching of thinking.

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This article suggests some important issues to be considered as thinking skills staff development programs are organized and implemented by school districts. These key issues are based on the author's extensive involvement with thinking skills programs and with school districts that are attempting to implement programs to improve students' ability to think. In order to build a program more likely to succeed, four major areas are suggested for consideration as a program is being developed:

1. Build attitudes that support the teaching of thinking
2. Understand the characteristics of schools that foster thinking
3. Identify skills, strategies, and methods
4. Develop an implementation plan

When these four areas are addressed, more rational and systematic decisions for thinking skills staff development programs can be made more rationally and systematically.

Build Attitudes That Support The Teaching of Thinking

If a successful and comprehensive approach to the teaching of thinking is to be implemented in classrooms, the attitudes of administrators and teachers should reflect its importance and priority as a district-wide and school-based goal. Teachers are more willing to implement a thinking skills approach if they perceive its importance and rate it high among a list of educational goals. Administrators must also believe that the teaching of thinking is very important and must be willing to provide long-term leadership to insure its inclusion in the instructional program.

There are two major reasons for emphasizing the teaching of thinking in the school curriculum. First, profound social and technological changes are taking place in the United States and the world requiring students to be more thoughtful. Some of the most publicized changes include scientific advances in genetics, communications, and computers, but other changes include major economic and social changes in a post-industrial society (e.g., approximately two-thirds of all women between the ages of 18 and 44 are working). It can no longer be taken for granted that students who graduate will be able to function in a modern technological

society if they are literate but not able to use higher cognitive level thinking skills and strategies.

Second, there is evidence that thinking development can have a profound effect on school achievement. Thinking skills and strategies help provide students with fundamental learning tools and "mediating skills" that undergird learning in all subject areas. Studies on metacognitive reading strategies (Harris & Cooper, 1985), on the use of the higher cognitive skills suggested in Bloom's Taxonomy (Soled, 1986), on creativity (Joyce & Showers, 1988), on scientific inquiry (Shymansky, Kyle, & Alport, 1982), and on other information processing strategies (Joyce & Weil, 1986) indicate that the teaching of thinking can improve achievement, retention, and the ability to use thinking skills and strategies. At the same time, other studies indicate students are currently receiving an education which is not emphasizing the teaching of thinking (Goodlad, 1984) and in which students are not being taught to think (Applebee, Langer, & Mullis, 1986).

A by-product of teaching thinking is that the inclusion of thinking skills and strategies can stimulate and enrich classroom life. Students and teachers become

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more excited about learning, and there is greater involvement and variety in classrooms. Students can give opinions, conduct experiments, and more actively participate in their own learning.

If teachers and administrators are to create a systematic framework for teaching thinking, they must be willing to support programs that emphasize thinking development and to work hard at changing what they do so thinking becomes a predominant part of the curriculum. The shift must include the belief that it is more important for teachers to teach students how to think about content than to "cover" all the material for a course and also the willingness to believe that students will actually learn and remember more when they process information and not just memorize and recall it.

A first step in building positive attitudes towards teaching thinking is to promote discussion regarding the priorities and goals of the district and/or the school. In addition, teachers and administrators must acquire knowledge of technological, social and economic trends; an understanding of recent research that supports the teaching of thinking; and a realization that the teaching of thinking can make a significant difference in classroom learning and in the lives of students. A simple way to begin is to ask teachers and/or administrators to rank various subjects and disciplines against the teaching of thinking and to focus on what changes they would be willing to make to support and infuse the teaching of thinking into the school curriculum.

Understand the Characteristics of Schools/Classrooms That Foster Thinking

What are schools and classrooms like that give priority to the teaching of thinking? If thinking is to become an important goal in a district, teachers and administrators must have a clear idea of what they are striving to achieve. What would we observe if we went into a school where thinking were a major goal as compared to a school where thinking was not emphasized?

1. **Thinking-oriented schools and classrooms are more "problem centered."** There is a greater emphasis on providing students with opportunities for

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figuring things out by answering open-ended questions, exploring public issues, comparing, contrasting and creating new ideas, inquiring and hypothesizing, and analyzing and interpreting. Problem situations, which involve students in multiple solutions and/or complex strategies, are more frequently presented. Students may have to logically move step-by-step to solve a problem, or they may have to form an opinion, give reasons and evidence, and defend their position.

2. **Students are involved more actively in learning through a variety of activities and methods.** Higher-order questioning and probing help students become more active learners. Methods such as interpretive discussions, small-group learning, the use of games and puzzles, simulations and role plays, writing activities and assignments, and mystery activities foster the direct use of thinking processes in the learning situation.

3. **There is a much greater emphasis on specific skills and strategies that foster intellectual development and learning skills.** Educators in the field of thinking generally agree on some core skills, such as observing, defining, classifying, comparing, contrasting, inferring, analyzing, sequencing, creating, finding patterns, making judgments, developing priorities, and detecting bias and error. More complex strategies include comprehension, interpretation, problem solv-

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ing, decision making, scientific inquiry, logical and creative thinking, and problem solving and planning. There is no one single way to incorporate one or more skills and strategies, but schools and classrooms involved in thinking spend more time teaching, practicing, and testing some of these skills and strategies in different subjects, through special programs, and at varied grade levels with diverse student populations.

4. **There is a greater emphasis on directly teaching or reflecting upon these skills and strategies.** The term "metacognitive thinking" is often used to characterize this type of instruction. Lessons are taught in which thinking skills and strategies are taught to, and discussed with, students. Discussions are held on how to transfer these skills and strategies to other situations and so they become "second nature" to students in a variety of settings.

Schools and classrooms that include these characteristics look and feel different from more traditional classrooms. There is greater active participation of the student in learning. Classroom activities often given priority to learning skills, strategies, and processes, as opposed to learning factual information (although factual information is not neglected). Students may be found using classification, inference, and other skills; giving interpretations of literature supported by evidence; conducting science experiments and developing hypotheses; deciding what a historical figure might have done in a given situation; planning their own learning experiences through the use of contracts; determining the reliability of information used in solving a problem; transforming a math problem into diagrammatic format; and developing relationships between a series of events in cause-effect format. The teaching of these skills and strategies is most often integrated into the teaching of subject areas, but may also be found as separate courses and programs. The tone and tenor of the classroom experience changes as thinking skills and strategies become a more predominant focus.

Thus, a major focus for a staff development program that emphasizes the teaching of thinking is to give teachers and administrators an understanding of the characteristics of thinking schools and

classroom. Teachers and administrators also need to understand the range of skills and strategies that may comprise a thinking skills program, with examples of the use of methods and activities that emphasize these skills in practice. There are many ways to do this — reflecting upon readings that illustrate these skills and strategies and their use in the classroom; exploring examples of thinking skills activities in subject areas, such as inquiry in science and problem solving in math; focusing on the application of general thinking skills and comprehension strategies in all subject areas; providing an overview of skills, strategies, methods and activities; or introducing special thinking skill programs that illustrate these skills and strategies.

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Identify Skills, Strategies, and Methods

In addition to a belief in the importance of teaching thinking and an understanding of what schools and classrooms are like when the teaching of thinking is emphasized, specific skills, strategies, and classroom methods and materials need to be developed and/or selected for implementation. The options are varied and plentiful. The selection process may vary considerably from district to district.

In one district, a district-wide committee selects and defines ten skills and strategies, and develops a direct instruc-

tion format for teaching the skills at different grade levels and in different subject areas. Another district concentrates on a subject area, such as social studies, and uses a curriculum development process for selecting skills and strategies that will be piloted in high school social studies courses. A third district selects the *Philosophy For Children* program (Lipman, n.d.) for its elementary school program, trains its teachers in the program, and allots time during the school day for using the program in its classrooms. A fourth district concentrates on integrating the writing process into its program by using writing to encourage students to interpret, create, and take positions.

While each of these approaches to the teaching of thinking has different objectives and goals, each reflects the development of a pragmatic plan that takes into account the interests of its staff, the political realities of the district and its resources, the district's understanding of thinking skill goals, and the general needs of the district. The selection process also takes into account the organization's attitude towards, and resources for, long-term staff development.

Develop an Implementation Plan

A critical part of the implementation process is the development of a plan for defining short- and long-term goals and the establishment of procedures to support change. The implementation process often involves a selected group of teachers in piloting an identified set of skills, strategies, and methods. Since thinking skill implementation usually involves some major shifts in teachers' attitudes and behaviors, there is usually a need to move slowly and carefully in incremental steps. For example, if a specific subject area is targeted for improvement, then subject area teachers and administrators must plan ways to work together to pilot thinking-oriented subject area curricula designed, developed, and/or selected by the district.

The planning process may involve the district in an effort to define specific steps and stages that will move the district toward a long term goal. It may involve the district in one or more of the following efforts to:

1. Shift the curriculum objectives and materials to reflect thinking skills and

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strategies through curriculum development and review processes
2. Shift methods of teaching to those that are more likely to promote thinking skill development through staff development programs
3. Develop assessment procedures that assess thinking through diagnosis, testing, and other means
4. Provide more individualized and differentiated instruction by exploring ways to involve students in different levels and types of thinking

The actual planning process used by a district reflects the current state of its political realities and cultural values. How open to new ideas are administrators and teachers? Do the cultural norms of the school allow for dialogue and reflection? Do they allow for collaborative as opposed to individual efforts? To what extent are teachers involved in the planning of new school approaches? What are the district's norms regarding staff development? The success of the implementation phase is

largely dependent on the development of a comprehensive plan, similar to that which must be developed for any major staff development effort. The success of a complex process of change such as that required by a major effort in the teaching of thinking is tied to a district's ability to (a) define and develop an organizational climate and process that enables change to occur, and (b) systematize ways to encourage and maintain change over time. With the development of a thinking skills program, this may require:

1. Time for reflection on the goals of the school program, with dialogue and discussion on how thinking skills can and must play an important role in teaching and learning
2. Time for clarifying and understanding types of thinking skills, strategies, methods and approaches, and how they can be incorporated into different subject areas, grade levels, and programs
3. The selection of a set of goals, methods, and programs, along with the development of an implementation plan that is consistent with the school district's organizational and cultural climate. Included are opportunities for staff to become involved in curriculum development and review, staff development, and peer collaboration.

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Figure 1
Questions for Staff Development Programs
for Developing Thinking

A. Build Attitudes That Support the Teaching of Thinking
1. Do administrators and staff believe that fostering thinking is a priority goal for instruction?
2. Do needs assessments indicate a strong interest by staff in thinking skills staff development?
3. Is thinking-oriented curriculum development and instruction encouraged and rewarded?
4. Are collaborative efforts undertaken by staff to build thinking skills instruction?
5. Can administrators and staff articulate a rationale and identify objectives which reflect thinking skills instruction?
6. Do teachers and administrators show enthusiasm for using instructional strategies that foster thinking?
7. Are teachers and administrators encouraged to think, solve problems, and make decisions as part of the school environment?
8. Who currently emphasizes the teaching of thinking? What parts of the curriculum currently emphasize the teaching of thinking? Who is currently interested in teaching thinking or in further exploring the teaching of thinking?

B. Understand the Characteristics of Schools/Classrooms
That Foster Thinking
1. Have administrators and staff been involved in staff development programs related to the teaching of thinking?
2. Are there opportunities to attend conferences and seminars outside the district related to the teaching of thinking?
3. Are professional journals, articles, and other materials disseminated that focus on the teaching of thinking?
4. Have efforts been made to explore a range of programs and approaches that explore characteristics of thinking?
5. Have administrators and staff explored their "ideal" program for teaching thinking? Have they compared an ideal program to the existing school district program?
6. Do staff have an opportunity to observe exemplary thinking programs in other educational settings?

C. Identify Skills, Strategies, and Methods
1. Have efforts been made to narrow down the skills, strategies, and methods that will be given priority in the district?
2. Have the skills, strategies, and methods been clarified, defined, described, developed in a format for sharing with others?
3. Has the district explored the application of these skills, strategies, and methods to the K-12 curriculum? To subject areas? To programs?
4. Will the skills, strategies, and methods be infused into subject areas? Taught separately? Taught at every grade level?

D. Develop an Implementation Plan
1. Does the implementation plan contain long-term and short-term goals and objectives?
2. Does the plan provide for specific objectives that incrementally lead to the improvement of the teaching of thinking?
3. Does that plan call for a practical and realistic process for change (such as through pilot programs, specific subject area changes, grade-level changes, or the implementation of special programs)?
4. Does the plan provide for adequate training and staff development in order to implement change?
5. Does the plan provide for adequate financial resources to support thinking skill development?
6. Are there opportunities to adequately communicate with the school board, parents, and the community to explain the program and its rationale?
7. Does the plan include opportunities for peer collaboration and/or supervision to foster change?
8. Does the plan foresee stages of change and ongoing problems as change occurs?
9. Does the plan explore the consequences of classroom changes (and other changes) relevant to the teaching of thinking?

Some Questions

It has been said that "questions, not answers, are the key to learning." Given that perspective, a broader set of questions are outlined in Figure 1. These questions, based on the four areas explored in this paper, can provide a focus for developing significant long-term staff development programs to improve the teaching of thinking.

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