Using the 4MAT System to Bring Learning Styles to Schools

4MAT offers a way to accommodate, as well as challenge, all types of learners, by appealing to their accustomed learning styles while stretching them to function in less comfortable modes.

In 1972, I developed the 4MAT System to help teachers organize their teaching based on differences in the way people learn. 4MAT is an eight-step cycle of instruction that capitalizes on individual learning styles and brain dominance processing preferences. Designed to raise teacher awareness as to why some things work with some learners while others do not, 4MAT is based on research from the fields of education, psychology, neurology, and management. The theories of David Kolb (1981, 1984, 1985), Carl Jung (1923), Jean Piaget (1970), John Dewey (1958), Joseph Bogen (1969, 1975), Gabriele Rico (1983), Betty Edwards (1979), and John Bradshaw and Norman Nettleton (1983) have contributed to 4MAT's conception.

Research we have conducted in 17 school districts[1] that have committed to long-range implementation of 4MAT has given us interesting insights into the change process. Here, we report on what we are trying to teach them about the 4MAT System and its uses in instruction and staff development planning.[2]

The 4MAT System: An Overview

Inherent in the 4MAT System are two major premises: (1) people have major learning styles and hemispheric (right-mode/left-mode) processing preferences; and (2) designing and using multiple instructional strategies in a systematic framework to teach to these preferences can improve teaching and learning.

All of us feel, reflect, think, and do, but we linger at different places along the way. And these lingerings form our learning style preferences, complex patterns of individuality, developed over time, that bias what we see and how we see it. Differences in our learning styles depend on many things: who we are, where we are, how we see ourselves, what we pay attention to, and what people ask and expect of us.
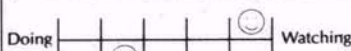

Fig. 1. Continuum of Perception

Sensing/Feeling

Thinking

Fig. 2. Processing Continuum

Doing — Watching

Perceiving and Processing

David Kolb (1976, 1984, 1985), whose work forms the theoretical base for 4MAT, described two major differences in how people learn: how they perceive and how they process. People perceive reality differently. Some people, in new situations, respond primarily by sensing and feeling their way, while others think things through. No one uses one response to the total exclusion of the other. However, in their reactions, people hover near different places on a continuum, and that hovering place is their most comfortable place (fig. 1).

Those who perceive in a sensing/feeling way project themselves into the reality of the now. They attend to the actual experience itself. They immerse themselves directly, they perceive through their senses. They intuit. On the other hand, those who think through experiences attend more to the abstract dimensions of reality. They analyze what is happening. Their intellect makes the first appraisal, they reason experience, they approach experiences logically.

These two kinds of perception are quite different; they complement rather than exclude each other. Both are equally valuable, and both have strengths and weaknesses. Most important of all, every learner needs both for the fullest possible understanding of experience.

Perception alone, however, does not equal learning. The second major dif-

ference in how people learn is how they process experience and information, how they make new things part of themselves (fig. 2). Some people are watchers first, others are doers first. The watchers reflect on new things; they filter them through their own experience to create meaning in a slow, deliberate choosing of perspectives. The doers act on new information immediately. They reflect only after they have tried it out. They need to do it, to extend themselves into the world, in order to make it theirs. Both ways of processing information and experience are equally valuable, and each has its own strengths and weaknesses.

The processing dimension is a continuum that ranges from the need to internalize to the need to act. Watchers need to refine their reflective gifts while developing the courage to experiment and try. And doers need to refine their experimenting gifts while developing the patience to watch reflectively.
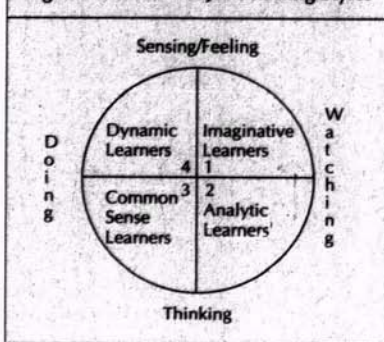
The Four Major Learning Styles

When these two dimensions of perceiving and processing are juxtaposed, a four-quadrant model is formed. The resulting structure delineates the qualities of four major learning styles (fig. 3).

Type One: Imaginative Learners
Imaginative learners perceive information concretely and process it reflectively. They integrate experience with the self. Listening and sharing ideas to learn, they are imaginative thinkers who believe in their own experiences. They work for harmony and need to be personally involved. They seek commitment and are inter-

Some people are watchers first, others are doers first.

Fig. 3. The Four Major Learning Styles

Sensing/Feeling

Doing | Dynamic Learners 4 | Imaginative Learners 1 | Watching
Common Sense Learners 3 | Analytic Learners 2

Thinking

ested in people and culture. Sometimes, because they see all sides, they have difficulty making decisions. They seek meaning and clarity. They find school too fragmented and disconnected from the personal issues that they find most interesting. They struggle to connect the content of schooling with their need to grow and understand their world.

Type Two: Analytic Learners
Type Two learners perceive information abstractly and process it reflectively. They devise theories by integrating their observations into what they know. They learn by thinking through ideas. They need to know what the experts think. They value sequential thinking. They need details, and are thorough and industrious. They enjoy traditional classrooms and find ideas fascinating. Sometimes they enjoy ideas more than people—they can be cool and aloof. Seeking intellectual competence and personal effectiveness, they are highly skilled verbally and, generally, avid readers. They find school well suited to their needs.

Type Three: Common Sense Learners
Type Three learners perceive information abstractly and process it actively. They integrate theory and practice, learning by testing theories and applying common sense. Type Threes are pragmatists: they believe if something works, then use it. Down-to-earth problem solvers, they resent being given answers. They value strategic thinking. They are skills-oriented people who like to experiment and tinker with things because they need to know how things work. They edit reality to

cut right to the heart of things. Because they feel a strong need to work on real problems, they find school frustrating. They want to see how what they are learning is of immediate use to them.

Type Four: Dynamic Learners
Dynamic learners perceive information concretely and process it actively. They integrate experience and application, learning by trial and error. Enthusiastic about new things, they are adaptable people who relish change. They excel when flexibility is needed. Type Fours often reach accurate conclusions in the absence of logical justification. They are risk-takers who are at ease with people, and sometimes they are seen as manipulative and pushy. They seek to influence. For them, school is often tedious and overly sequential. Because they seek to pursue their interests in diverse ways, they too are frustrated with the structure of our schools.

Using 4MAT to Engage the Whole Brain

Other illuminating views of preferences can be derived from research on the different functions of the two hemispheres of the brain. Current brain research has found that (1) the two halves of the brain process information differently; (2) both hemispheres are equally important in terms of whole-brain functioning; and (3) individuals rely more on one information processing mode than the other, especially when they approach new learning (Bogen 1969, 1975).

Research typically describes the left mode as serial, analytic, rational, and verbal. Left-mode processing is systematic. Analysis and planning are key strategies. Problems are solved by looking at the parts, and sequence is critical.

The right mode is global, visual, and holistic, able to see patterns and connections. Right-mode processing seeks patterns and solves problems by looking at the whole picture. Intuition, beliefs, and opinions are key processing strategies.

To illustrate the importance of whole-brain functioning, Jeremy Campbell (1989) remarks on how the hu-
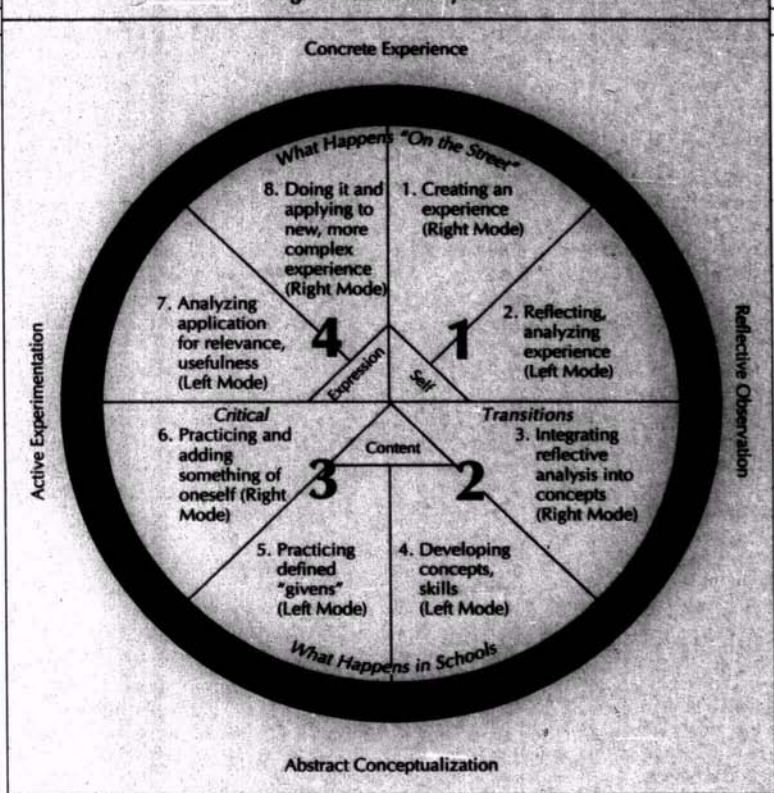
man mind forms its notions by mixing up its own nature with the nature of things. When scientists engage in explicit theory development, he observes, they use logical reasoning. But in the discovery phase that must precede the definitive process of creating a new theory, they often use illogical reasoning, reasoning that reflects their own subtle biases.

The reality is that we approach learning with our whole minds, with our intuition, our beliefs, our subjectivity intact. Accordingly, schools should engage the subjective mind more openly and with honor. It is the whole brain that flexes and flows. If the left mode engages in analyses—breaks down, specializes, names things, and agrees on the existence of these things—and if the right mode seizes upon the character of the whole—understands from experience and grasps directly—then it is clear we need to honor both modes of processing in our schools: we must engage the whole brain.

Each of the four learning styles quadrants contains right-mode, left-mode, and whole-brained learners, although there are strong tendencies toward left-mode dominance in Quadrants Two and Three and toward right-mode processing in Quadrants One and Four. But because there are right-, left-, and whole-brained learners in each of the quadrants, I made a commonsense decision to alternate right- and left-mode techniques through the four learning styles cycle. If all four learning styles are taught to all learners in a cycle that alternates from right- to left-mode information processing, and if in doing this, all styles are equally valued, this integration will allow learners to be comfortable some of the time and stretched and challenged at other times. And because it is clear that all learners need all segments of the cycle, the entire cycle then becomes more valuable than any one segment.

Thus, teachers can use the 4MAT System to improve their instructional designs by employing diverse strategies in a cycle of learning (fig. 4). This cycle appeals to each learner's most comfortable style in turn, while stretch-

ing her or him to function in less comfortable modes. The movement around this circle is a natural learning progression. Humans sense and feel, they experience, then they watch, they reflect, then they think, they develop theories, then they try out theories, they experiment. Finally, they evaluate and synthesize what they have learned in order to apply it to their next similar experience. They get smarter. They apply experience to experiences.

The 4MAT Cycle as a Change System

As a learner-focused model for adapting curriculum and instruction to the diverse needs of students, 4MAT benefits teachers by giving them a framework to design learning activities in a systematic cycle. But 4MAT has other applications: administrators can use the 4MAT quadrants to sketch out the desired outcomes of staff development (fig. 5).

By examining the primary characteristics in each quadrant of the cycle, the role shifts of teachers and learners become apparent. Each quadrant has a different emphasis. Quadrant One's

emphasis is on meaning, or how the material to be learned is connected to learners' immediate lives. Quadrant Two's emphasis is on content and curriculum and the importance of delivering instruction through an integrated approach. Quadrant Three addresses the usefulness of learning in the lives of the learners both in and out of school—it emphasizes the transferability of learning. Quadrant Four encompasses creativity, how the learner adds to the original learning in new and unique ways.

When these quadrants are put together, they make up a complete developmental learning cycle, moving from subjective knowing to objective knowing to integrated knowing (Kegan 1982). This cycle can be a valuable framework to those designing staff development strategies.

Quadrant One: Attitude Shifts in Meaning

When we use the 4MAT cycle in staff development, we begin by affirming what teachers already know about good practice. We begin with the teachers themselves: where they live, who they are, and how they learn (by having them find out their own best

Fig. 4. The 4MAT System

Concrete Experience

What Happens "On the Street"

8. Doing it and applying to new, more complex experience (Right Mode)

1. Creating an experience (Right Mode)

7. Analyzing application for relevance, usefulness (Left Mode)

2. Reflecting, analyzing experience (Left Mode)

Expression

Self

4

1

Active Experimentation

Reflective Observation

Critical

6. Practicing and adding something of oneself (Right Mode)

Content

Transitions

3. Integrating reflective analysis into concepts (Right Mode)

3

2

5. Practicing defined "givens" (Left Mode)

4. Developing concepts, skills (Left Mode)

What Happens in Schools

Abstract Conceptualization

learning style). As we connect 4MAT principles to the immediate lives and concerns of the teachers, we see changes in three major areas: in teachers' attitudes toward diverse kinds of intelligence, in their attitudes about the act of teaching, and in their sense of responsibility for their students' motivation.

When teachers take the *Learning Style Inventory* (Kolb 1976, 1985) and the *Hemispheric Mode Indicator for Left and Right Information Processing Preferences* (McCarthy 1986), they begin to address the issue of differences in learners through the eyes of their own preferences. Then their attitudes about the act of teaching begin to change: teaching becomes more dialogue, less monologue—more of an interactive exchange of different realities rather than the mere giving of information. They begin to see student diversity as a positive outcome, one that can enhance learning. Teachers also feel a deeper sense of responsibility for motivating students: they report a new urgency to create curiosity and interest in their students. They develop Quadrant One "hooks" to get their students involved with the content. In addition, teachers' attitudes toward their fellow teachers become more positive. As a new sense of collegiality emerges, their professionalism rises.

Teachers begin talking about instruction: the best ways to introduce new concepts, their reactions to student responses to right-mode techniques, thoughts about students becoming involved in the problem-solving aspects of the cycle, and concerns about the difficulty of zeroing in on the best concepts (best in the sense of structurally important to the content itself and significant in its potentiality for making connections).

Teachers need practice when undertaking innovations, and they need immediate feedback from that practice. The implementation strategy called Learning Partners[3] helps fill that need. This strategy, a form of peer coaching, is a powerful tool in helping teachers master 4MAT. Teachers form new relationships as they come together during feedback sessions to discuss and critique lesson units for improvement and refinement.

Quadrant Two: Changes in Content Approaches

As teachers examine their approaches to content during long-range 4MAT projects, they often find themselves increasingly frustrated with the fragmentation of the curriculum. The writing of a 4MAT lesson necessitates spotlighting the concepts or key issues that underlie the content. In searching for these issues, teachers turn to concepts that connect several ideas together, and they find this difficult. Many dual fields of knowledge, such as bioengineering and neurophysiology, have emerged in our time, yet our curriculums show few programs that merge content successfully. Once teachers rediscover this fragmentation, they encounter the content coverage dilemma. If we are to make the conceptual choices necessary to teach to depth rather than merely to cover material, we must strengthen our ability to understand the structure of content fields.

Teachers often need help in understanding content areas in this higher-order way, since textbooks for the most part have not been written conceptually and, of course, our tests also lack a conceptual approach. For example, a social studies teacher might choose the theme "Exploration," and then integrate the perspectives of geography and history (how particular places influence and become part of historical events), the economic exigencies, the political struggles, and the anthropological cast of humans living out their need to continuously seek and know. Such an integration of content encourages students to construct their own meaning and connections.

Staff developers, perhaps department chairs and supervisory personnel, need to build in this integrated approach to content as they move to conceptual approaches. In 4MAT intermediate training, we give teachers the time and assistance to conceptualize their content areas, and they are most successful when they undertake this task together.

Quadrant Three: Changes in Strategies for Mastery

Quadrant Three calls for tinkering, checking out the validity of the content they are being asked to master. We want our students to question, to ask: *Is this valid? Does it work? What happens when this is applied to life outside school?* The 4MAT cycle requires students to transfer what they are learning into their own lives, and this questioning, validating phase is a crucial step in the process of putting learning to use. Without practical application, there is no real learning. Teachers themselves need to be "tinkerers," to model the act of pondering ambiguities, of facing uncertainties, of highlighting subtleties, in order to help students question, try, struggle with complexities, and then personalize.

Teachers in the 4MAT projects learn to find activities that call for experimenting, for doing, for acting. Because these requirements go far beyond workbook pages and chapter questions, teachers report a new sense of extension, of moving students beyond set content objectives. As they tinker with new applications for their learning and begin to take over the responsibility for the learning process, teachable moments proliferate. Staff developers should include strategies for helping teachers to fulfill their new roles as coach and resource. Teachers

Fig. 5. The 4MAT Cycle as a Change System

Creativity — 4

Personal Meaning — 1

Usefulness — 3

Content and Curriculum — 2
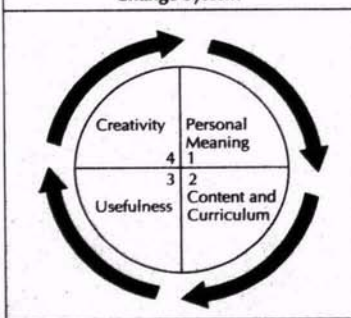
need help in creating the risk-free environments that invite open-ended learner participation, particularly those whose own learning styles make participation difficult.
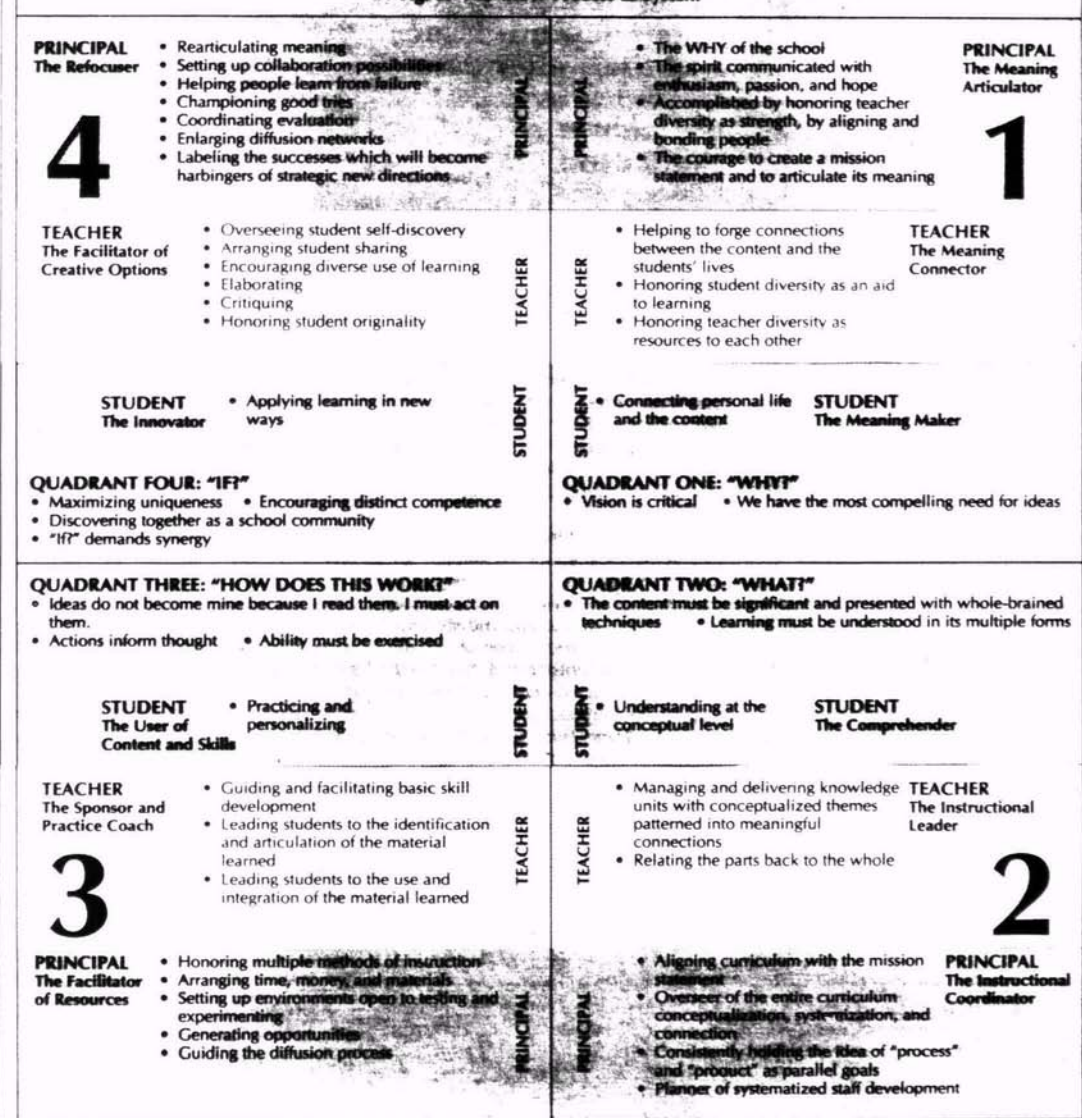
Quadrant Four: Changes in Evaluation Techniques
When 4MAT long-range projects move into their second year, teachers begin to feel the inadequacy of traditional evaluation methods, typically Type Two. The need to assist learners in accepting greater responsibility for self-evaluation becomes clear.

If they are going to require their

Fig. 6. The 4MAT Process as System

PRINCIPAL
The Refocuser
- Rearticulating meaning
- Setting up collaboration possibilities
- Helping people learn from failure
- Championing good tries
- Coordinating evaluation
- Enlarging diffusion networks
- Labeling the successes which will become harbingers of strategic new directions

4

PRINCIPAL
- The WHY of the school
- The spirit communicated with enthusiasm, passion, and hope
- Accomplished by honoring teacher diversity as strength, by aligning and bonding people
- The courage to create a mission statement and to articulate its meaning

PRINCIPAL
The Meaning Articulator

1

TEACHER
The Facilitator of Creative Options
- Overseeing student self-discovery
- Arranging student sharing
- Encouraging diverse use of learning
- Elaborating
- Critiquing
- Honoring student originality

- Helping to forge connections between the content and the students' lives
- Honoring student diversity as an aid to learning
- Honoring teacher diversity as resources to each other

TEACHER
The Meaning Connector

STUDENT
The Innovator
- Applying learning in new ways

- Connecting personal life and the content

STUDENT
The Meaning Maker

QUADRANT FOUR: "IF?"
- Maximizing uniqueness • Encouraging distinct competence
- Discovering together as a school community
- "If?" demands synergy

QUADRANT ONE: "WHY?"
- Vision is critical • We have the most compelling need for ideas

QUADRANT THREE: "HOW DOES THIS WORK?"
- Ideas do not become mine because I read them. I must act on them.
- Actions inform thought • Ability must be exercised

QUADRANT TWO: "WHAT?"
- The content must be significant and presented with whole-brained techniques • Learning must be understood in its multiple forms

STUDENT
The User of Content and Skills
- Practicing and personalizing

- Understanding at the conceptual level

STUDENT
The Comprehender

TEACHER
The Sponsor and Practice Coach
- Guiding and facilitating basic skill development
- Leading students to the identification and articulation of the material learned
- Leading students to the use and integration of the material learned

3

- Managing and delivering knowledge units with conceptualized themes patterned into meaningful connections
- Relating the parts back to the whole

TEACHER
The Instructional Leader

2

PRINCIPAL
The Facilitator of Resources
- Honoring multiple methods of instruction
- Arranging time, money, and materials
- Setting up environments open to testing and experimenting
- Generating opportunities
- Guiding the diffusion process

- Aligning curriculum with the mission statement
- Overseer of the entire curriculum conceptualization, systemization, and connection
- Consistently holding the idea of "process" and "product" as parallel goals
- Planner of systematized staff development

PRINCIPAL
The Instructional Coordinator

students to function in all four quadrants, teachers must devise and implement techniques for evaluating the 4MAT quadrants, as well as right- and left-mode activities. Most evaluation techniques used by teachers apply mainly to objective test items, with some content areas using essay tests, which they may or may not know how to grade effectively. The nature of objective testing has kept educators from dealing with evaluation process issues such as the clarity of conclusions, the insights brought to bear on a situation, and the elegance of a solution to a complex problem. Our present measurement methods are inadequate to the task of multiple ways of knowing. Teachers must accept the task of engaging in dialogue with colleagues to create standards of excellence—standards based on subjective judgments about what constitutes excellence. Evaluation methods must be expanded to include Quadrants One, Three, and Four and right-mode processing activities if we are to assess learning in all its forms.

Finally, student self-evaluation must become central to all evaluation. I am not speaking of loose, uneven standards; rather, we must help our teachers teach their students high standards for original and creative work and hold them to this requirement. In Quadrant Four, students are led to self-discovery. The chief responsibility for learning shifts from the teacher (Quadrants One and Two) to the students (Quadrants Three and Four). In Quadrants Three and Four, students practice and personalize, until they finally create and integrate. The essence of Quadrant Four, the last piece in the cycle, occurs when students find original and creative ways to integrate what they have learned into their lives and their communities.

The 4MAT Process as a Systems Approach

None of these changes can happen unless administrators and staff developers take a systems approach to learning styles implementation. To do this, each quadrant of the 4MAT cycle can be divided into principal, teacher, and student perspectives (see fig. 6).

When the 4MAT Wheel is used to

Learning style issues lead directly to instructional issues, which lead directly to curriculum issues and their attendant ambiguities about the nature of evaluation.

plan a systems approach, Quadrant One becomes devoted to the question *Why?* Quadrant Two becomes *What?*, Quadrant Three, *How does this work?*, and Quadrant Four, *If?* Each question is then addressed to the principal, teacher, and student, whose roles change according to the demands of each question.

In Quadrant One, the principal's role is to articulate the meaning of the school through his or her vision, the teacher's role involves connecting meaning to content, and the student's role is to construct meaning in dialogue with each other and their teachers, dialogue about content that connects to their lives.

In Quadrant Two, the principal is the instructional coordinator, aligning the curriculum with the mission statement. The teachers assume the roles of instructional leaders (it is they, after all, who specialize in content), and the students are the comprehenders of that content.

In Quadrant Three, the student assumes the role of user of content and skills. The teacher becomes the coach, and the principal becomes the facilitator of resources, honoring multiple methods of instruction and arranging time, money, and materials.

And finally, in Quadrant Four, the student becomes the innovator. The teacher becomes the facilitator of creative options, and the principal becomes the refocuser, setting up collaboration possibilities, coordinating evaluations, enlarging diffusion networks, and re-articulating meaning and mission.

Through our staff development efforts over the last few years, I have experienced the need to couch our instructional designs and project plans in a systems approach. The complexity of schooling makes it necessary to understand how the parts and the whole fit together and to plan accordingly. To focus only on instruction (as I believed I would at first) will not work. Learning style issues lead directly to instructional issues, which lead directly to curriculum issues and their attendant ambiguities about the nature of evaluation. The necessity to integrate curriculum leads to questions about teacher time, time away from students for teachers to work together, to construct integrated approaches to content, and to be learning partners to one another. And all of it hinges on outcomes. What are our goals? Do we want our students skilled in multiple forms of conceptualization, or are the present narrow forms of evaluation sufficient for life in contemporary society, where meaning is experienced as multiple and interactive?

I continue to ponder these questions and to experience the complexity of the schooling enterprise as I go. It has become apparent to me that a systems approach is vital. And I become more and more perplexed by— and leery of—people who have easy answers.□

with *Right/Left Mode Techniques* (Barrington, Ill.: Excel, Inc.).

[3] Coined by Area III, Fairfax County, Va., teachers as preferable to the term *peer coaches*.

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DEE BLAIR AND SHERRY SELPH JUDAH

Need a Strong Foundation for an Interdisciplinary Program? Try 4MAT!

Using the 4MAT System to help them work together, high school teachers in Monroe County Community Schools, Bloomington, Indiana, initiated a new program designed to prepare students for today's technological world.

Have you ever seen high school English teachers engaged in intense conversation about an exciting short story with their math and science colleagues? Or math and English teachers taking basic science concepts and integrating them into their own lesson plans? An innovative new state program called Technology Preparation is creating outcomes such as these in Monroe County high schools.

"Tech Prep" prepares high school students for the realities of the workplace by ensuring that their course of study offers practical applications of academic concepts to real-life situations. Too often, we teach children to appreciate academic skills like reading literature for their own sake, not for their universal applications to today's society. Tech Prep can help students take a piece of literature like *The Scarlet Letter* and apply it to today's world where debates on abortion and single parenting are relevant to teenage students.

We found the 4MAT model a natural and perfectly compatible structure on which to build our Tech Prep Program. It helped us accomplish the feat of getting teachers to work together by sensitizing them to individual learning styles, including their own.

First, we administered the *Learning Styles Inventory* and the *Hemispheric Mode Indicator* to our teachers. We compared the results to see who was similar and who was different in style and what teachers' particular "comfort zones" with various styles were. This provided essential information on team members' working and teaching styles.

Second, we moved ahead to use 4MAT as a curricular model for teachers' lesson plans. The 4MAT wheel with