

What 4Mat Training Teaches Us About Staff Development

Instruction based on learning styles and brain dominance applies to the education of teachers as well as to students.

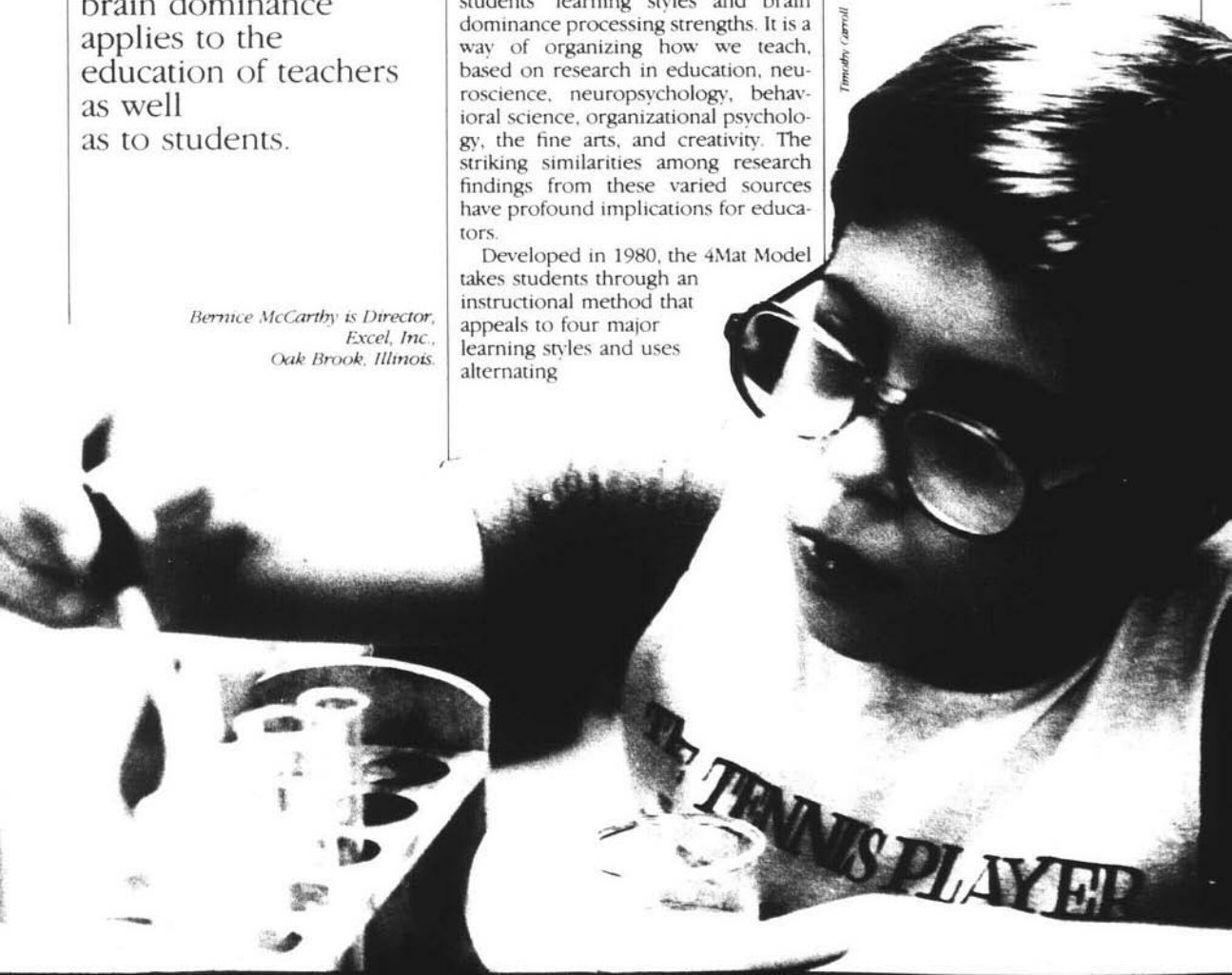
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The 4Mat System (McCarthy, 1981) is an eight-step cycle of instruction that capitalizes on students' learning styles and brain dominance processing strengths. It is a way of organizing how we teach, based on research in education, neuroscience, neuropsychology, behavioral science, organizational psychology, the fine arts, and creativity. The striking similarities among research findings from these varied sources have profound implications for educators.

Developed in 1980, the 4Mat Model takes students through an instructional method that appeals to four major learning styles and uses alternating

right and left mode techniques. It is a teaching technology that gives all students a chance to shine, while stretch-

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ing them to proficiencies in other learning styles. Our present style of teaching, which relies mostly on lecture and question-answer methods, appeals to only one type of learner. During the last two years—while presenting the 4Mat Model in many school settings, from elementary to college teachers, staff developers to superintendents, rural to urban systems—I have made some interesting discoveries, which have implications for staff development.

Four Unique Learning Styles

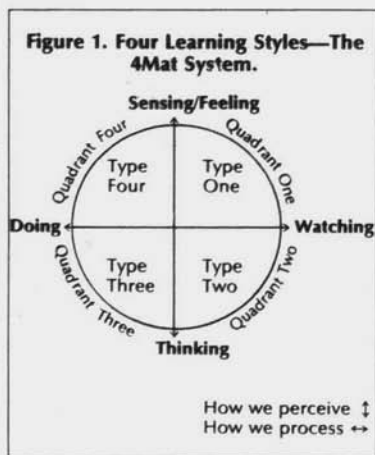
On a scale from Concrete Experiencing to Abstract Conceptualizing, human beings *perceive* experience and information in different ways. Some of us sense and feel our way, while others tend to think things through. And on a scale from Reflective Observing to Active Experimenting, human beings *process* experience and information in different ways. Some of us reflect and watch, while others jump right in and try things. The combinations formed by these perceiving and processing techniques form four unique learning styles (Figure 1). Students need to know that all four are equally valuable; they need to be comfortable with their own learning styles.

Type One Learners are innovative. They prefer to learn through a combination of feeling and watching. They are primarily interested in personal meaning. Their favorite question is *Why?* Teachers need to *give them reasons*.

Type Two Learners are analytical. They prefer to learn through a combination of watching and thinking through concepts. They are primarily interested in facts as they lead to conceptual understanding. Their favorite question is *What?* Teachers need to *give them facts* that deepen understanding.

Type Three Learners use common sense. They prefer to learn by thinking through concepts and trying things out for themselves—by doing. They are primarily interested in procedures. Their favorite question is *How?* Teachers need to *let them try things*.

Type Four Learners are dynamic. They prefer to learn by doing things



and sensing concrete reality. They are primarily interested in self-discovery. Their favorite question is *If?* Teachers need to *let them teach themselves and others*.

All students need to be taught in all four ways in order to be comfortable and successful part of the time while being stretched to develop other learning abilities. Most schools honor only the sequential, logical Type Two style of learner. The other three learning types either cope and adapt, or they fail. Spending energy adapting and coping, while admittedly a kind of learning, diffuses energy needed for other learning. Schools that recognize a diversity of learning styles systematically expose *all* students to multiple instructional techniques, while maintaining full support for each child's primary style. All students excel at different places in the learning cycle and can thus learn from each other.

Each learning mode needs to be taught with both right and left mode processing techniques. Whether students have a penchant for approaching learning from a right mode perspective or from a left mode perspective, all are comfortable part of the time and learn to develop and adapt the rest of the time. They come to accept their strengths and learn to capitalize on them while developing new strengths in areas that are difficult for them. This process furthers their ability

to learn in alternative modes without the pressure of "being wrong," and generates a healthy respect for the uniqueness of others. It is this synthesis—the development of expertise in nondominant modes of learning—that produces leaps to higher levels of learning.

Teaching Sequentially

The 4Mat System moves through the learning cycle in *sequence*, teaching in all four modes and incorporating the four combinations of characteristics. This sequence is a natural learning progression that starts with the teacher answering—in sequence—the questions that appeal to each major learning style.

Why? Motivation becomes the teacher's primary task in Quadrant One. When answered at the personal level for students, the question *Why?* imbues subject matter with meaning.

What? The Quadrant Two question necessitates moving students toward a more conceptual understanding. The concept itself must be taught, not merely the manifestation of the concept. For example, it is foolish to teach the rules for capitalization without teaching the *concept* of capitalization. If students know the reason why we have big and small letters in written words, rote memorization becomes unnecessary.

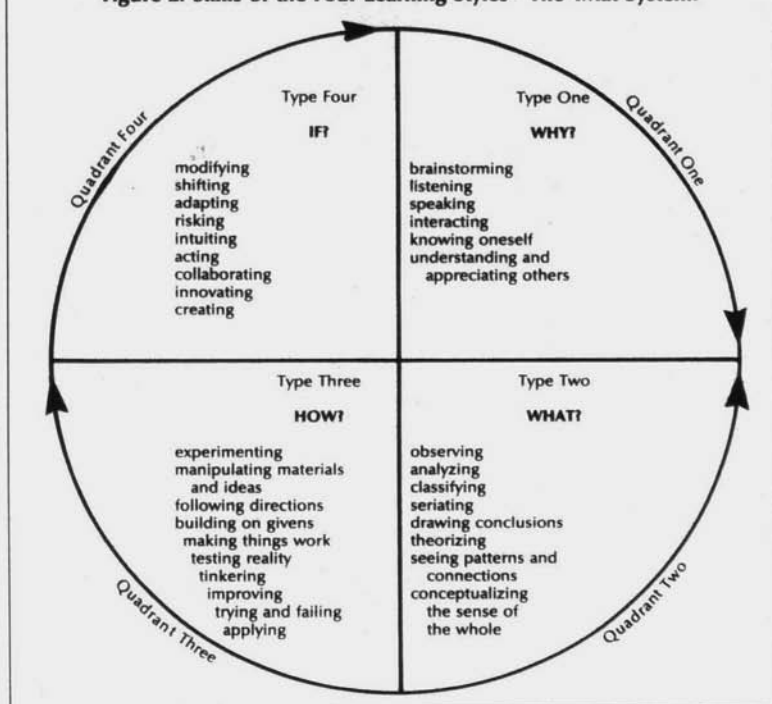
How? The answer to the Quadrant Three question entails setting up hands-on activities that are useful to the students in their own lives.

If? The answer to this question moves students into adapting the material they have learned.

To accomplish these goals schools need to:

- Give all students an equal chance to learn.
- Consider student motivation the teacher's primary task.
- Base curriculum on important concepts, not just on the manifestation of concepts.
- Relate skills to concepts and make them immediately useful in students' lives outside the school.
- Lead students to self-discovery, not the regurgitation of facts and figures.

Figure 2. Skills of the Four Learning Styles—The 4Mat System.



• Celebrate the diversities in students.

Each learning style type has a place where he or she is most comfortable and where success comes easily—a kind of home base. The characteristics of the four quadrants represent the different ways people approach learning and process and transform what they learn (Figure 2). The Type One learner excels at learning by interacting and discussing. Type Two learns through a combination of watching and thinking through concepts, through lecture and reading. Type Three learns by doing, through coaching and hands-on experimenting. Type Four learns through self-discovery. Growth means going around the circle, honoring the processes and attributes of all four quadrants.

Right and Left Mode Processing

The 4Mat System overlays right and left mode processing techniques on the four major learning style methods. This attribute of the model is based on Bogen's (1979) idea of *hemisphericity*, which means that individuals rely more on one mode of processing than another. The left mode is typically described in the literature as processing in a serial, analytic, rational way, in which differences are detected and discrete parts noted. Right mode processing is typically global and holistic; patterning and seeing connections and similarities are stressed (Springer and Deutsch, 1981). The brain dominance research advises that we seek to use both left and right methods of instruction, if we are to serve the whole child (Levy, 1983):

We do have evidence that there are individual differences among people to the extent that one hemisphere is more differentially aroused than the other. . . . These differences suggest that wholebrain learning may be better accomplished for different people with different methods.

In spite of the plethora of research on the equally valuable processes of thinking represented by left and right modes, our schools remain almost entirely left mode-centered, leading to an imbalance of coping skills, as well as an appalling lack of wholeness. We need to teach to the intuitive qualities our students possess and use these personal felt qualities as a base for stretching into more objective knowing. Indeed these intuitive qualities underlie all thinking; they are the very basis by which we approach all learning. We cannot move our students to objective knowing unless we begin with the subjective; unless we move from personal connections to the broader reality. Yet we not only fail to capitalize on these personal connections, but we conduct schooling as though they did not exist at all. We honor analysis to extremes of abstraction, which then become ends in themselves. We abstract the abstract, and all becomes meaningless to our students. We teach botany without flowers, geology without the earth, astronomy without the stars (Press, 1982). Our students yawn and memorize meaningless facts, while outside the classroom the wonder of the world beckons.

“Our present style of teaching, which relies mostly on lecture and question-answer methods, appeals to only one type of learner.”

This seems to be the case even with students who do well by present standards. John Stuart Mill (1924), commenting on his education, deplores this lack of wholeness:

My education had failed to create ... feelings in sufficient strength to resist the dissolving influence of analysis, while the whole course of my intellectual cultivation had made precocious and premature analysis the inveterate habit of my mind. I was thus, as I said to myself, left stranded at the commencement of my voyage, with a well-equipped ship and a rudder, but no sail ...

Goodlad (1984) concurs with this thought:

I do in fact doubt that schooling, as presently conceived and conducted is capable of providing large segments of young people with the education they and this democracy require, and I include

among these young people, a significant proportion of those now making it.

It is perhaps understandable that schools have emphasized the left mode processing skills. How much easier it is to evaluate knowledge of discrete bits of information, how much safer to deal with what is expressed in verbal and written form, than to delve into what is comprehended. How much less time consuming to extract from what is known rather than to move into the unknown. These conveniences have become priorities in our schools.

Levy and Trevarthen (1983) speak of "metacontrol," where expectations as to cognitive requirements may determine moment-to-moment hemispher-

ic supremacy. If we expect only left mode processing, that is all we will get. The result is a serious neglect of the right hemisphere's significant gifts, not to mention the insidious message we give students that *only* left mode processing is valuable.

The world of management training is replete with techniques for enhancing creative problem solving, for managing paradox and ambiguity—the special domains of the intuitive, pattern-seeking right brain (Peters and Waterman, 1982):

The total of left- and right-brain research suggests simply that businesses are full (100 percent) of highly "irrational" (by left-brain standards), emotional human beings ... also note that this implicit recognition of the right-side traits by the excellent



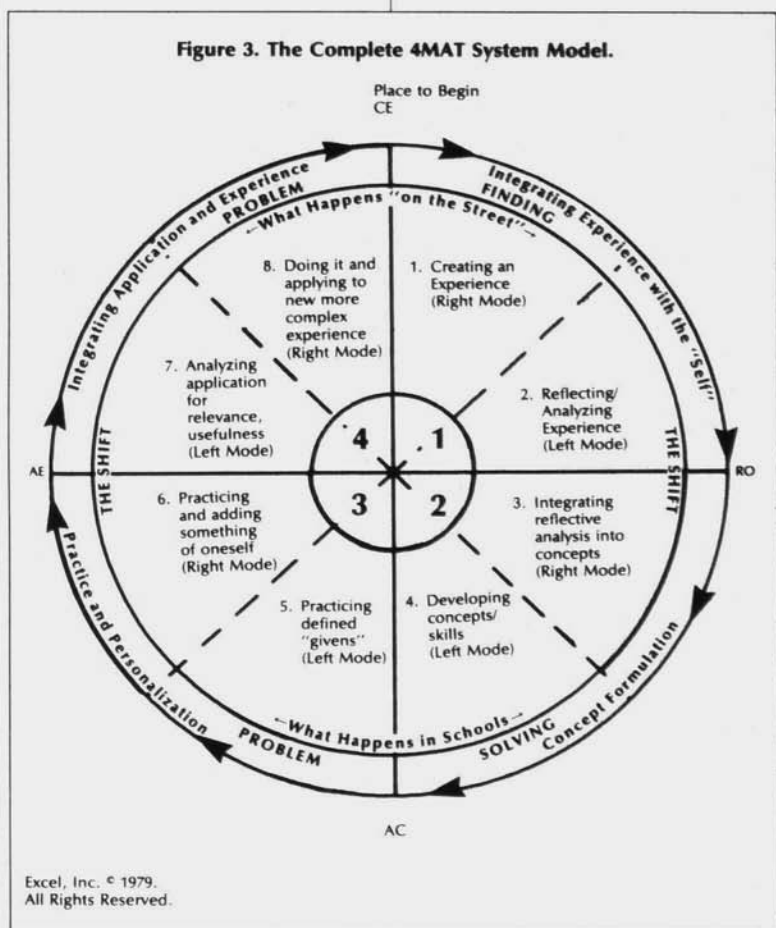
companies is directly at the expense of more traditional left-brain business practices.... we "reason" with our intuitive side just as much as, and perhaps more than, with our logical side.

Based, therefore, on the conviction that schools need to honor both modes of processing to encourage and enhance wholebrain thinking—and that some students are more apt to approach learning with a biased arousal of the left brain and some with a biased arousal of the right brain—I superimposed on the four learning style methods the requirement that they be used in alternating right and left mode teaching techniques. The result, as shown in Figure 3, is the eight-step cycle of instruction, which is the manifestation of the 4Mat philosophy. In each quadrant one step is a right mode teaching method; the other step is a left mode technique.

Quadrant One—Steps One and Two

The objects of *Step One*—creating an experience (right mode)—are to immerse students in an experience that is real, not merely a description of an experience; to tap intuitive qualities rather than the referential cognition of an experience (which comes later); and to engage meaning at the personal, felt level. Pepper (1942) speaks of the differences between "the immediate, intuitive cognition of felt quality and the referential cognition of concepts": "failure to notice this distinction can lead to denying the existence of felt qualities, which underlie all thinking, altogether." The concrete experience needs to be highly motivating and to arouse curiosity. It must create a *Why?* that needs to move on to *What?*, *How?*, and *If?*

The majority of teachers with whom I have worked find this step very difficult. They struggle to create an experience that can be apprehended on a direct, immediate level by their students, something that connects to the students' own experience and is therefore valuable to them. To assist these teachers, I go immediately to Quadrant Two to help them clarify the concept they are teaching. (Herein lies the answer to the perfect concrete



experience, that it capture the essence or core of the concept.) When I ask what is the concept of capital letters, for example, I am met by uncomfortable silence. In this example, based on a real experience, the teachers were well versed in the rules and mechanics of capital letters, but were unable to give me the underlying reason, the concept of capital letters. When I pointed out that capital letters distinguish between generalities and specifics, an idea for a concrete experience came rather easily. One teacher started her review of capital letters by calling on the students according to what they were wearing, "the boy in the red sweater," "the girl in the green

blouse," and so on. The students wanted to know why the teacher was not using their names. She pointed out that we all like to be specified as a particular person. She then related that to the concept of capital letters—a way to specify particulars in written language. Now the students do not have to memorize a rule without meaning. Another idea is to give students the experience of a world without capital letters, and let them discover the reason for themselves that will then connect to their own experience.

To help students make the connection to meaning—the purpose and usefulness of the underlying concept, the reason it make sense—teachers

must themselves understand the concept. Bruner (1962) speaks to this:

When we try to get a child to understand a concept ... the first and foremost important condition, obviously, is that the expositors themselves understand it. I make no apology for this necessary point. To understand something well is to sense wherein it is simple, wherein it is an instance of a simpler general case ... to understand something is to sense the simpler structure that underlies a range of instances ...

We teach ideas and skills in boxes, as isolated entities. Somehow these things, like the rules for capital letters, have become ends in themselves, to be rattled off on the test. They have become separated from their meaning, and without meaning, there is no understanding. Our system has taught us to break things down, to look at the parts. We must return to the whole picture. It takes the knack Bruner speaks of: to understand by sensing the simpler underlying structure.

Step One attempts to capitalize on what students already know. Herein, I believe, lies the right mode aspect—the concept gestalt coupled with personal experience, the connection to the self. This personal relating prepares students for the complexities that lie ahead as they move around the circle, from subjective personal knowing to objective theoretical knowing. The right mode seems to engage the sense of relationship to embody a

natural, intuitive way of thinking. We need to encourage students to honor their intuitive gifts. As Bruner (1962) said, "Our left brains have become too stiff with technique, too far from the scanning eye." Concrete experiences help forge the personal connections so necessary for meaning and learning.

The teaching method for Quadrant One (both right and left modes) is discussion and interaction. In Step One, the right mode step, students and teacher enter into an experience. In *Step Two*—reflecting and analyzing the experience (left mode)—their focus changes. Students are asked to step outside the experience, look at its parts, and then express what they have experienced. I have not encountered any difficulty with this step. When teachers construct a meaningful concrete experience, they have little difficulty helping students to analyze that experience. The analysis flows from the experience itself. And the more the experience is imbued with meaning, the easier the shift into left mode analysis. We are curious about things that have meaning to us.

Quadrant Two—Steps Three and Four

Concept formulation is the essence of Quadrant Two, the core of the entire unit plan. It leads directly to the prac-

tice and personalization of Quadrant Three and to self-discovery in Quadrant Four. The degree to which students can answer the *What?* of Quadrant Two will affect their success in Quadrants Three and Four. If Steps One and Two in Quadrant One have embodied the essence of the concept, if they have engaged the students in an immediate way, if the activities have had meaning for the students, then they are ready for Quadrant Two.

When teachers design *Step Three*—integrating reflective analysis into concepts (right mode)—they look for another medium, another way of looking at something that engages the senses while simultaneously affording an opportunity for more reflection. Remember, students are moving from the concreteness of Quadrant One to the theory of Quadrant Two, and reflection is the gateway. The teacher needs to create an activity that causes students to deepen their curiosity about the *What?* of the concept. Wholebrain thinking will be enhanced if the activity draws strongly from right mode processing techniques, a departure from the left brain analysis emphasis just completed in Quadrant One. Such things as guided imagery, activities that engage the senses and stimulate visual imagining, seem to be the special property of the right brain.

Teachers find this step difficult for two reasons. First, they are impatient to get on with what they think is "real teaching"—lecture. Initiating another activity before the lecture makes them feel as if they are not teaching. Second, while many good teachers possess a repertoire of right mode techniques, they are not aware that current research justifies their methods, and they continue to use these techniques only after they have completed "the stuff we have to cover." The marvel of the new brain research is that it justifies what good teachers have been doing all along. And interestingly enough, I find good wholebrain techniques being used with regularity by teachers of the gifted. As though only students who have already mastered the necessities of schooling are allowed to think with their whole brains. Students who have not found



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schooling compatible, probably our most rightbrained learners, *are not given right mode techniques*. Rather, they are expected to use only half of their brains. The very techniques that would excite and "hook" these students are denied them: patterning, using metaphors, finding relationships, synthesizing, auditory and visualization techniques, stream of consciousness writing, activities related to doing, kinesthetic techniques, the integration of diverse elements, and so on. We must raise the consciousness of teachers as to the *how* of right mode instruction.

Step Four—developing concepts and skills (left mode)—is *the* most used teaching method today. It includes lecture, readings, finding information, and so on. Teachers have no difficulty with information delivery if they are clear on the concept they are teaching.

Quadrant Three—Steps Five and Six

For *Step Five*—practicing defined "givens" (left mode)—4Mat recommends workbook pages, worksheets, questions at the end of chapters, and so on. Again, no problem here. Teachers use this method with great regularity. This

kind of instruction should be used one-eighth of the time, not the majority of the time, as is very often the case.

In *Step Six*—practicing and adding something of oneself (right mode)—teachers ask students to make the learned material or skill immediately useful in their lives *outside of school*. *Teachers have real problems with this step*. Sometimes this suggestion, that learning be made immediately useful, is greeted with profound silence. Somehow the workbook exercise has replaced the learning and has become an end in itself. It is as though school were never meant to be useful, but just a series of exercises to be completed. Workbook pages do not qualify as meaningful learning. They are designed to reinforce basic skills and should be used as such. For true learning to occur, something must be done with it. Until knowledge is used, until concepts are placed into personal space where they can affect lives, until skills are used for decision making and strategizing, nothing has been learned. Simply put, you need to use something in order to remember it. Maslow (1981) speaks of growth as taking place subjectively. The healthy child:

... tends to try out his or her powers, to reach out, to be absorbed, fascinated, inter-

ested, to play, to wonder, to manipulate the world. Exploring, manipulating, experiencing, being interested, choosing, ... this leads to becoming through a serendipitous way, fortuitously, unplanned, unanticipated. ... Nobody can choose for him or her too often, for this enfeeblens, cutting self-trust, and confusing ability to perceive one's own internal delight in experience, impulses, judgments, and feelings, and to differentiate them from the interiorized standards of others.

Without this usefulness, this strategizing, learning is not absorbed, but rather becomes "the right answers" for the tests, only too often to be forgotten when exams are over. The Quadrant Three activities of exploration, manipulation, and experimentation cannot be accomplished by reading another book, writing another essay, or giving another report. Learning must be used. Thinking is active doing. The right mode characteristic of Step Six is in the integration of the material and the self, the personal synthesis, as well as in the opportunity for students to use the content in their own lives. Arons (1984) says that:

... it is futile to expect children or adolescents to develop meaningful understanding of scientific concepts by being passive listeners and inert receivers of information. Scientific literacy is to be developed through thinking, reasoning, and understanding—not through passive ingestion of esoteric vocabulary.

"It is this synthesis—the development of expertise in nondominant modes of learning—that produces leaps to higher levels of learning."

Quadrant Four—Steps Seven and Eight

Quadrant Four is concerned with self-discovery. Students grapple with the great question *If?* Maslow (1981) speaks of experiences that are validated by *delight*. The word beautifully describes self-discovery. Now the students have decided how they are going to use the material or skill they have learned in meaningful ways in their lives outside of school. The teacher sends them back to their left brain analysis mode to examine their choices for relevance, originality, and excellence.

Teachers have very little difficulty with *Step Seven*—analyzing application for relevance and usefulness (left mode)—because when *Step Six*, personal usefulness, has been worked out, examining the proposed use of the material or skill is simply a matter of refining, polishing, and reworking. By that time, if the model has worked, students are learning for their own sake. The teacher has become a consultant.

Of course, the same is true for *Step Eight*—doing it and applying to a new, more complex experience (right mode). Now the learning has become the students' responsibility; the teacher functions as evaluator and mediator. The onus of responsibility for learning has shifted from teacher to students.

The movement of the 4Mat cycle is:

- To engage immediate personal meaning, leading . . .
- To raised intellectual awareness of a concept, leading . . .
- To enhancement of skills students can use in their lives today, leading . . .
- To unique, personal adaptations of the materials learned.

Staff Development Recommendations

Based on my experience with the 4Mat System in varied school settings, I recommend that administrators:

1. Plan *long-range* staff development in the same way that they expect teachers to plan instruction, including

special projects for the gifted and talented teachers, as well as planning and delivering remediation where needed. The *What?* of staff development needs to be planned as carefully and professionally as the student curriculum.

2. Embrace the role of *instructional leadership* and make continuing education an integral part of their own professional lives.

3. Most important, give training in the *clarification of concepts*, enhancing the ability of teachers to sense the simple underlying structure of the concepts they are teaching.

4. Assist teachers in seeing the connections between the concepts they are teaching and the lives their students are living today. Help teachers to become more adept at capitalizing on what the students already know and to focus their teaching on connections to *meaning*.

5. Help teachers to see the necessity for requiring students to use what they learn in school in their lives *outside of school*, and help them to plan assignment-giving strategies accordingly.

6. Give serious attention to training in *right mode processing* (scanning, patterning, seeing relationships, metaphorizing, synthesizing, and so on). Expand from right mode training to the use of *auditory, visual, and kinesthetic* methods of presenting information and practicing skills.

7. Get the dialogue going on *evaluation*. And get serious about it. How else do students know what we honor, except by what we evaluate? How do we evaluate higher levels of thinking; how do we evaluate students' personal use of what they learn in their lives outside of school, creativity, the innovative use of materials? If we value these things, we must grapple with how to evaluate them.

Of all the areas related to school excellence, surely none is so crucial as the professionalism of the classroom teacher. The teacher is the context for learning, and staff development plans need to reflect that focus. The key to staff development is the informed, courageous building administrator who accepts the role of instructional leader. □

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