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INTRODUCTION

Teaching Thinking : Another Fad or a New Foundation?

“We now know that individuals have very different kinds of minds, that they learn in different kinds of ways, and that they can even demonstrate their knowledge and understanding in characteristic ways. Because these findings are quite well established, it becomes educational malpractice to continue to serve education in the same way to all consumers. Rather we are challenged to find the optimal means to address each child, and to remain ever-vigilant to new and better ways to educate that child to his or her fullest potential” (Gardner, 1983, p. 17).

Gardner’s words and the words of other educational reformers challenge teachers to improve their teaching methods. To accommodate students’ “different kinds of minds” and to help them realise their full potential, teachers are trying to make sense of what lies beneath any new educational strategy. They ask, “Is the teaching of thinking just another fad or is it perhaps a new foundation?”

Why Teaching Thinking Is Important

This book asserts that teaching students how to think is *not* another fad. Teaching thinking is an essential foundation for developing the minds of tomorrow’s adults. This belief is derived from three premises:

- Teachers must confront the *rate of change*, rather than *change*. We simply must find more efficient ways of accomplishing our goals.

Catch Them Learning

- Science and other disciplines have provided new information about how the brain functions and thinking occurs. This significant contribution has direct implications for the teaching of thinking.
- The explosion of the knowledge base in a technological world requires that we teach students to use their minds well.

The first premise is that teachers must confront the rate of change in our society. Many of the adults teaching today's students grew up in a fairly stable, safe world. Nonetheless, their students live in a world where (Fisher, 1992):

Every 8 seconds of every day, a child drops out of school.

Every 47 seconds of every day, a child is abused or neglected.

Every 67 seconds, a teenager has a baby.

Every 7 minutes, a student is arrested for a drug offense.

Every 30 minutes, a child is arrested for drunken driving.

Every 36 minutes, a child is killed or injured by guns.

Every 53 minutes, a child dies because of poverty.

Every day, one of five school-age children comes to school hungry.

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These vast societal changes have taken a toll not only on children, but also on the educational system. Some teachers have either left the profession or are secretly counting the years to early retirement. Other teachers have tried to respond to the rate of change, the new symbols, the new terminology, and the new approaches. They have made mistakes. These teachers will either learn from their mistakes or give up teaching in despair.

Our second premise is that science and the other disciplines have provided new information about how the brain learns. This information has direct implications for the teaching of thinking. The medical and scientific communities have studied how the brain thinks. Their evidence links learning with the teaching of thinking. While the knowledge is admittedly incomplete, there is conclusive evidence that the brain continually remodels itself. The brain has the innate ability to search for meaning through patterning.

The brain is indisputably a multipath, multimodal apparatus. The notion of mandatory sequences, or even fixed sequences, is insupportable. Each of us learns in a personal, highly individualised, mainly random way, always adding to, sorting out, and revising all the input from teachers or elsewhere that we have had up to that point. Therefore, any group instruction that has been tightly, logically planned will have been wrongly planned for most of the group, and will inevitably inhibit, prevent, or distort learning (Hart, 1983, p. 55).

Cognitive scientists have heightened our awareness of the need to change the way we teach. Dr. Edward Hall's classic work, *Beyond Culture*, asserts that the rigid barriers between disciplines should be removed. It also raises the issue that present practices must prepare students for their future.

Dr. John Bransford, in *Human Cognition: Learning, Understanding, and Remembering* (1979), formulates and vigorously tests explicit theories of learning. He explains that humans develop skills by linking current information with previously acquired knowledge. His influence can be seen in a popular text, *A Different Kind of Classroom: Teaching with Dimensions of Learning* (Marzano, 1992).

“The first step in learning declarative knowledge is constructing meaning. The learner does this by linking old knowledge with new knowledge, making predictions, verifying them, and filling in a lot of unstated information” (Marzano, 1992).

Teachers must incorporate this new information about how the brain learns, and teach students how to think. Teachers have partnered with the scientific community to find methods that teach students to use their minds well. Many now recognise individual differences in learning styles and know how to accommodate various intelligences.

Catch Them Learning

While scientists have focused on how the brain patterns and stores information, teachers have meticulously explored what intelligence is and how to assess it. *Making Connections: Teaching and the Human Brain* is an excellent example of how a bridge has formed between these two disciplines: “Brain-based learning involves acknowledging the brain’s rules for meaningful learning and organising teaching with those rules in mind” (Caine & Caine, 1991, p. 4).

The third premise is that the explosion of technology and the knowledge base requires that we teach children to use their minds well. We must prepare students for a world we can only dimly imagine. According to John Naisbitt, author of Megatrends (1991), the knowledge base doubles every nine hundred days. With this rate constantly increasing, the future is beyond our wildest imaginations. It is no longer possible to live in isolation. Like it or not, we are part of a global economy. Today’s students will be employed in job categories in a world of many languages. As teachers, we must realise that today’s students will not live in the world as we know it.

How We Can Teach Thinking

The task before the educational community now becomes to examine the evidence on brain research and incorporate the evidence into new teaching methods. We must review our methods of teaching thinking to accommodate the brain’s natural tendency to learn if we are to meet the vast societal and technological changes. If brain research and instructional methodology are not reviewed and applied, there will be no solid foundation for learning.

We have reviewed numerous approaches to the teaching of thinking and are acutely aware of the myriad spectrum. The reader is invited to investigate these methods in other texts. (A good reference is *Developing Minds: Programs for Teaching Thinking*, Revised Volume 2, edited by Arthur L. Costa.)

This book, *Catch Them Learning*, incorporates a model for teaching thinking that is adapted from John Chaffee’s definition: “Thinking is our active, purposeful, organised effort to make sense of the world” (Chaffee, 1990, p. 1) and from four fundamental and inseparable constructs: students must be actively engaged in their own learning (Chaffee, 1990); learning activities must be purposeful and focused on the desired goals and outcomes (Chaffee, 1990); students must have the skills and strategies required to organize their efforts to achieve their goals (Chaffee, 1990); and understanding self and others is fundamental to maximum use of the mind and making “sense of the world.”

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When teachers plan instruction based on the definition and the four constructs, students become actively engaged in the learning process. Students make choices and become increasingly more responsible for their own learning. They begin to recognise that their learning has purpose and value because it is authentic and articulated. Because the learning process is organised, students must learn certain skills or strategies to achieve their goals. In addition, the students interact in a variety of groups to understand themselves and others.

As we have developed this book, we have used the definition and the constructs to formulate a six-part model for teaching thinking. These components can be transposed, but no one component can be deleted; for like a domino effect, if one component falls, the framework collapses and becomes deficient in purpose and meaning.

The first three components focus on teacher-initiated responsibilities:

MOTIVATE, techniques for motivating students;

INTEGRATE, strategies for integrating curricula across the disciplines; and

ASSOCIATE, suggestions for a variety of grouping patterns within the integrated framework.

The second three components focus on student-centered responsibilities:

ACTIVATE, students become actively engaged in the learning process;

DEMONSTRATE, students give evidence of their learning; and

COMMUNICATE, students share their learning with others.

If this model is correct and accepted, the terms within the foundation become more than slick phrases or jargon. “Real-world experiences,” “authentic learning,” “meaningful assessment,” and “cooperative learning” are not mere terms or symbols of a fad. They represent a new foundation for education. This foundation answers the ultimate questions—How might we teach more efficiently to accommodate the brain? How might we teach students to use their minds well?

“Mind gives us meaning and direction and the possibility of progress over time. Mind orchestrates the realisation of the brain and binds consciousness and unconsciousness together” (Restak, 1988, p. 31).

How to Use This Book

Part One explains the six key elements of teaching and learning. These chapters help the reader understand the six elements. The first three chapters highlight the key elements of teaching—to *motivate* students to think, to *integrate* the curriculum, to help students *associate* in groups. The next three chapters highlight the key elements of learning—to *activate* the process, to *demonstrate* thinking and learning skills, and to *communicate* new knowledge to others.

Part Two comprises a collection of units appropriate for each of the year levels. Units were written by and for teachers. There is a wide range of formats, details, and number of activities, because the motivate-integrate-associate-activate-demonstrate-communicate (M-I-A-A-D-C) model is meant to be the servant, not the dictator, of teachers. The diversity of the units reflect the model's flexibility. Yet all of the units remain acutely focused on its fundamental principles: students are actively engaged in their learning experiences, and the activities are purposeful and organised with the goal of understanding self and others.

Although the units are designated for specific grade levels, they can be adapted for other age groups. Teachers can benefit by reviewing each unit, selecting appropriate activities for their grade level, and generating new activities. Thus, these units become springboards or extensions for developing unique and original units. The units provide teachers with a rich bank account of ideas for serving the interests of their students, assessing their needs, and accommodating their differences. The resources, ideas, and activities included in the units help the teacher interact with the variety of students' abilities and interests.

Catch Them Learning incorporates real world experiences, the latest research, and solid teaching methods that are foundational to educational reform. The book answers the question—How might we teach students to use their minds well?

***The next page may be photocopied. The teacher may use this photocopy to demonstrate the M-I-A-A-D-C model to students or parents, or the teacher may use it as a guide in team curriculum planning or individual unit planning. The photocopy serves as a prompt that particularly helps visual learners understand the concepts presented in each chapter.