

Teaching in Mind: How Teacher Thinking Shapes Education enhances teacher reflection by exploring unconscious beliefs, values, metaphors, and meanings that shape the educator's personal world and their interactions with students. Combining theory and practice applied to typical classroom situations, teachers learn how to 1.) identify their values; 2.) recognize and change limiting beliefs about teaching, learning, and knowledge; and 3.) recognize metaphors that offer new insights into the differences among teachers and classrooms.

Teaching in Mind: How Teacher Thinking Shapes Education

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SECOND EDITION

Judith Lloyd Yero, MA

TEACHING In Mind

*How Teacher Thinking
Shapes Education*

Education

Education



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Preface

When I imagine young children engaged in learning, the scene is dynamic. The faces of those children are alight with wonder, with puzzlement, with interest, and yes, with joy. When I picture students in many of today's classrooms, the image is often static. Locked into a prescribed system of learning, the faces of many young people register boredom, disinterest, or resignation..

Early in my teaching career, I recognized my need to guide the educational development of young people in ways that didn't, at the same time, take the joy out of their lives. I reasoned that my classroom environment must effectively support the natural ways in which children learn. Through postgraduate courses in the neurosciences, I worked to bridge the gap between emerging knowledge of the brain and the practices of education. I then shared these ideas with other teachers through workshops entitled "*Learning from the Inside Out.*"

At the close of each workshop, participants were asked to comment on the ideas they had found the most valuable. To my surprise, rather than focusing on what they had learned about students, most of the teachers commented on how much they had learned about *themselves!*

Their comments made me realize the extent to which teachers are ignored in educational planning. Yet the beliefs and values that provide the unconscious foundation for teacher behavior, the metaphors that set the stage of their classrooms and the mental models of the world through which they conceptualize their work are highly individualistic. Rather than the constants they are often assumed to be, *the teacher may well be the most influential variable in the educational equation!*

Substantive change in education is unlikely to occur until educators understand how each teacher's thinking influences everything that occurs in the classroom. This book examines those issues and more. In its pages, you will be encouraged to probe the realms of *subjective* experience—the beliefs, values, presuppositions, and metaphors that shape your personal world.

The word *subjective* makes many educational researchers cringe. Recommendations for reform must be supported by "hard data"—research studies scrupulously conducted using the scientific method.

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Because messy subjective concepts such as beliefs and values don't lend themselves to statistical manipulation, they were largely ignored.

In the past several decades, theorists have begun to recognize the importance of teacher thinking. Many research studies have explored the effects of teacher beliefs, the metaphors a teacher uses to describe his or her work, and the values a teacher assigns to a particular practice or concept. The studies have found that these thought processes have a profound influence on educational choices, but the results of those studies have been largely limited to academia. It is time for practicing teachers to have access to these ideas. It is the minds and actions of *those* teachers that make education what it is today.

My conclusions are my own, but I've attempted to include support from as many different disciplines as possible. The references are there for those who want or need them. However, many teachers are less interested in research studies than in practical ways to improve their teaching experience. The main thrust, therefore, is about what you can do today to be the teacher who matters to students.

You may be astounded at how differently teachers think—even about something as basic as the meanings of the words *teach*, *learn*, or *understand*. I invite you to let your own experiences verify the validity of these ideas. Take the ideas you can use and leave the rest for others who may have different perceptions and different experiences.

I invite you to imagine what our schools might be like if they became places where students and teachers alike shared the joyous and innate love of learning with which infants comes into the world. A handful of reflective teachers have it within their power to literally “change the face of education.” Let us begin.

Introduction

"You may feel like a voice in the wilderness, but it is
your voice we are waiting to hear. Yours is the
crucial vote. You are the determining factor.
We reach Critical Mass when we reach you—
and you choose to reach others...."
~ Neale Donald Walsch¹

In the wealth of rhetoric on school improvement and educational reform, one critical factor is consistently ignored. There is a pervasive lack of attention to teachers in educational planning. Frequently, teachers are perceived as constants, much like the books, desks, and other inanimate objects in the educational environment. More attention is paid to the attractive design and packaging of knowledge than on the one factor that may well be the most influential variable in the educational equation—the teacher!

Peter Temes, president of the Great Books Foundation, reminds us,

“Once the classroom door closes, once the lesson begins, once the student steps toward the teacher asking for help, it is all up to the teacher, not the school. Good schools help; great schools help more; but great teachers are the far more precious commodity.”²

Recent studies reaffirm that “the most important factor that affects student learning is quality teaching.”³Theorists have attempted to define and describe the characteristics of “quality teaching,” focusing largely on observable behaviors. Yet the unconscious ways in which teachers perceive the world—create their mental models of “reality”—are highly individualistic. Identifying what makes one teacher effective is helpful,

1 Walsch, N.D. (1998). Quoted by Thom Hartmann in *The Last Hours of Ancient Sunlight*. Northfield, VT: Mythical Books.

2 Temes, P. (2001, April 4). *The End of School Reform*. *Education Week*, 36

3 Tell, C. (2000, April 20). *Fostering High performance and Respectability*. ASCD Infobrief. URL: <http://www.ascd.org/readingroom/infobrief/0008.html>

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but that teachers' behaviors cannot be directly transferred to others. This is why no two classrooms are, or can be, the same.

Hundreds of books offer answers to questions teachers have asked since the beginning of organized education. What should we teach? How should we teach? How should we assess learning? Many books imply that, if only teachers would behave in the prescribed manner, education would miraculously improve. Yet despite this wealth of available answers, why is education still plagued with problems? Why?

Individual teachers neither understand nor implement the "answers" in the same way. The ways in which those answers fit into teachers' existing realities vary tremendously, resulting in widely differing behaviors. What does it mean to teach, to learn, to understand? Does it mean the same to others? And if not, what are the implications?

Teaching in Mind begins with questions rather than answers. What can educators gain by focusing on what teachers already do and why they do it rather than on generic ideas about how everyone should teach? Why does one teacher wait patiently as students think about a question while another pops in with the answer if one is not quickly forthcoming? Why is one teacher able to maintain discipline with no overt effort while another constantly reprimands students with little lasting effect? What sets *Dead Poet's Society's* John Keating or Jaime Escalante of *Stand and Deliver* apart from their peers? Examining why teachers make the choices they do offers significant insights into what occurs in classrooms.

What can be gained by asking those questions? As you'll discover, *your* answers to these questions are the ones that really count. When you understand the unique ways in which you represent teaching and learning in your own inner reality, you have the opportunity to make reasoned choices. You can accept things as they are or change the only thing that is within your power to directly change—yourself.

Teachers have always had the power to determine the tone and direction of a school, to create exemplary worlds within the classroom, and to scuttle reform movements that failed to fit their mental models. For too long, those actions have taken place without conscious thought or choice. It's time for teachers to recognize and accept their responsibility in shaping education, to begin mindfully applying stress where the system is dysfunctional, and to take their rightful place as wise and compassionate experts and decision makers. I invite you to my paradigm playground. Have fun!

Chapter 1 ~ The Power of Teachers

"There's power in how we think about things."
~Thom Hartmann¹

Mention the topic of education in almost any group of people and nearly everyone will offer a solution to the perceived problems of the institution. Imagine how those same people would respond if someone made the following suggestion.

- From now on, individual teachers will decide the goals and indeed, the very meaning of education.
- Each teacher will define the purposes of education as he or she sees fit.
- Each teacher will modify the official curriculum according to personal preferences, interests, and teaching strengths and weaknesses.
- Each teacher will teach his or her personal beliefs and values.

Heresy! How could anyone suggest teachers should be free to choose what and how their students should learn? How could schools possibly ensure students would develop into educated and successful members of society with that kind of variability in the classroom?

Individual teacher control of classroom practice has existed from the earliest days of formal schooling, exists now, and will continue to exist. Many studies have shown that the individual beliefs and values of teachers play a vital role in shaping the objectives, goals, curriculum, and instructional methods of schools. Those same beliefs and values can spell success or failure for any reform efforts imposed by a school or district.² A school may publish its goals, objectives, and standards to represent its intended purposes and subject matter coverage. However, any uniformity outside of those published lists is largely mythical.

Even when there is surface agreement on what should be done, variations in the way teachers perceive the task create huge differences in implementation. Here's what happened when four teachers tried to collaborate on a unit dealing with the Great Depression.

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- One teacher wanted students to read *The Grapes of Wrath* in order to understand the profound impact of the Depression on people's lives.
- The second teacher contended that material on dust storms and droughts must be included to illustrate the impact on the land.
- A third was certain economic and political issues were the most important aspects of the Depression for students to understand.
- The fourth insisted the other three had totally missed the point. Students needed to understand how the Great Depression was relevant to them personally—how it affected their lives.

All four teachers had master's degrees in education and secondary school teaching certificates in social studies. All agreed that the Great Depression should be taught. It was, however, their personal interests and values that determined the content they believed should be included.³

There is a comforting myth that the curriculum, as set down neatly in a school's handbook, defines what is going on in the school. Reform efforts focus on how the curriculum can be modified or improved, how the curriculum can be more effectively transmitted to students, and how acquisition of the curriculum's content can be assessed. It is clear that curriculum developers recognize a teacher's influence on even the most scrupulously designed and detailed curriculum. They have even attempted to design "teacher proof" curricula to prevent teachers from contaminating the purity of the design. "In the current reform, teachers are expected to play a key role in the reform effort, but their views of teaching and learning are thought to be a major impediment in that effort."⁴

Content is not the only thing that differs from classroom to classroom. Teachers' beliefs and values shape the *atmosphere* of the classroom itself. Within that atmosphere, from the interactions among teachers and students, students learn their most pervasive lessons. These are lessons about respect, values, the nature of knowledge, thought processes, self-worth, and expectations. "...Pedagogy, the art and science of teaching, is crucial to what students learn. *How we teach becomes what we teach.*"⁵

Distinctions such as those described in box 1.1 demonstrate that curriculum is significantly more than a simple list of what students should learn!

1.1 The Four Curriculums

Educational theorist Larry Cuban questions the myth that a well-defined curriculum determines what is taught (and learned) in a school. He has proposed there are actually four different curriculums in use in our schools.

“The *official* curriculum is what state and district officials set forth in curricular frameworks and courses of study. They expect teachers to teach it; they assume students will learn it.”

The *taught* curriculum is what teachers, working alone in their rooms, actually choose to teach. “Their choices derive from their knowledge of the subject, their experiences in teaching the content, their affection or dislike for topics, and their attitudes toward the students they face daily.”

The *learned* curriculum. Beyond what test scores reveal about content learning, students also learn many unspecified lessons embedded in the environment of the classroom. Depending on what the teacher models, the student will learn to process information in particular ways and not in others. They will learn when and when not to ask questions and how to act attentive. They may imitate their teacher’s attitudes. They learn about respect for others from the teacher’s own demonstration of respect or lack thereof. The learned curriculum is much more inclusive than the overtly taught curriculum.

The *tested* curriculum. “What is tested is a limited part of what is intended by policy makers, taught by teachers, and learned by students.” The farther removed teachers are from the actual construction of the tests, the worse the fit between the other curriculums and what is tested. Standardized tests often represent the poorest assessment of the other curriculums.

Cuban, L. (1995). The Hidden Variable: How Organizations Influence Teacher Responses to Secondary Science Curriculum Reform. *Theory into Practice, Vol.34, No.1*, 4-11.

In recent years, individual differences among students have emerged as an important factor in designing learning materials and instructional methods. However, professional development seminars and “how-to”

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books continue to assume that every teacher will use the material presented in the same way and imply that success would be assured if only teachers would apply these lessons.

Despite recognizing that teachers can and do influence the success or failure of reform efforts⁶, they are largely ignored in designing those efforts. Why? Clark and Peterson⁷ explain that the process of teaching involves two major domains: 1) teachers' thought processes and 2) teachers' actions and their observable effects. Thought processes occur inside teachers' heads. They are unobservable and resist traditional experimental methods. Worse, individuals report their processes differently—subjectively. It's all so messy—unlike the measurable “objective” data with which researchers are accustomed to dealing.

Researchers have generally bypassed teachers' thought processes in favor of the teacher action domain. Teacher behavior, student behavior, and student achievement scores are much easier to observe and measure. They are subject to empirical research.⁸ Yet one of history's greatest scientists, Albert Einstein, reminds us, “Not everything that can be counted counts, and not everything that counts can be counted.”

Are teachers really that important? Isn't a well-designed and organized curriculum, accompanied by detailed suggestions for teaching the material, likely to produce similar results regardless of the teacher using it? If not, what are the implications of teacher variability?

The Autonomous Teacher

**“It is what teachers think, what teachers believe,
and what teachers do at the level of the classroom
that ultimately shapes the kind of learning that
young people get.”**

~Andy Hargreaves and Michael Fullan⁹

Why are educational leaders hesitant to acknowledge the influence of teachers? Do they find the idea disturbing? Perhaps. If, indeed, each teacher becomes a variable in the educational equation, how is top-down educational reform realistically possible? Such fears are justified. But ignoring it won't make it go away. It is time to explore that variability in an attempt to understand how it influences teaching and learning. It is even more important for you and other teachers to embark on this exploration for yourselves. Only you can decide what, if any, changes are necessary. Only you are capable of choosing to make those changes.

How Teacher Thinking Shapes Education

Teacher thinking about educational issues varies tremendously from individual to individual. Here are just a few of those differences.

1. Each teacher has a personal “definition” of education that shapes and limits what the teacher chooses to do and to not do. How would the emphasis a teacher places on content or process, student- vs. teacher-centered lessons, discipline, group work, standards, or assessment shift if that teacher believed each of the following definitions?

- Education is the efficient transmission of a body of knowledge that a culture values and that has historically produced progress.
- Education is the total development of a child.
- Education is the process of providing a rich, complex, and varied environment within which students can, through experience, develop effective thinking processes.

Do you agree or disagree with any of these “definitions”? How would you define education? Simply stated, *there is no agreed upon definition of education*. Is it any wonder there has been little success “fixing” the educational system when its primary *purpose* is still a matter of debate?

2. Each teacher has a set of beliefs about the nature of knowledge. Recently, there has been increased interest in how beliefs about the structure and certainty of knowledge affect learning and academic achievement. These include beliefs about the definition of knowledge, how it constructed and evaluated, where it resides, and how knowing occurs.¹⁰ How does one uncover such beliefs? As mentioned earlier, most research on teaching has involved teacher’s actions and their observable results. When observing another’s behavior, one can only infer the beliefs that underlie the actions. These inferences are shaped by the beliefs and experiences of the observer. Therefore, they often reflect more about the beliefs that might drive the observer to the same behavior than about the beliefs of the research subject.

Another method of studying beliefs is self-reporting, but this too has its issues. Studies have found that teachers’ beliefs change depending on context. A self-reporting questionnaire that taps a specific context may elicit one belief, while one that refers to knowledge in general produces different results.

Other facets of a responder’s thinking will elicit very different responses to a general statement such as “Learning is a slow process of

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building knowledge.” For example, some people tend to first notice statements with which they agree. One name for this tendency is “matching.” Others first pick out anything with which they disagree (mismatching). A *matcher* will read the statement and immediately think of ways in which learning has taken them a long time. A *mismatcher* will immediately think of exceptions to the statement—instances in which learning has been instantaneous. So how much does their response really tell the researcher about their beliefs?

3. Each teacher has a set of beliefs about how students acquire knowledge. For example, there are volumes of educational research on individual differences among students. Despite this, there is little evidence that the majority of American teachers consider those differences during lesson planning or actual instruction. Indeed, government policies, such as No Child Left Behind totally ignore these individual differences. Instead, traditional educational methods focus on what Richard Pravat¹¹ calls the “Federal Express” approach, emphasizing the efficient packaging and rapid delivery of content.

4. Each teacher has a set of beliefs and assumptions about the nature of learning and about students in general. Jerry frequently disciplines students for making “too much noise.” He *believes* “quiet” is a requirement for learning. In Carol’s classroom, students are enthusiastically arguing about an issue. Does this mean no learning is taking place? If a teacher consistently acts on the belief that silence promotes learning, are there some cases in which learning is actually inhibited rather than supported?

5. Each teacher has a personal set of values that determines the priorities operating in the classroom. Which is more important—content or process, discipline or self-esteem, student respect for the teacher or mutual respect? How do you rank the most important factor from moment to moment? For example, if you notice a child sleeping in your class when you’re in the middle of explaining something important, what do you do? Stop what you’re doing and wake the child up so she won’t miss the content, or continue the lecture? Would it matter which child it was? How would the interest level of the rest of the class influence your decision? In other words, what do you value most highly at that moment in time?

How Teacher Thinking Shapes Education

Because teachers profoundly influence students through their beliefs, attitudes, and values—their individual mental “maps”—isn’t it time to bring those largely unconscious processes into consciousness? How many of your fellow teachers could put their most deeply held beliefs and values about education into words? How many are aware that other teachers, principals, or supervisors may not share those beliefs and values? Just because everyone uses words such as *understanding*, *learning*, or *thinking skills*, there is no guarantee those words have the same meaning for each person. In fact, they are generally very different!

Fortunately, you and your fellow teachers needn’t wait for educational research to accept your importance. After all, it is your own beliefs and values that influence your work, not those of “*n*” teachers in a research study. Who better to explore the geography of your mental landscape than you?

An individual’s beliefs, values, and metaphors, and the meaning people attach to words and actions generally exist outside of conscious awareness. Yet these factors drive our behavior automatically, without our attention. That’s not all bad. Imagine what it would be like if you had to stop and consciously go through the decision-making process for every action in your life.

The point is a teacher’s behaviors frequently spring, not from higher-level thinking processes, but from habit. One of the primary purposes of this book, then, is to assist you in identifying the habitual factors that unconsciously influence your behavior and thus, the influence you have on your students.

A Shift of Perspectives

In a 1995 *Phi Delta Kappan* article, Frank Smith suggests we “...declare education a disaster and get on with our lives.”¹² Smith compares the current state of education with the state of the Titanic after it hit the iceberg. He points out that there was absolutely nothing the captain and crew could have done at that point to save the ship and its passengers. In Smith’s words, “...you don’t find solutions to disasters—you try to extricate yourself and others from them. The way to survive a disaster is to do something different.”

Although some critics share Smith’s view, there are still alternatives to “jumping ship.” Shifting perspective away from the conventional wisdom that has traditionally driven reform efforts offers “something

different” educators can do before the ship is irrevocably lost. What are some of those different perspectives?

A Shift from Things to People

One such shift is to move the focus of attention away from the factors that exist “out there”—the curriculum, the schedule, the arrangement of desks in the classroom, teaching methodologies, motivating students, assessing knowledge.... There is little agreement about what’s wrong “out there.” By shifting the focus inward—to the inner landscape of education from the perspective of each individual teacher—startling new insights emerge. Questions appear that people had never thought to ask.

Psychologist Arthur Combs suggests that one reason for the failure of reform is:

“(It) concentrate(s) on things rather than people. Each effort... (focuses) on things—on gadgets, gimmicks, methods, subjects, ways of organizing or administering. But education is a people business made up of 100 million students and at least 10 million professional educators. Assuming that vital changes can be brought about in such a colossus by administrative fiat or by tinkering with methods and organization is flirting with futility. Truly effective change in so complex an institution can only be accomplished by effecting changes in people—especially through teachers, those men and women in closest touch with students.”¹³

There is really only one thing people have the power to *directly* change—their own behavior. We bring about change in others (or in larger systems) only by changing ourselves. When you act differently, you force others around you to respond in different ways. For example, Diane criticizes her students for not taking more responsibility for their own learning. Yet Diane controls every aspect of that learning, from the content of lectures to the acceptable forms of classroom activity and assignments. What motivation will Diane’s students have to take more responsibility unless she first relinquishes some of her control—changes her own behavior?

Just as students must “own” a problem before they exert any energy to solve it, so must teachers own the problems of education before they will feel the need to change their existing behaviors. Wally reads from

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his yellowed notes, following the detailed lesson plans he has used for the past ten years. He is oblivious to the disengagement of his students. Despite what others may think about Wally's teaching style, he is operating within his *beliefs* about the role of the teacher in transmitting knowledge. He is unlikely to enthusiastically embrace a new mandated program requiring him to change.

Only when Wally himself recognizes a problem *and* participates in the development of solutions will change become a priority for him. Any attempt to force him to use a new method, or to behave differently, without his participation makes him feel powerless, threatened, or overworked. He will unconsciously expend more energy avoiding the task than implementing it.

What's Good for the Goose...

The second shift of perspective applies research about students to teachers themselves. If, as research suggests, students have different "learning styles," different "intelligences," and different ways of processing information, what about teachers? As people age, do they become more alike? Hardly!

If you've spent any time browsing the World Wide Web, you've experienced the mental processes of many website designers. Some sites are straight text. Some force you to listen to music while they take an eternity to load elaborate graphics. Some feel friendly, intuitively guiding you exactly where you want to go. Others are like hacking your way through a jungle trying to locate the one tree that bears fruit. The design of a website reflects the mental processes, beliefs, and values of the designer. In the same way, the design and execution of what goes on in the classroom reflects the mental processes of the teacher.

Isn't it reasonable to spend at least as much effort understanding *teaching styles* as is spent studying learning styles? To admit teachers are as different as the students in their classes? Teachers are much more than simply robotic purveyors of the curriculum!

Examining the Foundation

After shifting our focus inward and exploring what individual teachers believe and value, the world of education “out there” remains. We must examine the beliefs and values of the system in which teachers operate for two important reasons.

First, differences between teachers’ beliefs and values and those held by the people controlling the school environment produce a lot of discontent. Identifying those differences can shed light on the real problems and possible solutions.

Second, many educators go through their teaching careers accepting that what “the system” believes and values must be correct. They incorrectly assume the educational edifice is built on a solid foundation. This acceptance of the status quo places severe limits on thinking.

The very word *reform* embodies this limitation. Linguistically, to *re-form* means to change the form of *existing* parts. This presupposes that those parts must remain. Therefore, changes tend to be cosmetic rather than fundamental. Rearrange the existing facilities, reorganize the existing subject matter, present the existing curriculum in high-tech formats—in short, simply change the form of what is already there. Seldom do reformers begin by examining the foundation on which the structure is built. By digging into this foundation—checking the validity of some of the “truths” on which the educational edifice is built—educators may find that at least some of the old, rotted timbers and crumbling concrete needs to be replaced.



These new perspectives—shifting the focus from things to people and looking inward rather than outward for answers, and digging deeply into the foundations of educational practice—provoke many new questions about the problems confronting today’s teachers and students. With new questions come new and potentially more useful answers.

Pre-Service and Prospective Teachers

As stated earlier, the purpose of this book is to encourage self-reflection among practicing teachers. What about pre-service teachers? They certainly don’t enter teacher education as blank slates, eager and willing to be molded and shaped into effective teachers. Their beliefs about the nature of knowledge, learning, the role of the teacher, and

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many other aspects of classroom life are already firmly established. Studies have consistently shown that “...prospective teachers’ prior beliefs influence what is learned during their teacher preparation program by acting as a filter through which teacher candidates acquire and interpret new knowledge.”¹⁴

In a 2008 study, researchers attempted to discover the sources for the body of beliefs, termed “personal practical theories (PPTs),” of prospective teachers. PPTs encompass beliefs about all aspects of the educational process, including the role of the teacher, the potential and role of the student, the environment of the classroom, and instructional preferences. The study found that one-third of the prospective teachers’ beliefs and attitudes about instruction arose from a combination of their religion (2%), family values (5%), and their K-12 instruction (28%).¹⁵

Beliefs formed early in life are among the most difficult to dislodge and are particularly influential. How easy will it be for a prospective teacher who has sat through 12 years of “teacher as source of knowledge and student as silent receptacle” to accept, much less embrace, constructivist theories of learning?

A good teacher education program can and does influence the thinking of prospective teachers. However, one can’t ignore the PPTs of the professors themselves! Some interesting inconsistencies may be observed in teacher education classes. For example, in one three hour graduate education class, the professor spent the entire time lecturing. The topic of the lecture was, “Why teachers shouldn’t lecture students.” Despite all the valid arguments put forth in his lecture, what the professor modeled was loud and clear!

Students who are long accustomed to being “taught” by being lectured may not even recognize that other types of teaching are possible. Unless those other modes are effectively modeled, what are the chances that the students’ belief in their role will change? Examining prior beliefs and values and their potential effect on teacher behavior during pre-service education can strengthen the foundation on which the new teacher’s experience can build.

The characteristics that define an effective teacher have been the subject of an ongoing debate since NCATE added “dispositions” to their standards in 2000. A more complete discussion of arguments for and against assessing dispositions can be found in Appendix B.

Teaching in Mind



Becoming a reflective teacher by looking inward entails examining teacher beliefs and values, the meanings teachers attach to words, and the metaphors they use to describe their work. More important, it means exploring *your* beliefs, *your* values, *your* meanings and metaphors. Theories are extremely useful, but if they are inconsistent with what is within the hearts and minds of individual teachers, they are little more than interesting ideas. Only through *self*-knowledge will practical approaches to meaningful change within the classroom become clear.

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 - 4 Prawat, R. S. (1990, April). Changing Schools by Changing Teachers' Beliefs About Teaching and Learning. Elementary Subjects Series No. 19. (ERIC Document Reproduction Service No. ED 322 144).
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Teaching in Mind: How Teacher Thinking Shapes Education enhances teacher reflection by exploring unconscious beliefs, values, metaphors, and meanings that shape the educator's personal world and their interactions with students. Combining theory and practice applied to typical classroom situations, teachers learn how to 1.) identify their values; 2.) recognize and change limiting beliefs about teaching, learning, and knowledge; and 3.) recognize metaphors that offer new insights into the differences among teachers and classrooms.

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