



## The Role of the Teacher

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*Imagine you are conferring one-on-one with a student during reading workshop. You are working on a strategy with her and she's really getting it. You glance up and see that the rest of the students, either in pairs or individually, are engaged in their reading. There's a positive energy in the room, and you smile at this triumph. But do you stop to think about why everything is going so smoothly? What is the root of this success?*

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If you are reading this book, you are most likely a teacher. And if you are a teacher, you are well aware of the dizzying list of skills requiring your proficiency. Part of what makes teaching so interesting and rewarding is that it is a multidimensional task. It requires the skills of a sheepdog and an air traffic controller, a professional organizer and a child psychologist, a parent and a motivational speaker. You need to know both your content area (or areas, which for elementary educators may easily number six) and pedagogical strategies, both of which are constantly growing bodies of knowledge. And you must never lose sight of the real lives and needs of the young students in your care. No wonder teachers have the summers off!

The good news is that we teach best when we see ourselves as learners. After all, everything we know is subject to change, and we are certainly learning more about, well, everything as time goes on. This is true for both the field of education and general knowledge. For example, when I was in school, dinosaurs were leathery-looking

animals that were just plain extinct. Now scientists have uncovered evidence that at least some of these creatures had feathers and evolved over time into birds. This means today's birds are descended from dinosaurs! Our learning never stops.

Moreover, we inspire and teach our students when we embrace ourselves as learners, too. Effective teachers convey knowledge, embody values, excite curiosity, and never lose sight of the fact that they are not teaching reading or math—they are teaching humans. Teachers are, without a doubt, the single most important factor in successful learning. It follows that you, the teacher, will play the most important role in your students' success in math. As important as curriculum, assessment tools, and a well-supplied and well-supported classroom may be, without an effective teacher at the helm to make sense of all the variables in the classroom, these components amount to very little. Teachers know this. It is why we choose this path.

The question is: How can we make the path we've chosen as smooth as possible? How can we continue to support and enrich our learning while simultaneously ensuring that the learning of our students is maximized? In my quest to do everything, I've returned to the saving grace: I'm a learner, too. And what I've learned is that we can become more effective teachers of mathematics by drawing from our successful experiences with teaching literacy. It's the art of lighting two candles with one flame.

In this first chapter, let's consider four qualities of literacy teaching that we can transfer to our role as math teachers: love of reading, active learning, a positive and passionate attitude, and differentiated instruction. We'll first look at each of these in the context of literacy teaching, then link them to math.

### *Love of Reading*

First and foremost, let us pay homage to the read-aloud. Surely it is one of the most joyful times of the school day: reading wonderful books aloud to our young students gathered around us, their hungry minds devouring every word. We know that reading aloud is a highly successful instructional method, but that does not explain why it is so pleasurable or why students and teachers alike are often so eager for more (I can hear the daily groans when I put the bookmark in, indicating a closure to the day's read-aloud). The reason is simply that we

*love reading.* When teachers read aloud, we are teaching our students to love reading, too. This is critical! Becoming a reader is hard work: As young children, we must overcome the challenges of decoding, and as we grow, we must learn ever more sophisticated strategies for understanding ever more complex texts. This work asks for effort, and we are far more likely to exert effort when we love what we are doing. We succeed in teaching readers when we invite them to share our love of reading.

### ***Active Learning***

Successful literacy teachers are active readers and writers. We study our own reading and writing, and we share our challenges and successes with our students. This may mean delving into genres we have previously avoided (nonfiction for the fiction fan or poetry for the prose lover) or consciously experimenting with comprehension strategies. We also study the reading and writing habits of our students, asking such questions as What does she like to read? Why is spelling so hard for him? What strengths do my students bring to the table?

### ***A Positive and Passionate Attitude***

We succeed in bringing our students into the world of literacy when we embrace curiosity, tolerance, open-mindedness, and critical thinking. We do this by inviting learners to observe our own thinking processes and by sharing our thoughts about their learning. We also do this by setting high expectations for literacy learning and respecting children's learning processes. When the state of New York adopted a performance standard requiring all fourth graders to read at least twenty-five books, Francesca struggled to meet this goal. She was a reader whose capacity to comprehend far outstripped her ability to decode; she often opted to read books that were just right in content but difficult to decode, and it took time to get through them. She worried that she would not meet the twenty-five-book standard. I wanted to support Francesca's goal of reading twenty-five challenging texts, and I respected her determination and perseverance. Working together, we identified a number of shorter texts that stimulated her thinking, including a couple of collections of poetry, and found some great books that were at her decoding level.

## *Differentiated Instruction*

By understanding our own strengths, weaknesses, and interests, and studying those of our students, we develop an appreciation of the complex nature of literacy learning and know that each learner has a unique learning profile. Effective teachers use this knowledge to plan the best instruction for each student: appropriate grouping or partnerships, texts that delight a student or push him further, specific strategy instruction, and more. In a nutshell, effective teachers know their students. It is also important for teachers to really know themselves. My insights into myself as a learner (I prefer fiction, hate drafting, need to think about spelling patterns, like a little noise when I'm writing, and tend to overcomplicate sentences) allow me to develop insights into others as well as keep in mind that there is a vast array of conditions that work best for other writers.

Effective teachers bring these same qualities to math teaching. We strive to convey the beauty and pleasure of mathematics, learn alongside our students, model positive values, reflect, and help our students excel at and enjoy mathematics.

But here is the catch: For many of us, math does *not* hold the same pleasure that reading does. A lot of teachers simply don't like math, and some even fear it. Some teachers were not particularly successful as math students and stopped taking it as soon as they could. Teaching math is a solemn duty, approached with respect and some trepidation. Those of us who have not had the best experiences in mathematics still understand how important it is to our students, and we strive to teach it well. But when we teach it without enthusiasm or curiosity, we should not be surprised to find that our students feel the same way.

The first lesson we should take from literacy teaching is to *fall in love with math*—at least a little bit—so we can honestly teach out of curiosity and enthusiasm. Though this may seem a bit touchy-feely, if you swap out *math* for *reading*, it sounds perfectly natural. After all, while it is oddly commonplace for people to claim they hate math, it is nearly unthinkable for an adult to say the same about reading.

If the idea of falling in love with math sounds impossible to you, my guess is that you are affected by a math education that failed you.

You may have found fractions confusing and struggled to learn how to add, subtract, multiply, or divide them. Long division was baffling and algebra, nearly impossible. You felt like an outsider in math class and envied those children who seemed to get it so easily (they must have had the mythical math gene). Because traditional procedures reliably produced correct answers, and were likely the focus of the curriculum, you worked hard to master them. You probably did this mostly through rote practice and got more pleasure out of succeeding on tests than playing with numbers.

If this is you, you need to rediscover math. And lucky you—you have a golden opportunity to do so. Remember, the most effective teachers are lead learners. So learn with your students. You already know the math they are studying better than they do, so you are one crucial step ahead. You can afford to let down your guard and investigate with your students. The mathematics games and investigations written for children are often very engaging for adults as well, and teachers who have been alienated from math are often delighted to discover how—dare I say it?—*fun* math can be. And here's the secret: If you are honest with yourself, you will never stop learning with your students. The mathematics underpinning even the most elementary concepts are so rich—the possibilities for learning so abundant—that you are bound to encounter students who will push your thinking.

I offer the following advice for teachers everywhere, no matter how you feel about math:

### **My Advice to Math Teachers**

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Examine how you feel about math.

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Try out new strategies.

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Make mistakes—publicly.

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Really try to understand your students, and don't be surprised when you can't.

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Find colleagues or mentors to learn with.

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Above all, remember you are human in a human endeavor.

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***Examine how you feel about math.***

Examine your own beliefs about math, and think about changing them. If you really believe that mathematics can be learned only by those blessed with the math gene, think again. Yes, numeracy may come more easily to some, but since mathematics understanding can enter through many avenues (spatial, linguistic, and numeric), there is an in for every learner. Find out how *you* learn best: Alone, with a partner, or in a group? Playing with manipulatives or scribbling thoughts down on paper? Working through reliable procedures or performing trial and error? For every preference you have, there is a learner with an opposite preference. Look for preferences in your students. Next, consider your teaching preferences, keeping in mind the fact that no one practice or approach will succeed with all learners (this is probably one of the few absolutes in education). Any piece of rigid thinking is dangerous and should be examined. We have all been the victims of dogma in education and should strive to avoid being dogmatic. Read current research and continue to do your own fieldwork: study your students, and study yourself.

***Try out new strategies.***

No matter how comfortable you are with math, there is always something new for you to try; the wider your mathematics repertoire, the better you will understand your students and the math they are learning. While studying mathematics teaching with mathematics educator Cathy Fosnot, I learned a novel approach to multiplication, based on the fact that if you halve one factor and double the other, the product remains the same. That is,  $8 \times 6$  yields the same answer as  $4 \times 12$  and as  $2 \times 24$ . As cool as I thought this was, I fancied myself as pretty good at multiplication and saw little need to adopt a new strategy. However, upon reflection I recognized that this attitude was limiting at best and anti-learning at worst. I began to consciously apply the halving and doubling strategy to multiplication problems. I quickly learned this strategy was not much use with problems like  $39 \times 11$ , but it sure made  $12 \times 75$  a snap! With just a couple of mental steps, I easily solved that problem in my head:  $6 \times 150$  is doable, and  $3 \times 300$  is a piece of cake. Not only was this