

PRESIDENT'S choice

Selected by Cathy Seeley

Reflecting on the influence of the *Mathematics Teacher* and the other school journals on my thinking over the years, I realize that different types of articles and features have been helpful to me in different ways, depending on where I was in my career. When I was a classroom teacher, I relished ideas for teaching that I could turn around and use with students. As I moved into roles supporting teachers, I appreciated articles that gave me ideas for offering workshops, often looking through my back issues for related articles around a theme when I needed to do professional development on a particular topic. No matter where I was in my career, I always appreciated articles that raised issues

to help me focus on important priorities.

By 1994, I had been out of the classroom for a while, and I was working with schools, districts, and a very large state on making change and improving how we teach mathematics. Steve Leinwand's "Sound Off: Four Teacher-Friendly Postulates for Thriving in a Sea of Change" spoke to me immediately. Two years earlier, he had written an article on challenges and suggestions related to implementing the *Professional Standards for Teaching Mathematics* (1992). The 1992 article included several concrete ideas for leaders and teachers about facing challenges and changing classroom practice. It appeared as an article in a department called "Implementing the *Professional Standards for Teaching Mathematics*."

The 1994 "Sound Off" was a different kind of piece. It resonated with everyone involved in education because it dealt head-on with the issue of how difficult it is to make change. By this time, the *Curriculum and Evaluation Standards for School Mathematics* had been out for five years, followed by the 1991 publication of the *Professional Teaching Standards*. We had seen more than a decade of reports about what was wrong with American schools and with American students' mathematical knowledge. Everyone seemed to have an opinion about how teachers should change what they were doing, and the pressure on practitioners at every level was immense. Some states had developed state-level standards or tests, and many schools were searching for the magic program that would fix everything. Every



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new principal and superintendent tried to make a difference by making things different. Teachers often faced tremendous conflicts between what was required, what was expedient, what they were used to, and what was being called for by the profession. It was, indeed, a “sea of change.”

Leinwand’s “Sound Off” accomplished several things. First, it acknowledged in writing what everyone was facing but was not well articulated—that the outstanding work of the NCTM had produced Standards (1989, 1990, 1991) that called for doing things differently from what was happening in most classrooms. It also included an interesting and provocative observation that teachers in other disciplines were not facing the same expectations for change as those teaching mathematics. It reminded us that changing how we taught mathematics was necessary in order to prepare our students for a world very different from the one in which most of us grew up. Perhaps the most helpful and reassuring of Leinwand’s four postulates suggested what I came to call “the 10 percent solution.” That is, it suggested that teachers consider changing 10 percent of what they do each year, preferably a different 10 percent each year. Finally, the piece validated teachers’ frustration that they might feel overwhelmed or inadequate to the task of making the change that they might be expected to make or might want to make. It was hard to read this piece without thinking about one’s practice or what we might be asking of teachers. I quoted it often when I worked with teachers and administrators. That’s

what a “Sound Off” is supposed to accomplish.

In “Four Postulates,” Leinwand managed both to bring comfort and to stimulate change. He brought common sense and some semblance of reasonableness to what seemed like too much too fast. He did it with respect for teachers and yet with the inevitable conclusion that we all need to aggressively continue to learn, grow, and adapt.

Today it seems as though the sea of change is more like a tsunami. In this arena of even more conflicting expectations, perhaps we might still take solace in Leinwand’s postulates. Looking back, I wonder how many of us can say that we have changed 10 percent each year since 1994. I’m guessing we all continue to feel inadequate. But I know we can recognize that we can’t teach like we used to and that we still need to learn and grow.

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SOUND OFF!

Four Teacher-Friendly Postulates for Thriving in a Sea of Change

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Many of us chose mathematics teaching because it was always so neat and clean. We felt an affinity toward teaching and learning mathematics because it was orderly and logical. Almost always, we arrived at only one numerical answer by using one right procedure that could be easily graded either right or wrong. We knew that with our beloved mathematics, we suffered none of the gray areas that plague the disciplines of language arts and social studies. And we knew that we would be rewarded for teaching mathematics the way we ourselves were taught. But, oh, how things have changed!

A word on the editorial approach to reprinted articles: Obvious typographical errors have been silently corrected. Additions to the text for purposes of clarification appear in square brackets. No effort has been made to reproduce the layouts or designs of the original articles, although the subheads are those that first appeared with the text. The use of words and phrases now considered outmoded, even slightly jarring to modern sensibilities, has likewise been maintained in an effort to give the reader a better feel for the era in which the articles were written.—Ed.

Let's face it: the NCTM's standards documents have made our professional lives much more challenging. Given how much the teaching of mathematics must change to serve a digitized world of calculators and computers and given the breadth of the recommendations of the standards documents (NCTM 1989, 1991), it is not surprising that many teachers of mathematics are frustrated and feel thoroughly challenged. To ease this inevitable frustration, I offer four perspective-building postulates for thriving in a sea of change.

Postulate 1: We are being asked to teach in distinctly different ways from how we were taught. Long-accepted truths state that most people parent as they were parented and most teachers teach as they were taught. We build on what is familiar because the familiar "feels right." However, to teach concepts, not just skills; to rely on cooperative groups; to work collaboratively with colleagues; and to assume the availability of calculators are parts of a very unfamiliar terrain. Neither previous generations of mathematics teachers nor our colleagues in other disciplines have had to face such a chasm between how they were taught and how they are

being asked to teach. No wonder many of us feel disoriented and inadequate (see postulate 4).

Since teachers can't do what they haven't seen or experienced, we need to create tangible and accessible models of curricular and instructional reform. We need to increase opportunities for collegial classroom visits, and we need to increase our reliance on videotapes of what the distinctly different forms of pedagogy look like.

Postulate 2: The traditional curriculum was designed to meet societal needs that no longer exist. The bedrock upon which this entire reform movement rests is a clear understanding that society's needs and expectations for schools have shifted radically. No longer are schools expected to serve as society's primary sorting mechanisms. Instead, schools must become empowering machines. Schools cannot remain perpetrators of the bell curve, where only some were expected to survive and *even fewer* to truly thrive; education must be a springboard from which *all* must attain higher levels. For this reason behaviors and attitudes that were rewarded a short decade or two ago are now under such scrutiny.

In the face of such emotionally trying bombardments, two very different responses to the standards and to other aspects of the reform movement have become common. Some teachers have basically ignored the entire movement, believing that "this too will pass." Others understand that change is required but, sensing that they themselves are not really moving fast enough, feel guilty about not doing more sooner. Denial and guilt are entirely appropriate responses to the magnitude of the change swirling around us. However, neither response is particularly comforting and neither represents the level of professionalism we expect from ourselves.

For comfort and a professional safety net, I find it helpful to remember that ignoring the need for change in mathematics also ignores how radically different society's expectations for schools have become. And feeling guilty about what we've done in the past or about not changing fast enough masks acknowledging how effectively schools once met a set of needs that simply no longer exists.

Postulate 3: It is unreasonable to ask a professional to change much more than 10 percent a year, but it is unprofessional to change by much less than 10 percent a year. We can easily argue that the most disorienting element of our lives is the rate at which things are changing. Many researchers have written about people's ability to accommodate to the ever-increasing rate of change. In somewhat arbitrary, but certainly comforting, fashion, I have come to believe that about 10 percent a year is a

reasonable rate of change to expect—large enough to represent real and significant change but small enough to be manageable.

One way to visualize change at this rate is to think about substituting one new unit each year, shifting four weeks of instruction to address a new topic, or doing something in a very different way, such as changing questioning techniques or introducing journals. Using this incremental approach will result in five years in changing nearly half of what we do today. Even the most radical proponent of reform should be satisfied with a change of this magnitude in our mathematics classes, and our most cautious and tradition-bound colleagues should be able to retain a real sense of control over such a rate of change.

Postulate 4: If you don't feel inadequate, you're probably not doing the job. Just think what we are asking each other to do: increase the use of technology; use manipulatives and pictures with far greater frequency; make regular use of group work; focus on problems, communication, applications, and interdisciplinary approaches; teach groups that are far more heterogeneous; increase attention to statistics, geometry, and discrete mathematics; assess students in ways that are far more authentic and complex—and do it all yesterday and in ways that boost achievement overnight! Feeling overwhelmed by this torrent of change is neither a weakness nor a lack of professionalism—it is an entirely rational response.

No one can do it all. Just as no physician is expected to be an expert in all aspects of medicine, no mathematics teacher in the 1990s can reasonably be expected to be an expert in all aspects of teaching mathematics. We must select a few areas of focus and balance the fear and worries we understandably have in some areas with the pride of accomplishment and success we find in other areas. We must accept the inevitability of a sense of inadequacy and use it to stimulate the ongoing growth and learning that characterize the true professional. Only then will we be sufficiently armed, intellectually and emotionally, to thrive in the exhilarating, exhausting, and often overwhelming sea of change.

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