THE CHARACTERISTICS NECESSARY FOR A MATHEMATICS SPECIALIST

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Reflection

Did you ever find yourself asking, "Just how did I get here?" Did you ever think, "I never would have guessed I'd be doing this"? Did you ever question whether what you're doing is even worth doing? If you have, you already hold one of the necessary characteristics for doing the work I do and that is being *reflective*. What are the others? I invite you to read on to learn about this educator's foray into the world of public and private school mathematics within an urban East Coast setting. Over the course of fifteen years, I have asked myself these questions numerous times because I am a Mathematics Specialist. I have been a pioneer Mathematics Specialist, an apprentice Mathematics Specialist, a journey[wo]man Mathematics Specialist, and will soon be a Virginia certified Mathematics Specialist.

Many mathematical moons ago, I took a job as a "Mathematics Specialist" at an independent elementary school in Washington, D.C. Did the headmistress, the school board, or I know what a Mathematics Specialist's role would be? No, but due to the birth of the 1989 *Principles and Standards for School Mathematics* from the National Council of Teachers of Mathematics (NCTM), the school board decided that the community needed to understand what this document meant so that the school could be in the front of the independent school pack showing their stuff [1]. So I plowed ahead, determined to make a difference. But why? Wasn't I already making a difference in the lives of students? I was an established elementary classroom teacher and Learning Disabilities Teacher, and had received much satisfaction in these roles. Something about working in mathematics education intrigued me. For one thing, I saw this as a new challenge—little did I know how much of one. I also knew that the way I, and my colleagues at various United States schools, had been teaching math was not working. In addition, I wanted a position where I could work in a more *collaborative* way with fellow teachers than I had been.

Collaboration

As I look back now at my first experience as a Mathematics Specialist, I recognize to an even greater degree than I did then the strangeness of what I was doing as seen from my colleagues' perspectives. Since my role wasn't clearly defined, they accepted me drifting in and out of their classrooms as I sized up how they were teaching, what mathematics they were

The Journal of Mathematics and Science: Collaborative Explorations Volume 9 (2007) 37 - 39

teaching, and the extent to which the math being taught connected with the 1989 NCTM *Principles and Standards* publication [1]. Within a profession where teachers have worked historically and primarily in a solo capacity, I was an oddity for intruding in my colleagues' teaching spaces.

Flexibility and Fortitude

Many times since those early years, I experienced and witnessed a variety of reactions to my role in the exploration of classroom mathematics teaching and learning. Some people wanted a new experience, and were open to collaborating. Some wanted to show how they would try something new by using new math material—but strictly on their own terms and in their own way. Some showed me the way math was taught in their classrooms, and then indicated that I could help out within that specific structure. Others nervously laughed, joked, and apologized their way through lessons and meetings, telling me that there was just too much material to read through and they weren't exactly prepared, but would be the next time I was with them. Still others made themselves consistently unavailable. These various examples of reactions point to the *flexibility and fortitude* one must have within this role.

Decision Making Ability

Since my position as a Mathematics Specialist lasted ten years at one school, I was able to see dramatic change take place. I never thought it would take that long. In the other two settings I've worked as a Mathematics Specialist, I have also seen changes, but they've been relatively few since these schools have only recently had someone in the Mathematics Specialist position. Working with different teachers and administrators, as well as students and curricula, the work of a Mathematics Specialist calls for constant *decision making*. There is never a dull moment, and there are always various goals to be working toward.

After ten years in the independent school setting, I returned to public education. My work as a Mathematics Specialist took me to the growing educational segment of charter schools. I took a position in a progressive elementary/middle school that was only a few years old. With a young staff full of energy, there was no need on my part to motivate them on the subject of mathematics professional development. The desire was there to learn and standards-based curriculum materials were in place, but there was no vision of the road leading toward a change in teaching mathematics. No one was to blame for this. As is the case in many kinds of schools, there was no one with prior experience of learning math in a *holistic* way as is being called for by reform-based mathematics curricula and the 2000 NCTM *Principles and Standards* publication [2]. My job required me to educate teachers, administrators, students, parents, and the larger

school community. This was the inviting part of my work; but, between each of these groups and me came parental fears, the media, competing schools, and finally, the institutional memory regarding teaching and learning mathematics by society at large. The path would not be a smooth one.

Summary

Since beginning this work in 1991, I have witnessed and read about heated discussions on the evils and wonders of this "new kind of math." From school board meetings to parent e-mails to teacher remarks in the staff room, the passion brought about by discussions related to mathematics has been certainly frustrating at times since in my school role I have been a "lonely" figure—someone who is neither in an administrative position nor a teaching position. Over time, however, I have experienced an increased sense of belonging. I chalk this up to the expanded work of NCTM and the many original publications that have been created by this organization to educate and set goals for mathematics learning in our country. Conferences, workshops, on-line seminars are a few of the mediums I have used to network and grow in my position. In the last two years, I have found a true home as a Mathematics Specialist inside a district that supports a collegial band of Mathematics Specialists who can raise consciousness and improve craftsmanship within our schools, within our district, and within our state.

Two fundamental beliefs that have guided me over the years in this work are: 1) the idea that all children can and need to learn mathematics with conceptual understanding; and, 2) the idea that both adults and students construct their mathematical knowledge. Both of these beliefs are controversial and demand time to occur. In a culture where time is money, and where the national and local politics of right versus wrong guide educational policy, these beliefs can be intentionally and unintentionally trampled and disregarded. I see it as a core piece of the Mathematics Specialist's work to raise these beliefs for examination and reflection when providing professional development to educators of all types. ■

References

[1] *Principles and Standards for School Mathematics*, National Council of Teachers of Mathematics, Reston, VA, 1989.

[2] *Principles and Standards for School Mathematics*, National Council of Teachers of Mathematics, Reston, VA, 2000.