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Reflections of Glenmount Reform Effort

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REFLECTION BY GAIL R. BLACK

I was never very comfortable with math during my school years. In fact, I did all I could to avoid that dreaded topic. I was encouraged by teachers and family to pursue anything but math. Under the circumstances, it is not unusual that for about thirty five years of my life I was math-phobic. I graduated from high school and college and entered the teaching profession without a quality math experience. Despite little math knowledge, I became an accomplished teacher. However, I never really considered myself a mathematician until 5 years ago when a little towhead named Curtis entered my Kindergarten classroom. How could a little boy change my way of thinking? Well, this is where the story of my reform begins.

I had just received grant money to purchase a math manipulative package. (I knew it was about time I conquered my fear of teaching math.) Here I was with great things for children, but not much procedural knowledge with which to present it. This is the point when Ruth Miller, the mother of little Curtis, enters. Ruth was a stay-at-home mother, who was a math teacher before her child rearing days. It seemed that she longed to do more than just change diapers. When I asked for volunteers to package and organize the math games, Ruth being a frustrated, stuck-at-home mathematician answered my call--and then some.

Through classroom volunteerism and general "butting-in," Ruth championed my math education and reform. As soul "guru" of my efforts, she began to show me strategies, styles and methods of teaching mathematics to my kindergarten class. I was generally surprised at how much I was already doing, but calling it "thinking games." But, there was much more for me to learn. On a regular basis, Ruth presented math lessons to my class according to the NCTM standards. Soon I began to understand how the standards can make a difference in my teaching and my students' learning.

After a year, it was time for Curtis to leave my class.

Sadly, I bid farewell to him, but gratefully, his mother continued to nurture my math education and reform efforts. During this second year at Glenmount, she was offered a part-time teaching position for selected primary and upper elementary classes, and continued to volunteer in my kindergarten classroom. She received a nominal salary for this job. However, Ruth did not keep her salary, but generously purchased much needed math manipulative for the primary grades. She also funded my way to the regional NCTM conference in New York. (She will never admit this happened.)

It was at this first NCTM conference that I became excited about math teaching. I was convinced that I was truly committed to bringing math reform to early elementary teachers at Glenmount. Through my contact with NCTM, I received a quantity of math information about standards, manipulatives, and curricula which helped me to become more confident in my math presentations. I was unable to keep my new mathematics strategies and methods to myself. From conversations with other teachers in my school, I also found that they too were somewhat uncomfortable with math teaching, but never really told anyone. I let them in on my "secret", but much to my chagrin, they were not as excited about knowing the standards as I was to talk about them. It was then, I knew I had an uphill climb in trying to bring reform to Glenmount.

I made efforts to continue to educate myself in all of the math techniques available. I attended several workshops and lectures about teaching math and math reform. I participated in the BCPS Math Leadership Cadre. (Imagine that!) I became a regular at the NCTM Conferences (now at my own expense), eagerly absorbing all I could at each session. I would return to school bursting with enthusiasm, and eager to try new ideas. I became very interested in the University of Chicago Mathematics Project. I began to use Everyday Mathematics. I was fortunate to receive

a review copy from the sales rep, with whom I established a business relationship during my frequent visits to the "Chicago" booth at the NCTM conferences. The students responded favorably. When I would point out that they were real mathematicians, they grinned with pride. I would speak of the students' successes in hope there was someone who would want to listen. Sure enough a new staff member, a second grade teacher, opened her ears; but to my surprise she was already an NCTM member. We connected, and began to seek out more teachers to align themselves with the standards. Still, most of the teachers were workbook oriented, or work bound and were unable to take on any more (so they said.)

Another year passed. Ruth obtained a full time job doing what she liked best--teaching math. (This time I think she kept her salary). I was on my own now, and feeling more confident with every new math lesson and strategy I could find. I continued to put out "feelers" for interested parties. Ruth as a parent volunteer and I promoted our first Math Madness Month. (I got the idea at an NCTM conference, of course.) The students were asked to produce a project that reflected their math awareness. The school wide

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project was not mandatory, but you can imagine our delight when we displayed 265 out of 375 projects. The students portrayed math in various ways. Some doubled a recipe. Others defined math theory, while others wrote about famous mathematicians. All in all, the total student body became involved. Either by participation with a project, or as a spectator, we all received heightened awareness in mathematics.

Math Madness was a marked success and the follow-

ing year we promoted the projects again. This time we added bridge building. Math Madness Month ended with a real bang. We tested the bridges for structural strength with weights. The students were so excited they asked to do it again the following year. Now, Math Madness is infectious with Glenmount students.

Because Math Madness was so successful with the students, a door finally opened to math reform at Glenmount. Teachers were now becoming interested in new pedagogy and asked for training. It was difficult or impossible to get any financial resources from our ever-in-debt system. So, we formed a group to seek creative ways to fund our development. We knew if we could attend the NCTM conferences, and return with great ideas, we would continue to be motivated to reforming math teaching at Glenmount.

In 5 years, our efforts to initiate math reform at Glenmount have met with some success. We have nine members now, and look forward to more teachers who are interested to join the ranks of the math informed. Our main objective is to have all Glenmount staff at least informed about the NCTM standards, if not committed. As co-organizer of the Math Discussion Group at Glenmount, it is my ultimate goal to seek financing to aid in the professional development of myself and the group. Being informed and knowledgeable about the NCTM standards enhances my /our teaching ability which ultimately produces "math-friendly" students.

I am not sure how much longer it would have taken me to find out about math reform or national standards. Our system is seeking to have us informed, but is very slow in doing so. I just know that my journey has been unique in that it was parent initiated. And for that, I am grateful I was the teacher who had that little towhead, Curtis.

REFLECTION BY RUTH MILLER

I am a mathematician, a teacher, and a parent of three Glenmount students, so I wear a lot of hats, and I have a lot at stake. I think of myself primarily as a mathematician, though, because the skills that I have developed as a result of my love of mathematics help me everyday to be a better teacher and a better parent. I think that the key to any successful appreciation of the subject of mathematics is the realization

that it is not a discrete area to be studied, but a journey to be traveled which can enhance and enrich other areas of life. I have a poster of Einstein in my room and he is quoted, "Do not worry about your problems in mathematics, I assure you that mine are still greater." To me this means that whether you are seeking to understand calculus or addition or unified field theory you are still seeking to understand, and there

are many paths to understanding.

My son, Curtis, entered Kindergarten at Glenmount five years ago. At the time I was a stay-at-home Mom, so I volunteered in my son's class, which was taught by Gail Black. I cut out letters, and did other things around the classroom. I organized math games, and I was really popular when Gail found out I could run a mimeograph machine! One day I told her that in a "previous life" I had been a math teacher and her response was along the lines of "You know, I'm just not as comfortable teaching math as I am teaching reading." And then she uttered my least favorite 6 words: "I'm just not a math person." When I hear that I always wonder what the reaction would be if I said, "You know, I just don't read, I never have been good at it."

I have a poster of Einstein in my room and he is quoted, "Do not worry about your problems in mathematics, I assure you that mine are still greater."

I didn't have much power back then; I'm a parent so I can force a teacher into a conference, but as a teacher, I know that unless that teacher is invested in what I have to say, no meaningful change can occur in a classroom. So I started bringing math into the things that Gail asked me to do. I organized a set of manipulative that she had and started to teach some lessons. At first she would use the time to get her paperwork done, and do housekeeping around the room; but eventually she started to watch and ultimately we began a sort of team teaching: I knew the math and she knew how to present ideas to small children (I learned some techniques that I now use teaching calculus). The next year I helped out by working on math enrichment with my son's first grade class. Gail and I continued our collaboration and we went to New York together for the National Council of Teachers of Mathematics Regional Conference. There Gail became a true born-again mathematician (teachers new to Glenmount can't believe that she was ever math-phobic; trust me, she was!). The following year we started Math Madness Month: A celebration of math culminating in an exhibition of projects in the hall. We knew that Gail's class would do projects and that Curtis's class would do projects, so we set up two tables and waited. Imagine our joy when there were so many projects that we eventually used every spare table in

the school and a significant amount of wall space. By this time I was working full time at Roland Park Country School, which is generous enough to give me release time every week to continue working here at Glenmount. In 1994, we took Curtis's second grade teacher Sarah Pickett with us to NCTM's National Conference in Indianapolis. In the next year we added a Toothpick Bridge building Contest to Math Madness Month, and Gail hitched a ride with me in the Roland Park Country School Van to the NCTM Conference in Boston. During these years I have always offered to link math to any lesson and I have had many Glenmount teachers ask for help or insight into the theory behind a certain algorithm or method. This year nine teachers are involved in a reform oriented math discussion group and seven of us just returned from the NCTM regional conference in Philadelphia.

I think that, if any of Glenmount's success can devolve from my influence it is because, as a person with no real power, I have had to teach rather than mandate.

Whenever we came up against a wall we played a game called "That's all well and good but it won't happen here because..." and somehow we always found a way to make it work in spite of whatever limitations we faced.

I never told Gail Black how to teach math, I just exposed her to what math really is and trusted in her professionalism and intelligence. Her colleagues saw her enjoying a part of her job that she was known to dislike and wondered what had happened. She encouraged them as I had encouraged her. Whenever we came up against a wall we played a game called "That's all well and good but it won't happen here because..." and somehow we always found a way to make it work in spite of whatever limitations we faced. We have lived by the first and second commandments of mathematics: 1) Every problem has a solution somewhere, and, 2) The first time something works it's a trick—by the fourth time it's a method. Like Einstein, everyone must butt up against her own mathematical wall, and a wise teacher allows a student to learn and grow in her own time. My advice to anyone seeking to improve math scores is to improve math teaching, and that is best done by improving the teacher's exposure to what math really is and trusting her intelligence and professional desire to do the best for her students.