

## **TRICKLE-DOWN INSPIRATION: FROM MATHEMATICS SPECIALIST TO TEACHERS TO STUDENTS**

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I always knew that I wanted to be a teacher. Growing up, I never lacked for babysitting jobs. I taught Sunday school and vacation bible school, and always had a younger sibling or cousin near. I loved being around children and becoming a teacher seemed like the most obvious of career choices. I never gave much thought to any particular subject; after all, elementary teachers teach everything.

After completing my undergraduate degree, I took a job teaching third grade in a rural, at-risk school division in Virginia. I loved working with the students in this population, but every day brought new challenges. I found myself constantly having to pull new and innovative tricks out of my hat to keep my students interested and, more importantly, to make the curriculum relate to the students. The traditional methods I had learned would quickly be swept aside for more hands-on, student-centered learning. I continued in this position for two years and loved every moment I spent with my students, but I felt that it was time to move on. I took a job in a small, urban school division, again teaching third grade to a population that consisted mostly of at-risk learners. The challenge was still there, but I was ready for something new and different.

After my first year in the new school, the position of Mathematics Lead Teacher, now referred to as Mathematics Specialist, became available. I thought this might be just what I was looking for—definitely new and different. When I called my family to tell them of my new position, they proceeded to find great humor in my announcement. When I was a student in school, I absolutely could not stand math. It was my least favorite subject and the one I struggled with the most. I was an A/B student in all other subject areas but when it came to math class, I was ecstatic if I received a C. I began to wonder exactly what I had gotten myself into as I assured my family that this was not a prank call.

Life has a way of creating ironic situations for us, and I found the subject that I had detested most as a student was the subject that I loved most as a teacher. Through teaching, I had begun to develop a deeper understanding of math myself. I learned that the difficulties I had as a student stemmed from the fact that I was taught math with a chalkboard, pencil, paper, and the

math textbook. If I didn't understand the traditional algorithm, it was seldom presented differently; we simply moved on to the next topic or problem. Upon reflection, I came to understand that students need to be allowed to explore math, and to create their own understanding in order to develop an appreciation of it. This is why I teach math—in the hope that I can foster such knowledge and a love of mathematics.

As I taught, I noticed that the students often lacked a connection to the mathematics we were studying. To help alleviate this, I began developing lessons with a strong focus on the real-world application of the mathematics being learned. The most effective way to do this, I found, was through problem solving. I worked diligently to foster good problem solving skills in both the students and the teachers in my building. We had grade-level problem solving “competitions” and some weekly lessons focused on a specific problem solving strategy. It was amazing to watch students work through a problem and have an “aha” moment as they got the answer. The problems presented to the students were based on real-life situations in order to facilitate a connection between student and mathematics. A vital part of this was not only to solve the problems, but also to discuss the various approaches students took in the solution process. I wanted the students, and the teachers, to understand that math is not a cookie cutter subject and, while final answers should be the same, there are often many ways to get them. This discussion not only gave students ownership of their strategy, but it also helped foster a deeper understanding of the mathematics involved. Allowing students to problem solve and explore mathematical concepts are powerful tools. As students construct their own meaning and context for concepts, they are often able to make stronger connections within and among the concepts being taught; thus, making them stronger and more importantly, more confident mathematicians.

After my first year as the Mathematics Specialist in my building, I began taking the courses designed to provide teachers with a Mathematics Specialist endorsement. These courses have made me a stronger and more confident mathematics teacher. The student who dreaded the challenges of mathematics is now a teacher who embraces those challenges. It is this enthusiasm and love of mathematics that I strive to convey to my colleagues. Perhaps the most difficult element of holding the Mathematics Specialist position is that of being a teacher leader. I have worked closely with my administrators to implement change in a positive fashion, and have persisted when these changes were met with less than enthusiastic responses. Also, I have worked with the teachers in my building in various capacities: including modeling, co-teaching, and co-planning lessons. It takes patience and perseverance, but I have observed that the teachers in my building have become more excited about math and this excitement trickles down to their students.

As a Mathematics Specialist, there are several qualities that I strive to develop in my colleagues. I hope to help them develop *mathematical patience*. As teachers, we need to understand that wait time is essential for students to develop their own ideas and solutions. This requires a great deal of patience, as we often want to *tell* them the solution so that we can move on to the next problem. Diversity is also an important mathematical quality. We must have an understanding that almost every problem can be approached in more than one way and that traditional algorithms aren't always the best way for every student. It also takes an open-minded teacher to have the willingness to go outside the box and try new methods and strategies. Success is not always guaranteed, but as teachers, we owe it to our students to try new things in the hope that they will lead to successes, no matter how small. Finally, I want my colleagues to develop mathematical confidence so that they become more comfortable with the mathematics being taught and know that it is never too late to try a new approach.

I've often thought of those teachers I had as I went through school and I wonder what they'd think of the teacher I have become. I thank them for making me struggle because I think that has made me a much stronger teacher, in that I truly empathize with those students who look at me and say, "I hate math." I want to help those students realize that mathematics is real. We come into contact with mathematical concepts each and every day, though it may not always be apparent. Teaching students mathematics teaches them to think creatively, to reason, and to prove (or disprove) their theories. From mathematics, students understand the value of making mistakes and learning from them. It also teaches the importance of approaching a problem from more than one angle and of accepting and valuing different solutions. Simply put, mathematics is real life. ■