THE MATHEMATICS SPECIALIST AS VISIONARY STRATEGIST

K. ANDERSON
Fairfax County Public Schools
Falls Church, VA 22042

Introduction

The role of a Mathematics Specialist is a multifaceted, multidimensional role and is dependent upon the district you are from, the school in which you are working, or most often, the person overseeing the position. In Fairfax County, the principal was the person overseeing my role. Having just come from a middle school, this principal was used to having department chairs. The principal treated all of the instructional leaders in our school as department chairs. It was our role to know what was happening throughout the school and to develop a plan to improve instructional practices within the school. At first, achieving an overall vision was a difficult task. It took time to learn the practices being utilized, and to build relationships with the other teachers to effectively create change. I began creating a strategy for our vision of improving mathematics instruction and student learning.

Three-Week Partnership

One way in which instructional practices began to change was through co-planning and co-teaching. Since the school I work in is very large, I spend three weeks (at least once a year) working in each classroom. I meet with the classroom teacher the week before I will begin working in their room in order to discuss what they have been working on, how they have been using their instructional block, and discussing the needs of the students and the needs of the teacher. At this time, we decide on a focus. Some of the things that we often focus on are structuring the math block, developing centers or stations, differentiation, how and what materials to use for a specific concept, and helping students communicate mathematical thinking orally and in writing.

After a focus is chosen, the classroom teacher and I sit down to begin planning the first week of lessons, and to discuss how we want to work together during the three weeks. Often, the time working together consists of the Mathematics Specialist modeling lessons, co-teaching, and observing the classroom teacher. The normal progression is for me to do all of the teaching, but gradually turn it over to the classroom teacher so that, by the end of the three weeks, s/he is doing most or all of the teaching. During the time in which I am modeling lessons, the classroom teacher is expected to be taking notes for a discussion we have following the lesson. The

classroom teacher and I discuss, either in a formal setting or via e-mail, what went well, what we could have done differently, and where to go next each day. We continue to plan and rewrite plans based on the students' learning. The goal is that by the end of the two weeks, the classroom teacher has made changes to improve math instruction and student learning.

Teacher Population

The balance of supporting teachers has been a great challenge. There are classroom teachers that are in need of significant support and others that do not need as much support, but are very open to learning and improving their instructional practices. At first, it was easy for me to get caught up in working with teachers who asked me to come in and support them; they were very open to reflecting on their own practices and often asked for suggestions for improvement. However, I also had to spend a great deal of time fostering relationships with teachers who wanted to close their door to an outsider. It was necessary for me to find a way to get into their classrooms to support their instruction.

Integrating Learning Models

The school system in which I work has adopted the Professional Learning Community model. The Professional Learning Community model is based on looking at student work and student achievement in order to determine what to do with those who understand concepts and what to do with those who don't. Part of my responsibilities as a Mathematics Specialist was to help facilitate the growth of this model, of course tying into our school math goals. Each grade-level team has common planning time every week in which they are to have discussions based on student learning and instruction. To facilitate these discussions for mathematics instruction and learning, teams were asked to schedule monthly or biweekly meetings with me. The discussions in these meetings varied based on the teams. Some teams were more established and further along the continuum while some were not ready to begin discussions on student work.

One of our primary grade levels began working with a new textbook series and needed a great deal of support with the spiraling curriculum. At these grade-level meetings, we spent much of the time discussing how the concepts in this series related to county and state standards. In doing so, we created anecdotal recording sheets to keep track of the standards for the county, state, and series. A recording sheet was created noting textbook objectives, county objectives, and state objectives. Toward the end of the year, we had the opportunity to look at these recording documents to determine student needs. The classroom teachers were able to see how their classes were doing with certain concepts while also looking at the grade level as a whole. The teachers often used this information for remediation and enrichment purposes. One of the

most powerful aspects of these discussions was for me to be able to share some of the needs with the previous grade level and the teachers for the following year.

Another one of the grade-level teams felt very uncomfortable with teaching fraction concepts. Much of this came from not fully understanding the concepts themselves. The team met twice a week during the unit of fractions, to discuss best practices in teaching this concept. We spent time developing lessons, and with each lesson spent time practicing using the tools and manipulatives that would best help the students' understanding.

Developing Student Assessment Tools

Our fourth grade team decided they wanted to rewrite their common assessments to be more informative for their instruction. We first met and looked at all of the county and state objectives. The objectives were put into a teaching order, and numbered appropriately within a spreadsheet. As a team, we then started developing assessments. Each question on the assessment correlated to a numbered objective and were written in many different formats. Some of the questions were written in multiple choice and some in short answer, since one of our school goals was developing students' mathematical thinking shown through discussion and writing. To facilitate discussions about the common assessments, another spreadsheet was created for the teachers to input the data from their tests. The teachers would bring copies of this spreadsheet to the meeting to discuss students who were having difficulties with certain concepts. These difficulties were easy to determine since all of the questions related to a specific objective. As a team, the teachers were able to learn how to best meet the needs of all of their students. They decided to spend one day a week regrouping their students based on needs for specific concepts.

Roles for the Mathematics Specialist

As an instructional leader at the school, there was also an after school book group developed based on our school goal of helping students show their mathematical thinking through discussions and writing. It was the responsibility of the Mathematics Specialist to facilitate these meetings by fostering an environment conducive to discussions.

A Mathematics Specialist can take on many roles within the school. The most important part of the role is to understand the culture of the school and meeting the teachers where they are, and then moving them forward in their instructional practices and their content understanding. ■