

## **ELEMENTARY MATHEMATICS SPECIALISTS—WE NEED THEM NOW! FOLLOW VIRGINIA’S LEAD!**

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I am so pleased to have been asked to provide the foreword for this very important publication. As noted in my November, 2006 President’s Message, the need for mathematics leaders at the elementary school level is critical. This issue has become much more than a discussion topic. Virginia’s statewide initiative is providing an existence proof for other states and school districts who consider the role, accreditation, certification, and impact of mathematics leaders at the elementary school level, whether these professionals are called elementary Mathematics Specialists, coaches, mentors, or building leaders. The National Mathematics Advisory Panel has identified the need and use of such leaders as an area of interest in the work of the Teachers and Teaching task group chaired by Dr. Deborah Ball. However, as many know, the need for such leaders goes way back.

In 1984, an article appeared in the *Arithmetic Teacher* that asked an important question—“Elementary School Mathematics Specialists: Where Are They?” [1] This was written by John Dossey, who later served as president of the National Council of Teachers of Mathematics (NCTM). In 2007, I am again asking, where are the Mathematics Specialists? We need them, not only in Virginia and not only at the elementary school level, but in all schools throughout the country.

Many school systems are currently exploring ways to ensure that their students receive mathematics instruction from teachers who have a deep understanding of mathematics content and pedagogy; however, some still see this problem as being less important at the elementary grade level. As many of you are aware, major reports—including the NCTM *Principles and Standards for School Mathematics*, *Adding It Up: Helping Children Learn Mathematics*, and the *Mathematical Education of Teachers*—have all called for Mathematics Specialists [2-4]. In 1981, the NCTM Board of Directors recommended that state certification agencies provide for a Mathematics Specialist endorsement on teaching credentials for elementary school teachers. As readers know, Virginia has taken this challenge seriously and now offers graduate level

certification for Mathematics Specialists. I am such a fan of your initiative. Of course, I always claim our Maryland plan (still to be implemented!!!!) caught your attention. The fact is, Virginia is now THE model for a statewide initiative for elementary mathematics leadership. Having said that, the school accountability requirements of the No Child Left Behind Act relative to mathematics achievement have probably done the most to draw attention to the need for Mathematics Specialists in our schools—nationally [5].

Let's examine the critical question: why do we need Mathematics Specialists? Let's look at the elementary school level first. A student's view of what it means to know and do mathematics is shaped at the elementary school level; yet in the United States, elementary teachers in Virginia and elsewhere are, for the most part, generalists. Their pre-service teacher education typically includes two or three courses in mathematics content and one course in the teaching of mathematics. Their teaching load generally consists of a full range of subjects, with particular attention to reading or language arts, in a self-contained classroom. A Mathematics Specialist is needed because the pre-service background and general teaching responsibilities of elementary teachers do not typically furnish the continuous development of specialized knowledge that is needed for teaching mathematics today. The ongoing work of Dr. Ball and others certainly confirms this need for the specialized content and pedagogical knowledge unique to the teaching of elementary school mathematics.

What do Mathematics Specialists do? A number of specialist models are used in school districts in this country. The most common models are the Lead Teacher model and the specialized teacher model. The Lead Teacher model typically involves a teacher in the role of mathematics resource person for a single staff. Sometimes called a specialist or coach, such teachers mentor others in the building through planning, teaching, and coaching. They assist staff in interpreting data and designing approaches to improve students' achievement and instruction and to help ensure that mathematics instruction is aligned with state and local curricular frameworks. They facilitate teachers' use of instructional strategies, including differentiated instruction for diverse learners, and work with families and community leaders to foster school-based partnerships focused on learning mathematics. In addition, they provide buildingwide and, to a lesser extent, districtwide professional development for teachers. Variations of this model may include intervention with small groups of students. Some Lead Teacher/specialist/coach models emanate from the school district office, where the teacher specialist is responsible for more than one site. The specialized teacher model gives one teacher the primary responsibility for teaching mathematics. The specialized teacher typically has responsibility for a single grade; in the elementary school, it is often at the upper grade levels (e.g., fourth or fifth grade).

Although the specialized teacher cannot have the same impact as a districtwide specialist, this model allows the school district to focus professional development and related initiatives on a targeted teacher cadre. In addition, this model has economic advantages because it does not require additional teachers, just a redistribution of teaching responsibilities. Which of these models, or variations of these models, fits your needs?

As school districts determine their need for Mathematics Specialists and find ways to support them, the selection and continued support of Mathematics Specialists become very important. Who is selected? Why? Is it the best mathematics teacher in the building? Is it the teacher who knows the most mathematics? Is it the teacher who would be the best fit in working with other teachers? These considerations—content background, teacher expertise, and the potential for leadership—are all important. Emerging, countywide or school-based, programs in Virginia, and elsewhere, encounter these concerns—regularly. Equally important are recognition and support from the principal and local school district supervisor, who share the responsibility for delivering high-quality mathematics instruction to all students.

Although my focus here, and in the Virginia initiative, has been the crucial need for the teacher leader/specialist at the elementary level, there are similar needs at the middle and high school levels. Call them department chairs. Call them building specialists. Their role, as mentors and as bridges between teachers and building administrators, is essential at all grade levels. Middle and high school mathematics teachers need ongoing content and pedagogical assistance as well. We all do.

Now more than ever, teachers need support. Schools and school districts are beginning to recognize the important role of the Mathematics Specialist and the Commonwealth of Virginia is clearly a model for other states to begin to emulate—even copy. Feel good. Be proud. Enjoy the articles which follow this brief introduction as we all consider how to build on your work and the work of other mathematics leadership initiatives. As we are beginning to see, Mathematics Specialists can make a difference in improving mathematics instruction. We need them—NOW!

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### References

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