

MATHEMATICS SPECIALISTS IN ALEXANDRIA CITY PUBLIC SCHOOLS

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Introduction

In Fall 2004, the Alexandria City Public Schools (ACPS) placed full-time Mathematics Specialists in each of the division's thirteen elementary schools. This initiative represents the culmination of a sixteen-year effort in ACPS to improve the quality of mathematics instruction at the K-5 level. This was made possible by the collaborative support of the ACPS School Board, the ACPS administration, and the ExxonMobil Foundation.

Mathematics Specialists in ACPS serve as content-focused coaches who work with all teachers in their schools to provide differentiated, job-embedded professional development to move each teacher along a path of continuous improvement of performance. Outlined below are the essential features and milestones of the process that led to this exciting outcome.

Background

In 1988, Alexandria and 24 other school divisions began working with the University of Chicago's School Math Project (UCSMP). The Project focused on increasing the participants' mathematics content knowledge. It first trained trainers and then trained selected intermediate level teachers. From 1990 through 2002, ACPS trained three cohorts of approximately 25 teachers each as Mathematics Specialists. The teachers participated in more than 200 hours of instruction in mathematics content. The training was long term and targeted directly to teachers' practice. The teachers met for summer mathematics institutes and also attended monthly classes during the regular school day schedule. Over two years, the trainees developed strong mathematics backgrounds in areas relevant to the elementary curriculum, and gained expertise in techniques of teaching mathematics to intermediate and middle school students. They worked with the then newly released *Principles and Standards* (National Council of Teachers of Mathematics), and prepared to advise primary teachers in mathematics instruction [1]. Participants in the training praised this staff development as the best that they had ever attended.

In the period from 1992 to 2003, ACPS had Mathematics Specialists with classroom responsibilities: they taught their regular classes and acted as the "math experts" at the schools. They were consultants to other elementary teachers and advocates for mathematics. As much as

possible, they served on mathematics curriculum committees and acted as liaisons between the superintendent's Central Office and their schools.

Key Central Office and Board support for moving the Mathematics Specialist position to one without regular classroom duties occurred when three of the trained Mathematics Specialist teachers moved into principal and Central Office positions, and in 2001 when Rebecca Perry assumed the role of Superintendent of ACPS. Mrs. Perry immediately recognized the potential of improving mathematics instruction through a mathematics coach model. Also at this time, ACPS established an ExxonMobil Partnership supporting a Mathematics Specialist program. The application process for this grant included establishment of a planning task force which turned out to be a central piece of further development. The approximately ten members of the task force consisted of principals, previously trained Mathematics Specialists, and parents.

Throughout Summer 2002, the task force met for five different sessions and explored mathematics resources, such as *Adding It Up*, and developed a definition and a description of the roles and responsibilities for a Mathematics Specialist [2]. Vandi Hodges from Hanover County, Virginia, and Robyn Silbey from Montgomery County, Maryland, presented overviews of their Mathematics Specialist positions. Ms. Hodges' outline of the Hanover mathematics training program with Tom Rowan and the *Developing Mathematical Ideas (DMI)* courses gave the committee a new way to look at staff development [3]. Ms. Silbey's presentation focusing on her job as a Mathematics Specialist without classroom responsibilities was the first time that this role had been explained in detail in Alexandria. To have someone in this position explain the advantages of her support to teachers and principals proved to be an important step.

Networking with leaders from other school systems with Mathematics Specialists also proved to be critical, and key among these were people from other ExxonMobil sites. In Fall 2002, three Virginia divisions (Alexandria, Hanover, and Stafford) sent representatives to visit the Houston Independent School Division to learn about their Mathematics Specialist program. Lance Menster's advice and explanation of a "working model" for Mathematics Specialists was outstanding. This provided details about how to use Title I funds for the positions and led to more support in working with the City to fund Mathematics Specialists. This was critical because nine of the thirteen ACPS elementary schools are Title I schools, and these resources later proved to be essential in funding Mathematics Specialist positions in all schools.

Other important networking opportunities occurred at the ExxonMobil Directors Meeting, held each year at Mt. Holyoke with Virginia Bastable, Deborah Schifter, and Amy Morse (head of the Boston Math Coaches). These meetings provided many opportunities to reflect on the positions and to dialogue with other sites. Since 2002, ExxonMobil Foundation support has been used by the Virginia Mathematics and Science Coalition (VMSC) to host an annual Virginia Mathematics Forum on Mathematics Specialists. The 2003 Mathematics Forum proved to be especially important for the development of the ACPS Mathematics Specialist positions. Cathy David, ACPS Executive Director for Elementary Programs, attended this Forum. Ms. David had been trained as a Mathematics Specialist and was a member of our ExxonMobil Planning Task Force. She is also highly respected in Alexandria, and, after hearing the presentations of Skip Fennell and Lance Menster, she prepared a budget proposal for Mathematics Specialist positions in Alexandria and took this proposal to the superintendent and the Board.

The Virginia networking opportunities have also played special roles. At the 2003 Virginia Mathematics Specialist Forum, for example, Cathy David was impacted by hearing that other Virginia school divisions had Mathematics Specialist positions without classroom responsibilities, and this was critical in gaining her support. In addition, the Virginia Mathematics and Science Coalition's Mathematics Specialist Task Force and their success in moving the proposed Mathematics Specialist endorsement forward at the state level helped the ACPS school division create a vision of a Mathematics Specialist position similar to a Reading Specialist.

Summary

Today, the mathematics content training for Mathematics Specialists is an ongoing process. For example, several of our Specialists are enrolled in the newly developed mathematics courses in the Virginia Mathematics Specialist Project's endorsement programs. Our principals have also been trained using the *Lenses on Learning (LOL)* I modules to focus on the math leadership role in schools [4]. The *LOL* course was a particular success with our administrators. One principal commented, "I always thought that math was just learning how to go from one step to another. Now I know the bigger picture and how essential it is to have strong math leadership in elementary schools." Currently, we are using *LOL* II materials to continue our administrative training.

As to the 2003-2004 Virginia *Standards of Learning (SOL)* test scores, twelve of the thirteen ACPS elementary schools are fully accredited in mathematics [5]. The percentage of students who are passing the *SOL* test in the fifth grade is increasing. Scores at one of our Title I schools increased by 37% at the third grade level and by 26% at the fifth grade level. "Our teachers, administrators, and students have worked extraordinarily hard to reach these goals," said Superintendent Rebecca L. Perry. "We are confident that Jefferson-Houston Elementary will soon be fully accredited, given their new leadership, the support of the Mathematics Specialist, the commitment of their teachers, and the additional resources that have been provided to them."

References

- [1] *Principles and Standards for School Mathematics*, National Council of Teachers of Mathematics, Reston, VA, 2000.
- [2] J. Kilpatrick, J. Swafford, and B. Findell (eds.), *Adding It Up: Helping Children Learn Mathematics*, National Academy Press, Washington, DC, 2002.
- [3] D. Schifter, V. Bastable, and S.J. Russell (eds.), *Developing Mathematical Ideas*, Dale Seymour Publications, Parsippany, NJ, 1999.
- [4] C.M. Grant, B.S. Nelson, E. Davidson, A. Sassi, A.S. Weinberg, and J. Blciman, *Lenses on Learning: A New Focus on Mathematics and School Leadership*, Dale Seymour Publications, Parsippany, NJ, 2002.
- [5] *Standards of Learning for Virginia Public Schools*, Board of Education, Commonwealth of Virginia, Richmond, VA, 1995.