New York Public School District, A Regional Partnership

During fall 2003, Math Solutions began a professional development partnership with New York City regional educators.

Lucille Swarns, then a regional superintendent enlisted Math Solutions Professional Development to provide professional development support for her principals and math coaches. Lucille had worked with Math Solutions when she was instructional superintendent of Community School District 85, and she wanted to bring that support to her region.

Lucille reported, "As a former instructional superintendent in the Chancellor's District, which was comprised of the lowest-performing schools in New York City, I worked with Math Solutions for approximately two years. With the help of the professional development provided by Math Solutions, we moved our schools to much higher levels of proficiency in mathematics. The results were surprising to many, and our practice impressed all who came to visit our schools. The results of our work with the Math Solutions Education Specialist were impressive. I guess what I like most about working with Math Solutions is the ability to reflect with the Education Specialists and the ability to co-plan the work with a group of experts in the field of mathematics."

Math Solutions has worked with regional principals, assistant principals, district math coaches, and lead teachers. The focus of the mathematics initiative is on the implementation of New York City's *Comprehensive Approach to Balanced Mathematics.* Math Solutions has helped the math coaches build expertise in their leadership roles. Key elements for the work focused on developing understanding of standards-based instruction and implementation of the Math Workshop Model through the region's adopted curricula—*Everyday Mathematics* at the elementary level, and *Impact Mathematics* at the middle school level.

The professional development plan was organized in four ways:

Leadership Sessions. Administrators and Math Coaches met every other month and participated in a session developed by Math Solutions. Sessions focused on teaching and leadership practices that support the implementation of the *Comprehensive Approach to Balanced Mathematics.*

Math Coach Sessions. Monthly meetings that focused on mathematics content, instructional practices, and leadership practices that support the implementation of *Comprehensive Approach to Balanced Mathematics.* A key feature of these sessions involved the use of student work samples as a context for linking instruction and assessment.

Five-Day Summer Course. Reaching a large number of teachers, this course helps districts build capacity for improving classroom instruction. Teachers deepen their understanding of math, gain insight into how children learn, and develop new strategies that engage and motivate students.

On-Site Support. Monthly "lab sites," conducted at 16 selected schools, where teachers, administrators, and mathematics coaches came together to visit, observe, receive instruction, and have a dialogue about mathematics instruction. Math Solutions provided a minimum of one day a month at each lab site. The principal and math coach determined the focus for their lab school and Math Solutions designed a day on-site to meet those needs. The region is seeing the impact of this professional development partnership.

Math Coaches are Making a Difference

The role of New York City's Math Coaches is one of full-time support and leadership for their school's teaching of mathematics. Most coaches come into this role having been full-time classroom teachers. One expectation of the coaches is that they build their

own professional development expertise, so that they can effect change in larger populations of teachers.

Gale Reeves, then Deputy Regional Superintendent, remarks, "I am so proud of the deep way our coaches are speaking about their teaching and learning. This is exactly one of the goals that I envisioned with this work.

"Here in Region 10, we are focused on developing a community of reflective practitioners. I want to see teachers and coaches who really think about what they are doing and frequently ask themselves, 'Why am I doing this? Was my lesson successful? Did I achieve my objective? If so, why? If not, what should I have done differently?'

"My goal is to see the coaches really embrace their role. How do they help teachers plan, teach, and reflect on their work, and how do they demonstrate these practices when working with teachers? We want all teachers to know the content (Core Curriculum, key ideas, etc.) but also to be equally conscious of the delivery process. I think that, because of the focus on both of these skills, we will eventually see an increase in student achievement.

"As I enter our schools, I am noticing that students are challenging each other's thinking more and more. We certainly have much more work to do, but we are well on our way toward developing students who are not only thinking deeply about their own strategies, but who are challenging each other's ideas and asking questions of their teachers. With the institution of grade-level planning teams, some of our teachers are actively planning lessons, observing, and providing feedback to each other. Many of these planning sessions are facilitated by our coaches. Eventually, we would like teachers to facilitate more and more of these planning sessions, as this becomes ingrained in the culture of the buildings."

Reflections from Three Math Coaches

Three of the district's coaches—John Christiansen, PS 75; Paul Okin, IS 52; and Valerie Samn, IS 164—each have worked with a Math Solutions Education Specialist since fall 2003. They agreed to share their reflections on the collaborative work.

John, a former Science Facilitator, reported, "Our first- and fourth-grade teachers are now team-planning their math lessons, and the Math Solutions education specialist really taught us how to do that. Of the many valuable tools she provided us with was a list of questions to use as a guide in planning, questions like, 'Where is the math in the lesson?' We wanted teachers to realize that the Core Curriculum is 'it,' and to seek the best ways to implement the adopted materials.

"The Math Solutions education specialist helped us make these connections. Teachers are tapping into each other as resources, finding out what others think of their lessons, sharing successes and challenges. While teachers are comfortable using our adopted materials, a new awareness has developed among the staff that discourse is important in the mathematics lessons. Many are attempting to use various strategies to rephrase understanding, like 'turn and talk' to encourage student discourse. I think understanding discourse as an important teaching technique has helped our teachers think about the 'share' part of the Workshop Model. We're really working on developing that part.

"The support I've received from the Math Solutions education specialist has been really helpful. It's someone who recognizes what you're trying to do and helps you realize that in concrete ways. As a professional developer myself, I'm incorporating ideas about being a coach—getting teachers to talk about their practice. I think teachers take ownership of their own learning that way, rather than having a

coach tell them what to do.

"Children understand math in different ways. As teachers, we have to learn to accept this; and we are doing that. "

Math Coach Paul Okin remarked, "The work is subtle and interesting in that it's a process that develops over time. What's more important than the specific practice of each lesson is the theoretical shift among teachers. Seasoned teachers with skill in basic pedagogy and content are focusing on 'accountable talk,' communication skills, and other higher level processing skills. Newer teachers, those still honing their practice, but with a comfort level in using problem-solving strategies, are working on crafting their lessons at a much deeper processing level. Our focus has been to secure strong lead teachers who can impact teachers in a broader way. This type of investment has shifted perceptions of teachers' own importance. When administrators and others are visiting the school to see what teachers are doing in the classroom, this gives teachers a powerful feeling of recognition. They're valued.

"One of the strengths of Math Solutions is helping us move beyond computation to delve into problem-solving and number sense. Though teachers are aware of using problem-solving strategies, the concept of number sense needed to be brought into their conscious awareness, and it has—in both addressing the Core Curriculum and year-end state assessments.

"For me, personally, having the support of Math Solutions is invaluable. I've gained an unbelievable amount of new learning this year through the project—more than I can convey. We're developing new structures to create more of an ongoing learning community so teachers' growth can be exponential. We're needing to be patient with small movements, knowing that bigger ones are coming. The Math Solutions education specialist has been awesome to work with. Of all professional development in which I've participated, this has been the best."

Valerie, a coach at the middle-school level, had this to say, "Our teachers have shown enthusiasm for piloting new programs, but they've also struggled with programs coming through and then getting dropped. Many teachers, whose experiences were fairly traditional and different from problem-solving approaches, needed to understand the concrete aspects of the differences between the two. 'How do you get someone to think very differently?' is what I've been working on. Some teachers are really into lesson ideas with depth; others are accustomed to viewing professional development as 'make and take' workshops.

"The Math Solutions education specialist has helped us all see that a good lesson isn't something you do only on Friday afternoons. I can see our teachers are in transition. We're learning how to continue to apply these new ideas for instruction. Up until recently, teachers have had little time to plan together. This professional development initiative has given them more time for this type of activity.

"Personally, I'm learning how to know which particular aspects of teaching and learning to emphasize over and over again, and the Math Solutions education specialist is helping me with activities to accomplish that. Math Solutions, in general, is making the teaching of math more accessible—helping teachers use their tools wisely by evaluating the learning situation in front of them. I've learned that it's ineffective to just tell teachers what to do and which tools to use. The Math Solutions education specialist encouraged me to work with teachers on evaluating students' understanding and taking steps toward looking at what's important in terms of students' learning. I've noticed that teachers are making progress in this area.

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"Lately, I've focused on how to promote a deeper level of discourse regarding math lessons. As a component of our teachers' ongoing professional development, I'm working on a demo cycle which involves collaborative lesson planning and includes a pre-lesson conference, demonstration, and a post-lesson conference. In addition to the demo cycle the Math Solutions education specialist introduced, I find I'm modeling lots of my professional development on what she has done. As we see teachers focusing more on student understanding, they'll base their everyday instructional decisions and use of tools to address student needs on this understanding.

"Overall, I've seen growth in our teachers—they've started to look at instruction differently. Though many are still trying to make sense of it and feel a little intimidated by it, they're finding it can be an enjoyable experience. While I have personally grown so much from watching and learning from the Math Solutions education specialist, one of the most important things she's done is to validate teachers' efforts to enrich their instruction."

The regional partnership with Math Solutions has continued with focused on-site support at selected schools. Each school faculty determines the focus for the on-site professional development. The school math coach works with the Math Solutions education specialist to plan specific activities. Activities include walkthroughs, lesson modeling with students in class, classroom observations, and coaching, as well as support for implementation of the city curriculum.