

# **North East** *Independent School District (NEISD, San Antonio)*

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## ***Using Classroom Discussion to Build Students' Understanding and Confidence***

*North East Independent School District (NEISD) is a large and growing school district located in San Antonio, Texas. Lori Murach, NEISD Math Program Coordinator, and Chris Brunette, Lead Elementary Mathematics Specialist, spoke with us about the challenges of supporting teachers in a large, urban district and how Math Solutions Professional Development has helped in that ongoing endeavor.*

### **The Vision**

Several years ago, the superintendent of NEISD, Dr. Richard A. Middleton, set the vision for the mathematics program with this charge:

Each NEISD teacher of mathematics will create a classroom environment in which students will make sense of mathematics and acquire confidence in using it. Through the NEISD Mathematics Program, students will know mathematics and be able to use it in purposeful ways.

Since then, those leading the way for strong and effective math instruction in the district have kept this charge at the forefront of all they do.

### **The Challenge**

Communicating and implementing a coherent vision of a classroom environment in which students “make sense of mathematics and acquire confidence in using it” is a formidable task for any school district. In a large district such as NEISD—with 42 elementary schools, 12 middle schools, 6 high schools, and more than 60,000 students—the challenges to achieving this objective might even seem insurmountable.

But not for Lori Murach, NEISD’s Math Program Coordinator.

As the district’s leader for mathematics, Lori holds an unwavering commitment to helping all math teachers make this vision come alive in their

classrooms. And along with her commitment comes a clear understanding of the ongoing professional development and support teachers need to transform their instruction.

“We know that teachers need experiences and support to change their instruction. Because our district is so large, we have to look for a variety of ways to accomplish that, and Math Solutions has helped us in several important ways.”

### **Enlisting and Supporting Teachers as Leaders**

In 2003, NEISD began a focused, five-year effort to strengthen elementary mathematics teaching. The initiative was motivated by new legislation that required all fifth graders to pass the Texas Assessment of Knowledge and Skills (TAKS). Although prompted by the legislation, this multiyear plan was designed to build teachers’ competence and confidence in providing math instruction that would support students’ long-term learning as well as their success on state assessments.

NEISD’s team of district mathematics specialists brought extensive experience and fiery passion to their role as leaders for change in the district’s mathematics instruction. But they were acutely aware of the enormity of their task.

Lori explained, “Our team owns knowledge and understanding and passion about how students learn math. But we couldn’t move this forward alone. We needed to empower key teachers in the schools and help them build strong voices that could speak to and support others in making changes to their math instruction.”

It was from this perspective that a plan to build and support a network of teacher leaders was conceived and launched.

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“In the summer of 2003, Math Solutions worked with us to schedule *About Teaching Mathematics*, a five-day summer course that would provide a solid and common base of experience that focused on our state standards. We offered the course to our elementary Title I math facilitators as well as secondary teacher leaders and math department heads.”

Lori went on to say, “This course helped these teachers better understand the math standards they must teach. They gained greater insight into how children learn and experienced a variety of effective instructional strategies to support students’ learning.

“We started with these existing math leaders and used the *About Teaching Mathematics* course to help them strengthen their own teaching—and build their capacity to influence others in their schools.”

With this foundation, professional development during the next two years focused on mathematics instruction in the intermediate grades—first with grades 4 and 5, followed by a shift downward to grades 3 and 4. Book studies and school-year professional development sessions facilitated by district math specialists brought together lead teachers representing grades 3–5 from across the district.

The result: a growing number of teacher leaders in every school with experiences to strengthen their own math instruction and the potential and charge to influence others.

### **Extending Leadership Support to the Primary Grades**

In the summer and fall of 2006, the leadership initiative moved into the primary grades. By this time, momentum for making shifts in intermediate mathematics instruction was building, and it was time to include grades K–2 in the effort. Lori was clear about the contribution of the primary grades to an effective mathematics program.

“I strongly believe that it’s not just the responsibility of the tested grade levels to build students’ mathematical knowledge and understanding. Teachers in grades K–2 provide their students with critical links in the chain of important mathematical understandings.”

Chris Brunette, Lead Elementary Mathematics Specialist, shares Lori’s perspective. “The primary grades, K–2, are essential years for students, and they need all three years to cement mathematical understandings that will support their continued learning. These years are vital in building children’s approach to math—how they do it and how they learn it.”

With these ideas in mind, Lori and Chris enlisted Math Solutions to collaborate in a two-year plan to develop school-based expertise and leadership for K–2 mathematics. The goals were clear:

- highlight the critical role of primary mathematics;
- build the confidence and expertise of a core group of primary teachers in each school;
- focus on the content of number sense;
- promote student talk and classroom discussion and the role of communication in learning; and
- support the implementation of the district’s 90-minute math plan and “five-day approach for problem solving.”

Working closely with Chris in the planning, Liz Stamson and Melissa Conklin, Math Solutions Education Specialists, collaborated throughout the 2006–2007 school year to facilitate sessions for all of the 42 elementary schools in the district. Teams from each school, composed of two teachers from each of the grades K–2 and one administrator, met four times over the course of the year.

About this work, Liz and Melissa are in agreement. “For many of the teachers and administrators, the

ideas were unfamiliar but intriguing.” Liz went on to explain, “Most left sessions ready and prepared to take what they’d learned back to their schools and classrooms. Because sessions were spaced throughout the school year, teachers had time to try out what they learned.”

Back at school, teams were both nudged and supported. Midway through the year, district mathematics specialists began meeting with teams to follow up on the leadership sessions. They helped the teams reflect on and implement what they learned from the leadership sessions; their role in nurturing primary leadership for math was key.

Melissa remembered, “A shift for many of the teachers happened around the third and fourth sessions. They came back ready and excited to talk about what they could see happening in their classrooms. For teams where administrators were actively involved, shifts were significant.”

Chris understands that teachers who lead must have the chance to learn and try out their learning in their own classrooms. She used the following metaphor to illustrate the task of developing leadership and making change: “We know change takes time. Professional development is like planting seeds. We start with a small group and plant seeds. Ideas take root and teachers begin to change. We nurture those changes—and then we plant more seeds.”

Already there are signs that the seeds of change are at work in the primary grades. Chris noted, “Teachers are more confident about their math instruction and more capable because of what they’ve learned and what they’ve tried with their students. They provide a welcome influence and perspective as they participate with their colleagues in other professional development settings.”

### A Focus for All on Math Talk

Throughout this recent math initiative, teachers have focused on developing instructional strategies that support student talk. Chris explained the rationale for this goal: “Our TEKS [Texas Essential Knowledge and Skills] call for communicating math ideas—justification, reasonableness, explanation. Classroom discussions with students facilitate their communication, but our teachers needed help.”

Starting with the fourth- and fifth-grade lead teachers at the beginning of the initiative, Lori and the district mathematics specialists launched a study of the book *Classroom Discussions: Using Math Talk to Help Students Learn, Grades 1–6*, by Suzanne H. Chapin, Catherine O’Connor, and Nancy Canavan Anderson (Math Solutions Publications, 2003). This resource introduces the use of discussion strategies, or “talk moves,” that provide teachers with concrete tools to facilitate the discussion of math in their classrooms. It has become a mainstay in bringing productive math talk into NEISD K–5 classrooms.

Lori observed, “Teachers were unsure about using discussions and letting kids share information or how they solved a problem.” She went on to say, “The talk moves provide security for teachers and help them open up discussion in the classroom. They provide specific direction and support to teachers as they learn to incorporate discussion in their classrooms.”

Lori and Chris agree that this resource has been powerful. Chris elaborated, “The talk moves from *Classroom Discussions* influence all that we do—our conversations, our professional development, and most of all the conversations we hear in classrooms.”

### **Impact of Professional Development and Support for Teachers**

Making change is a complex process. In NEISD, many avenues of support and transformation are in place for building stronger mathematics instruction, such as professional development and school-based support through Title I facilitators as well as district math specialists. Observation tools and professional development for administrators are also part of the mix.

About the past several years, Lori had this to say: “Right now, I’m not sure there is significant quantitative data about the impact of the elementary professional development initiative. However, we do have significant qualitative information that tells us we are making progress toward changes in classrooms we know are important to student learning.”

One change has to do with the talk in math classrooms. Lori shared some observations from her team: “Students are more engaged in lessons. Teachers are asking different kinds of questions and so are students. Those questions lead to productive talk nurtured and facilitated by teachers to help their students build understanding and confidence.”

Examples have also come from administrators in the district. “Principals, in the course of their regular meetings, bring evidences of instructional changes going on in their schools.”

“And,” Lori continued, “these evidences and stories that principals share are often from the math classes in their schools. They bring student work that shows use of mathematics to solve problems and explanations that reveal understanding. They share stories of classroom exchanges where students’ talk and questions contribute to learning. Students are eager to share their mathematical thinking.”

While math classrooms are coming alive with talk, the nature of that talk is key and significantly influenced by the mathematics that teachers know and understand.

Lori shared the belief and commitment of her team: “In all that we do to support teachers, we make sure that growth in their mathematical content knowledge is an essential aspect of that support. We help them build their mathematical understandings. And we help them link those understandings to the math they must teach and their students must learn.”

Lori was clear about the importance and the impact of the math initiative. “Teachers are developing deeper content knowledge—and we see them using their knowledge to help students do the same.”

### **A Final Note**

The current partnership between NEISD and Math Solutions continues with school-year leadership support for primary teachers and summer courses available to all K–8 math teachers.