

DEEP LEARNING TAKES ROOT

A commitment to improve math instruction results in a multilayered learning community

By Mary Ann Jacobs


Teachers in School 9 (a pseudonym), a small elementary school in Passaic County, N.J., were shocked: Just 2.5% of students in the school were performing at grade level in math, making it the lowest-performing school in math in the nonpublic school district of 49 schools.

School 9's student population is 69% Hispanic and 31% black; 80% qualify for free or reduced lunch. English is a second language for 30% of students. The evidence showing how much students were struggling prompted teachers to develop a

three-level program of community learning that would enable students to succeed in math. After two years, test results showed that students were learning more, in more ways, more of the time — and so were the teachers.

THREE LEVELS OF COMMUNITY LEARNING

A consortium of 12 schools, including School 9, already had a professional development program in place. Principals, in conjunction with district leadership, designated five days during the school year in which teachers from all 12 schools in the consortium would participate. Because of the diverse needs of students in the consortium and within each school, the initial focus was on differentiated instruction in math.



To create a second level of community learning, each school designated grade-level representatives to be part of a consortium-wide professional learning community. Three representatives from each school met with teacher representatives from other schools in the consortium after school every other month.

To add a third level of community learning, each of the 12 schools created its own professional learning community within the school. The school professional learning community selected a representative for the consortium professional learning community. Each school made its own arrangements for its professional learning community meetings.

PROGRAM OF PROFESSIONAL DEVELOPMENT

The faculties of all 12 schools in the consortium committed to five professional learning days, held in October, January, May, and two days in June after students completed the school year. The first three days focused on differentiated math instruction and included reviews of classroom instruction, student learning in another urban setting using *The Kay Toliver Files* instructional videos, and an immersion in Marzano's research in *Classroom Instruction That Works* (Marzano, Pickering, & Pollock, 2001). Teachers and principals participated, and each session culminated in an assignment that required participants to implement the strategy in their math instruction and bring a student product to the next group session. During the two-day session in June, participants received guidance in creating yearlong mathematics plans to be used in the 12 consortium schools the following school year.

LEARNING AT THE CONSORTIUM LEVEL

After the October session on differentiated instruction, each of the 12 schools sent three representatives (for grades pre-K-2, 3-5, and 6-8) to the consortium-level professional learning community

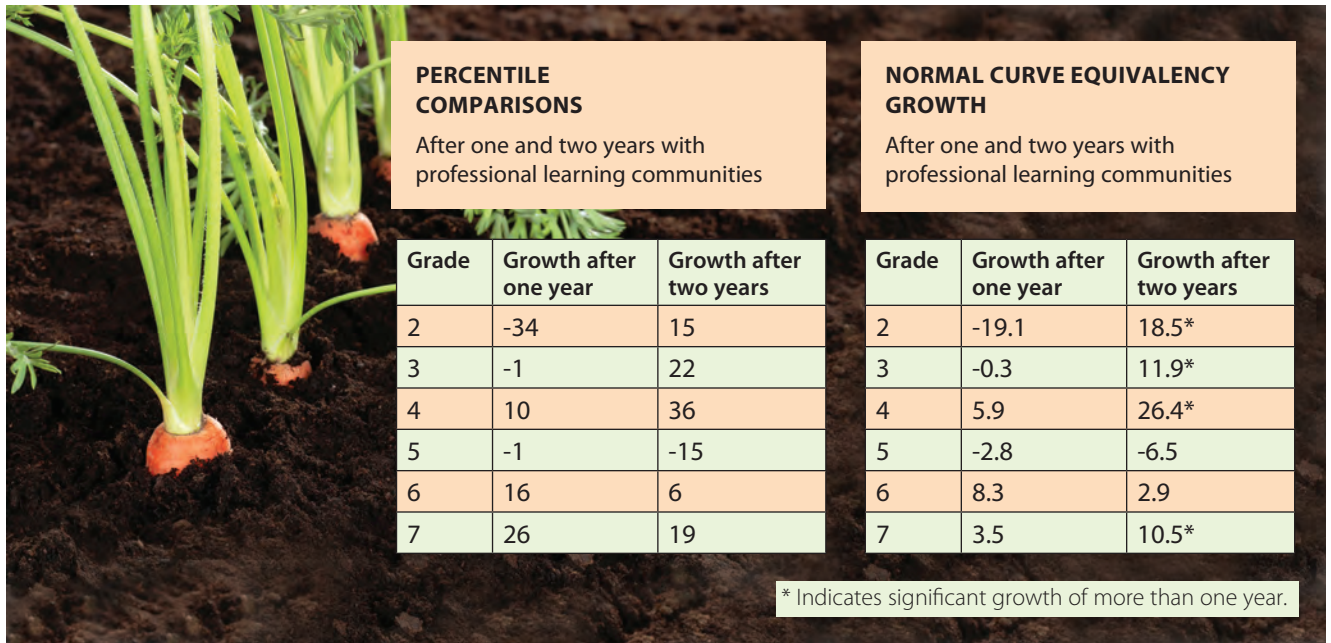
session in November, where the teacher representatives received training on how to assist teachers in forming professional learning communities in their schools. After this first session, the consortium-level professional learning communities met regularly to share progress on implementation of new strategies, share student work resulting from the strategies, raise concerns, and plan ways to more effectively implement new strategies.

LEARNING AT THE SCHOOL LEVEL

Professional development at the consortium level was the basis for discussion, implementation, and reflection at the school level. Each school-level professional learning community meeting was scheduled to take place after the consortium-level professional learning community meetings.

School 9 teachers and administration committed to applying the differentiated strategies within two to three weeks. By the time School 9 held its first school-level professional learning community meeting, teachers had already begun to implement the first research-based strategy of cooperative learning and had already run into roadblocks. Marzano, Pickering, and Pollock (2001) warned that organizing groups based on ability levels should be used sparingly. The wide range of student abilities challenged the teachers in using cooperative learning. Teachers had developed management strategies in their classes that grouped students homogeneously. A high percentage of students received remedial instruction outside the classroom. When these students left the classroom, the remaining students were awarded extra free time if they had not disrupted learning up to that point in the day. Teachers were concerned that if they changed this pattern, there would be more

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disruptions in whole-class instruction.

During the first consortium-level professional learning community meeting, this issue surfaced among teachers of students in grades 3-5. The teacher representative from School 9 returned to the school with a strategy: Teachers would use the times when many students were in remedial classes to prepare the remaining students for leadership roles in the next cooperative learning activity. This was the first common sharing of a learning challenge and proposed solution that went beyond the school level. School 9 teachers agreed to try the plan and found some measures of success within two months. Students were learning through cooperative groups, and teachers discovered the benefit of sharing professionally with other teachers

beyond the school level.

FIRST-YEAR PROGRAM

The three levels of learning in community continued throughout the first year of the program. The full-day professional development focused on the research-based strategies of identifying similarities and differences and homework and practice (Marzano, Pickering, & Pollock, 2001). The implementation stage for each new strategy immediately followed the professional development, and the use of previously learned strategies continued. Representatives at the consortium-level professional learning community meetings began each session by sharing student work that demonstrated the newest research

strategy learned at the previous professional development day. The representatives were now holding monthly meetings at their schools, where teachers shared their students' learning. During these school-level meetings, teachers generated lists of ideas that were working and issues that were concerns. The consortium professional learning community representatives took those ideas and concerns to the consortium-level meetings, where more discussion and collaboration took place. In June, teachers at the school level were examining the math scores from the TerraNova achievement tests that students had taken in March.

FIRST-YEAR RESULTS

When the achievement test results arrived, School 9 teachers were both eager and anxious to see if their individual and collective efforts made a quantifiable difference for students.

Teachers reviewed percentile and normal curve equivalency scores. Teachers were more familiar with percentile scores, so comparison charts were created for the previous school year and the first year of the professional learning community. The percentile score of the previous year was subtracted from the same group of students in the current year to determine the percentile growth of each grade level. The result: About half the school showed growth, while the other half did not. (See chart above.)

Because percentiles don't indicate growth from one year to the next, teachers at the school also compared the normal curve equivalency score from the previous year and current year. One year's growth is determined by a -7 to a +7 in subtracting the current year's score from the previous year's score. Based on those comparisons, teachers could see that all grade levels except 2nd grade demonstrated at least a year's growth. These scores were more encouraging. (See chart above.)

The implementation stage for each new strategy immediately followed the professional development, and the use of previously learned strategies continued.

SECOND-YEAR PLAN

As School 9's teachers gathered for the two-day planning session in June, they were encouraged by the results they observed in the test scores. School 9 teachers worked with grade-level colleagues from other schools in the consortium to design a yearlong plan for mathematics that would be implemented the following year. Teachers also created quarterly plans, deciding which topics would be addressed in each quarter. Many teachers exchanged email addresses to continue the work through the summer months.

As the new school year began, math curriculum plans were in place. The October professional development session focused on summarizing, the January session on note taking, and the May session on nonlinguistic representations (Marzano, Pickering, & Pollock, 2001). Consortium-level professional learning community meetings were held in the remaining months, and school-level professional learning community meetings were held monthly. Teachers shared, analyzed, and planned student learning based on the implementation of the research strategies learned. The practice of learning in communities was established as a routine at the school and consortium level.

SECOND-YEAR RESULTS

When the second-year achievement test scores arrived, teachers again plotted scores for comparisons of percentile growth. This year, each grade level except 5th grade showed positive growth. (See chart on p. 38.) The other teachers encouraged the newly hired 5th-grade teacher to continue with

the professional learning community another year.

The normal curve equivalency scores showed that every class — including 5th grade — had at least one year's growth. Four of the six grade levels demonstrated more than a year's growth, since the growth scale for one year was -7 to a +7. (See chart on p. 38.) School 9 demonstrated the greatest growth among all the schools in the consortium and in the district.

MORE LEARNING FOR MORE TEACHERS

This journey in learning began with teachers in one school who recognized that they needed to focus on math instruction that would enable students to succeed. Their commitment led to the creation of a professional development program that incorporated three levels of community learning throughout the 12 schools in the consortium. The result is increased learning for both teachers and students.

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Problem solved

Continued from p. 34
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