

**Research into Practice: A Service Agency Continues its Collaborative Math Project, A Model for Effective Professional Development**

by

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If the story could be told with numbers alone, then Nebraska's largest multi-district Educational Service Agency, Educational Service Unit #3 (ESU #3), would already have something to say. Serving more than 70,000 students and 5,000 professional educators in 18 Eastern Nebraska school districts, ESU #3 has a daily impact on learners.

This story, however, is an account of collaboration, coordination and progress. It is as qualitative as it is quantitative, and as heartfelt as it is results-driven. It is a story about educators and teaching, about districts and learners, about an ESA, a university and two school districts in suburban areas near Omaha, Nebraska: Bennington Public Schools and Gretna Public Schools. It's a story of growth: the story of the Collaborative Math Project.

**About the Project**

The parameters and participants of the project were first outlined in the 2013 Sue Anderson & Jill Bruckner *AESA Perspectives* article, "Research Into Practice: A Service Agency Model for Effective Professional Development," and remain

consistent with the project's goals as of this reporting. Elliott Ostler, Ed. D. of the University of Nebraska, and Lenny VerMass, of Nebraska's Educational Service Unit #6, continue as the program's instructional leads, providing professional development content, as well as shepherding the project at the academic-community level. Therefore:

This report examines a collaborative professional development project involving two eastern Nebraska school districts, an intermediate service agency (ESU #3) and the University of Nebraska-Omaha. The general intent of the project, a response by ESU #3 to a request by school districts, addresses district-identified needs for increased knowledge of mathematics concepts and improved instruction of mathematics by elementary and middle school teachers. Rex Anderson, PhD, Director of Curriculum, Instruction, and Assessment, for the Gretna (NE) Public Schools, and Dee Hoge, Director of Curriculum, Instruction, and Assessment for the Bennington (NE) Public Schools, agreed their teachers, and ultimately their students, would benefit from intensive instruction on the content and concepts of mathematics as well as focused professional learning about effective math pedagogy. The improvement of student achievement in math is an improvement goal in both school districts (Anderson & Bruckner, 2013).

While data have been collected throughout the project through the use of 18 separate educator evaluations measuring outcomes, satisfaction, classroom-

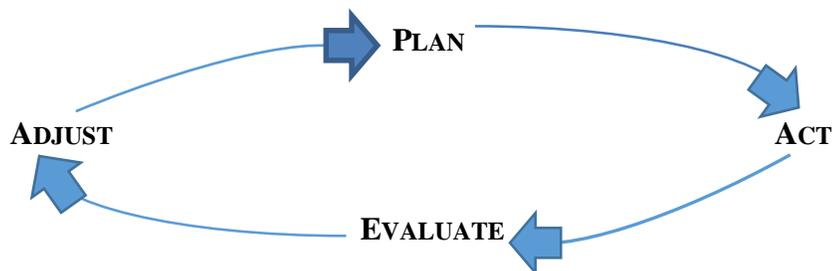
application and more, this reporting focuses on reflections of the cohort in years two and three of the program. These groups have entered, or will be entering, the personalized learning phase of the project.

### **About the Theoretical Framework**

As a textured, multi-year endeavor, the Collaborative Math Project incorporates elements of professional growth with classroom experience and weaves proven deliverables designed for both introspection and instruction with flexible outcomes. The result provides continuous opportunities to reflect on, and amend, strategies in order to meet individual learners' needs. In fact, the project has birthed a new cyclical response theory not unlike the oft-cited business model of Plan, Do, Check, Act.

The Collaborative Math Project approach, however, is perhaps more contemplative with greater focus on revising practice, then returning to the classroom in order to apply learned strategies to student experience.

This feedback-model-based theory appears as Plan, Act, Evaluate, Adjust:



### **Understanding the Impact**

As a multi-year undertaking, few would argue the Collaborative Math Project is without commitment. It is a project, organizers note, requiring perseverance. The returns, however, are great. “I think it has been the best thing we have done in relation to our current school improvement goal in the area of math,” says Gretna’s Anderson. “It has sent a message from board to staff that we are serious about getting better in math instruction.”

Jane Gundvaldson, fourth grade teacher and project participant at Thomas Elementary School in Gretna ,echoes Anderson’s remarks, adding strategies learned in the Collaborative Math Project have translated into teachable moments with measurable results.

Gundvaldson also suggests workshop elements of the program offer valuable take-aways for classroom application. “In my classroom the hands-on strategies have blossomed this year,” says Gundvaldson. “Students will use manipulatives to show a simpler problem and then transfer the knowledge into a more complex problem.

”I also love grouping students together from a variety of levels and have them explain to each other how they would solve a specific problem,” she adds. “I think my lower math students have grown in confidence this year. I plan to have a ‘Math Notebook’ next year modeled after one of the notebooks developed by another teacher at the workshop. I have students use a math spiral to work out problems and they can look back to see how they solved various problems and “recall” how it was taught earlier in the year.”

Gundvaldson's experience in the project mirrors that of her colleagues – an experience that includes collaborative discussion between the districts in meetings held while at the service agency in conjunction with instruction by University of Nebraska at Omaha math professors and experts. This, combined with service agency consultant interaction and time to reflect with school-based teams, means a tiered approach to professional growth that is both sustainable and student-focused.

Even so, “one of the most difficult things with this project was the recurring structure we deliberately built into the design,” says Bennington's Hoge. “The recurring structure let teachers know the district was committed to making this work and improving mathematics instruction for our students. This structure also eliminated the teachers' option to see this as a throw-away one-time workshop. It also emphasized the importance of building-level administrators for this project, because we pulled teachers at least three times throughout the school year and demonstrated that the district believed this is important enough to have teachers miss a student-contact day.”

While educator instruction may have occurred at ESU #3, participating districts remained committed to continuing the learning at the building-level. “This practice elevated the importance for principals when they visited classrooms for observations and during professional discussions when they would bring the project into the forefront for the entire staff,” Hoge explains.

Further, as part of the Plan, Act, Evaluate, Adjust framework, the Collaborative Project has experienced changes throughout its continuous run. This included the addition of personalized learning programs for project participants in

2015, an addition that, some educators say, has helped change their practice. Project participant Ann Bouaphakeo states:

My whole style to teaching math has changed since moving to second grade. Our team collaborates so well together, that we can rotate classrooms to zoom in on different topics. We plan Math Centers together and rotate bins each week, so that we have to come up with new centers every three weeks. We visited other classrooms in the building and observed all grade levels. We found great ideas that could be used in second grade too.

Project observations such as Bouaphakeo's, however, were not all anecdotal. In a survey administered in February, 2015, 100 percent of respondents (35/35) agreed / strongly agreed the project's personalized learning approach "allowed me to connect activities and build toward achieving my students' goals."

Additionally, 97 percent of project participants agreed in 2015 the program helped them "construct professional learning goals from multiple sources of data, e.g. formal and informal student data, classroom-observation data, etc."

The same group of respondents all agreed (again, 35 /35) that the Collaborative Math Project "helped me understand ways to engage my students in discourse and exploration in the learning of math."

### **Looking Ahead**

As with many educational programs designed for sustainability and suggesting ongoing professional learning, The Collaborative Math Project is an endeavor under both advisement and observation. Participating educators, the University of Nebraska, Omaha, Educational Service Unit #3 and the school districts of Bennington and Gretna, continue to examine both strategies and practices relative to math instruction in order to help educators deliver positive results.

According to the Nebraska Department of Education's 2014 *State of the Schools Report*, both Bennington and Gretna cumulative math-assessment scores, a measure of proficiency based on statewide testing, have increased since 2010, with Bennington's scores trending upward from 72 percent to 92 percent proficient and Gretna showing increases from 77 percent to 88 percent proficient. While the positive test results cannot (and should not) be solely attributed to the Collaborative Math Project, project participants might argue the program has been influential in raising awareness regarding math instruction, as well as providing an intentional framework for shaping a math-centric environment across curricular areas.

Moreover, while survey data and successful teacher implementation of project-based curriculum are guiding the program, Hoge says that allowing teachers to stretch themselves yields benefits. "Math is very uncomfortable for many elementary teachers and when you challenge them to grow in content knowledge, it can be a painful experience," she says. "This project challenges teachers to grow personally in their knowledge and understanding of mathematics both at their grade-level and beyond."

## References

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