**SAN FRANCISCO UNIFIED SCHOOL DISTRICT**

Program Evaluation &
Research Unit

# Evaluation Report

# National Training Network

2009-2010

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# EXECUTIVE SUMMARY

In this *National Training Network* evaluation report, there are three guiding questions: 1) What evidence is available to suggest that the National Training Network Programs had an impact on student achievement? 2) What evidence is available to suggest that students were more engaged in math? 3) Did teachers have enough support to successfully implement strategies and activities? These guiding questions were used to frame the evaluation design and make sense of the evaluation findings.

## SUMMARY OF FINDINGS

- The National Training Network Programs served their targeted population of students with high needs for Mathematics help.
- There was minimal to no classroom implementation of Algebraic Thinking and Key Elements of Mathematics Success at either Horace Mann or Everett Middle Schools.
- National Training Network Programs had no impact on student mathematics achievement as measured by the California Standards Test for Mathematics.
- Several Implementation issues remain that need to be resolved:
    - Delays in teacher training.
    - Lack of common planning time.
    - Administrator support did not translate to teacher action or accountability.
    - No classroom implementation or teacher buy-in.
    - Multiple programs competing in the same classroom.
- Teachers felt there were several implementation issues that needed to be resolved:
    - Teachers had several administrative and other duties that did not allow for smooth scheduling of training sessions
    - Teachers felt they did not have time to create the lessons and practice skills to use National Training Network Programs.
    - Teachers felt the strain of multiple programs in the classroom; they felt spread thin.
    - Teachers also felt the lack of common planning time.

# PROGRAM DESIGN

## PROGRAM DESCRIPTION

San Francisco Unified School District is in Program Improvement for the achievement gap in Mathematics and Language Arts for several target populations of students. These students typically are African American, Latino, Samoan, English Language Learners, and those receiving Special Education services. In an attempt to address the achievement gap, the district contracted the National Training Network to address the needs of target students in the Mission.

### ALGEBRAIC THINKING & KEY ELEMENTS OF ALGEBRA SUCCESS

The National Training Network, developers of Algebraic Thinking and Key Elements of Algebra Success, provides support to teachers of struggling middle school mathematics students. This support is provided through staff development, grade level middle school mathematics instruction, and on-going coaching sessions between coach and teacher. The methodology builds mathematical concepts through concrete experiences with key math concepts, the use of graphic organizers, practice and review strategies. Algebraic Thinking is typically used for grades six and seven. Key Elements of Algebra Success is used in eighth grade. It has similar structure to Algebraic Thinking but additionally, workshops focus specifically on how to create student understanding of essential algebra concepts. Coaches work with teachers to create lessons that are embedded into the district's pacing and utilize the adopted textbook.

## PROGRAM OBJECTIVES

The National Training Network Programs specify four main programmatic goals:

1. To provide teachers with coaching, modeling, and tools to increase student engagement
2. To provide methods for planning lessons that introduces new concepts while reinforcing prior knowledge.
3. To improve students critical thinking and Math Achievement.
4. To provide an alternative technique to teaching basic mathematical concepts.

## PROGRAM STRATEGIES, RESOURCES AND ACTIVITIES

Recent research on mathematics suggests that increased opportunities to learn mathematics predicted higher mathematics achievement for students from low-income families, especially African Americans and Caucasians from low-income families (Wang, 2010). Under-achieving students who received explicit instruction, who had opportunities to grapple with problems and form solutions, who received appropriate questions from a teachers, and who received lessons that were at a rapid pace were more engaged in math and had better mathematics outcomes (Baker Et al., 2002; Witzel Et. al., 2003).

The program strategies and activities of the National Training Network Programs for middle school math teachers in the San Francisco Unified School District serve to address and support:

*Explicit Mathematics Instruction*. Teachers demonstrate a specific plan or strategy for solving problems and students use this plan to think their way through to a solution.

*Skill Efficacy*. Teachers use questioning, modeling, and pacing to transition students into error-free practice.

*Mathematics Engagement*. Students expend effort to make sense of mathematical ideas or make sense of mathematics to figure something out that is not immediately apparent. In addition, students are given the opportunity to make sense verbally, with other students, or the whole class.

*Modeling, Coaching, and Support of Mathematics Teachers*. Coaches provide the necessary supports to teachers to aide the implementation of strategies and techniques. Coaches may use modeling, lesson planning, team teaching etc.

Algebraic Thinking and Key Elements of Algebra Success provide professional development workshops to prepare teachers to teach Algebraic math concepts using unique methodology to meet the needs of emerging math students. The workshops are grade level specific and include intensive training in the content and pedagogy of all major middle grades math concepts. In addition to workshops, a coach visits each teacher on a regular basis to support implementation and methodology. During these visits, coaches model lessons, team teach, plan, observe, give feedback, answer questions, and troubleshoot. Coaches work specifically with teachers to address the use of manipulatives for concept based lessons, to make mathematical connections through multiple representations, to incorporate collaborative pair work, to create and use graphic organizers, and to find appropriate techniques for English Language Learners and Special Education students. The outcome of Algebraic Thinking and Key Elements of Algebra Success is to create opportunities for students to experience success with fundamental skills which are continually integrated into high levels of understanding.

# EVALUATION DESIGN

## EVALUATION METHODOLOGY

At SFUSD, the Program Evaluation and Research Office employs an approach to evaluation that is participatory (Cousins & Earl, 1992), utilization-focused (Patton, 1986, 1994), and integrated with processes of continuous improvement and program planning (Fetterman, Kaftarian & Wandersman, 1996). Our approach is based on the idea that participation of program directors and coordinators in the evaluation process is key to insuring that program planners and managers use evaluation data to support decision-making. The involvement of program directors and coordinators has the potential to encourage program staff to think more systematically about the relationship between program activities and objectives. Such systematic reflection would be aimed at building a "culture of learning" (Patton, 1997, p. 147) to lead to continuous program improvement.

Evaluations are designed to address both program implementation (formative evaluation) and outcomes (summative evaluation) and are question-driven. Evaluators and program staff collaborate to develop evaluation questions that are linked to the program objectives and activities, and to the interests of all program stakeholders. In addition, research on the best practices in the project's domain of activity informs the evaluation framework. The evaluation design involves a mix of qualitative and quantitative data collection and analysis methods, such as surveys, open-ended response questions and one-on-one interviews. Each evaluation design involves the triangulation of multiple sources of data brought to bear on crucial evaluation questions.

## EVALUATION OBJECTIVES

The design of this evaluation examines the program objectives, which are: to increase student outcomes and achievement in mathematics; to increase student engagement in mathematics; and to provide teachers with research based, alternative methods to math instruction that impact target populations of students.

Using these objectives as the guide, the evaluation is designed to address the following questions:

1) What evidence is available to suggest that National Training Network Programs had an impact on student achievement?

2) What evidence is available to suggest that students were more engaged in math?

3) Did teachers have enough support to successfully implement strategies and activities?

## DATA COLLECTION METHODS

To assess the success of the implementation and impact of the National Training Network Programs, the following data collection methods were used: (1) classroom observations, (2) document review, and (3) student quantitative math data.

- *Classroom Observations*

Classroom observations were conducted to gain further understanding of the processes and practices that went along with each program, for example, to see examples of modeling and team teaching. Classroom observations also revealed data about the fidelity to which teachers implemented strategies. Classroom observations were conducted at Everett Middle and Horace Mann Middle Schools.

- *Review of Program Documents*

Program documents were reviewed to gain a more detailed understanding of the program. Coach feedback reports to the district were reviewed for evidence of teacher and classroom progress. And end of year program reports were reviewed to determine if student were making progress on assessments given by the program.

- *Student Quantitative Data*

Students who were rostered to teachers in the National Training Network Programs were identified by student ID/HO Number. Based on these numbers, the program evaluator can link to district databases to review student middle school math grades, CST Math scores, and formative math assessments (if available).

## DATA ANALYSIS

Each aspect of the evaluation design provides information for triangulation. Classroom observations allow the program evaluator to observe student-specialist interactions, student and teacher involvement in the programs, and the alignment of the contracted services to the delivery of services. Qualitative data are used to gather a summative view of student performance after the service intervention. All quantitative analyses were performed on SPSS 18.0.

## EVALUATION FINDINGS

This section of the report is organized around the findings of the various data sources in this evaluation. Guided by the following questions: 1) What evidence is available to suggest that National Training Network Programs had an impact on student achievement? 2) What evidence is available to suggest that students were more engaged in math? 3) Did teachers have enough support to successfully implement strategies and activities? Was the program easy for them to implement and did they like the program?

### Qualitative Data

Classroom Observations

The NTN Evaluator visited each school eight times during the school year. During visits, she conducted classroom observations, co- taught with teachers, and provided implementation support. These activities were in addition to other duties such training, professional learning development, and meeting with principals. School sites and teachers were observed to determine evidence of the level of implementation in teacher classrooms, evidence of methodology and planning using the specific methodology and practices of the program, and support from school administrative staff. After each site visit, the NTN Evaluator would write up a report to the district describing the current state of each school based on the NTN measures.

Document Review & Analysis

Based on the NTN Evaluator's observations and quarterly reports, several findings arose. Everett and Horace Mann both started the year in the "Emerging Stage." Emerging schools show evidence of inconsistent use of lessons and methodology, inconsistent effort by staff and administrative team, and continuous need for certain types of support from NTN coaches.

Throughout the 2009-10 school year, the NTN Trainer found difficulty working with both Everett and Mann. In particular, 5 of the 10 teachers were not fully trained by December, minimal interest in scheduling common planning time with teachers to demonstrate and hone skills, and little evidence of lessons, methodologies, and techniques being used in the classroom. In addition, NTN techniques also had to compete against other programming in the same classrooms at Everett. Teachers and administrators, however, were willing to meet with the coach and seemed to appreciate feedback and planning help. At the end of the year, Horace Mann remained *Emerging* while Everett had slipped to *Undeveloped*: limited to no evidence of implementation, little to no use of lessons and methodology, and no effort by staff and administration to implement programming. A copy of the implementation levels for both Mann and Everett can be found in the appendix.

**Quantitative Data**

The National Training Network worked with 372 students in grades six, seven, and eight in the Mission. Schools included Everett Middle School and Horace Mann Middle School.

**POPULATION BY GRADE LEVEL 2009-10**

| Grade | | Count | Percent |
|---|---|---|---|
| | 6 | 161 | 43.3% |
| | 7 | 96 | 25.8% |
| | 8 | 115 | 30.9% |
| | Total | 372 | 100.0% |

Students composed a wide variety of ethnic groups but were primarily Latino and African American:

**POPULATION BY ETHNICITY 2009-10**

| Ethnicity | | Count | Percent |
|---|---|---|---|
| | American Indian | 2 | .5% |
| | Arabic | 11 | 3.0% |
| | African American | 76 | 20.4% |
| | Chinese | 7 | 1.9% |
| | Decline to State | 5 | 1.3% |
| | Filipino | 13 | 3.5% |
| | Japanese | 2 | .5% |
| | Other Non-White | 15 | 4.0% |
| | Other White | 16 | 4.3% |
| | Samoan | 5 | 1.3% |
| | Southeast Asian | 5 | 1.3% |
| | Latino | 215 | 57.8% |
| | Total | 372 | 100.0% |

The majority of students in the National Training Network Programs would be considered high needs students who are impacted by the achievement gap in San Francisco Unified School District. Approximately 59% of the students were Latino, 20% were African American, and 39.2% were English Language Learners. Of the student population, 94.9% of them qualify for free or reduced lunch.

**POPULATION SOCIOECONOMIC 2009-10**

| Free or Reduced Lunch | | Count | Percent |
|---|---|---|---|
| | NO | 19 | 5.1% |
| | YES | 353 | 94.9% |

| Free or Reduced Lunch | | Count | Percent |
|---|---|---|---|
| | NO | 19 | 5.1% |
| | YES | 353 | 94.9% |
| | Total | 372 | 100.0% |

Algebraic Thinking and KEAS are professional development programs brought into the district to reduce the achievement gap for targeted student populations. The National Training Network programs were used school wide at both Horace Mann and Everett Middle Schools. To determine if any impact was had, following will be a set of tables displaying one year changes in math proficiency for both schools.

**2009-10 School 1-Year Math Gains**

| School | 1-Year Math Gain/Loss | Math Combined Percent Proficient | Count |
|---|---|---|---|
| ***DISTRICT – ALL MIDDLE SCHOOLS*** | ***2.8%*** | ***57.0%*** | ***10547*** |
| Everett Middle School | -5.0% | 12.3% | 332 |
| Horace Mann Middle School | 4.2% | 17.5% | 194 |

The preceding table shows that Everett had a decrease in proficiency and Horace Mann had an increase in proficiency of the California Standards test for Mathematics. The increase at Horace Mann was greater than the district average. Following are tables that look at specific targeted populations at Everett and Mann.

**2009-10 School 1-Year Math Gains for Latino Students**

| School | 1-Year Math Gain/Loss | Math Combined Percent Proficient | Count |
|---|---|---|---|
| ***DISTRICT – ALL MIDDLE SCHOOLS (L)*** | ***3.1%*** | ***29.6%*** | ***2277*** |
| Everett Middle School | -3.0% | 11.0% | 209 |
| Horace Mann Middle School | .8% | 14.0% | 136 |

**2009-10 School 1-Year Math Gains for African American Students**

| School | 1-Year Math Gain/Loss | Math Combined Percent Proficient | Count |
|---|---|---|---|
| ***DISTRICT – ALL MIDDLE SCHOOLS (AA)*** | ***4.8%*** | ***24.7%*** | ***1091*** |
| Everett Middle School | .2% | 4.6% | 65 |
| Horace Mann Middle School | 11.5% | 14.3% | 28 |

The preceding tables provide a mixed picture of math gains for targeted populations. Latino students made only minimal gains at Mann and decreased at Everett. African American students fared better at both schools but again only had minimal gains at Everett. However, gains at Mann were significant.

Analysis

Based on the available quantitative data on ethnicity and socioeconomic status, the program specialists worked with the targeted student population. Based on the quantitative data, results were mixed. At Everett, no gains were made and there may be serious issues that the school site, area superintendant, and the consultant will need to work out. At Horace Mann, students were making gains although not all targeted student populations were making gains that exceeded district gains. To summarize, results were positive but mixed.

**Limitations of the Data**

National Training Network Programs are directed at teachers. The goal of the program is to use NTN lessons and techniques to teach California Content Standards. As stated earlier, implementation of the NTN Programs was *Underdeveloped and Emerging*. At Everett, two programs divided teachers' time so implementation was poor for both programs. In addition, Everett lost a math teacher in the middle of the year that made the rest of the year tough for students and teachers. For these reasons, and others discussed previously, Everett math proficiency on the California Standards Test may not be reflective of the work of the National Training Network.

As with any teacher development program, the quality of the implementation will determine the quality of student outcomes. This being the case, the California Standards Test for Mathematics may not measure the minimal impact that Algebraic Thinking and Key Elements of Mathematics Success may have had. The true goal of these programs is to increase readiness for Algebra. The exposure that 6$^{th}$ and 7$^{th}$ graders had during the 2009-10 school year may have future impact.

**COST ANALYSIS**

The National Training Network contract cost the district $28,800. Three hundred and seventy-two students were involved in National Training Network Programs. The cost per students is: $77.42 per student.

## ISSUES TO CONSIDER FOR CONTINUAL IMPROVEMENT

*Implementation Recommendations*

Several Implementation issues remain that need to be resolved before the National Training Network Programs will show impact in San Francisco Unified School District.

a. ***Teacher Training should be completed within a reasonable time period at the beginning of the school year:*** In the 2009-10 school year, some teachers did not have training until December. Such late training made it difficult for the coach and the teacher to do much work with National Training Network tools and methodologies.

b. ***Teachers need common planning time to practice and discuss newly learned skills:*** The NTN Coach had difficulty scheduling time with teachers. At several points the district contact had to intervene to make sure sessions occurred. School sites should examine priorities for math teachers.

c. ***Teacher Buy-in must increase for program implementation to occur:*** The NTN Evaluator stated that teachers valued time with the Coach. They valued the lesson planning help and co-teaching. Administrators were equally willing to meet with the NTN Coach and Evaluator. Overall teachers liked the program. However, teacher and administrator support of the program did not translate into implementation. School sites should examine priorities for math teachers. Each school needs to identify a program coordinator with the site principal and administrative team.

*Outcome Recommendations*

In Order to impact teacher and student outcomes, teachers felt there were several school site issues that needed to be resolved:

a. ***Teachers often felt pulled in many directions***: Some teachers had additional duties that did not allow for smooth scheduling of training sessions and common planning time. Several others had multiple programs competing in the same classroom that they had to implement. For these teachers, they need to discuss load at their school site. Administrators and teachers need to ensure coherence and alignment of multiple programs and their purposes.

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