

PROFESSIONAL DEVELOPMENT

High School and Middle School Mathematics

Overview of Selected Activities and Effects Through the 2007 – 2008 School Year

Background

LLTeach Inc provides two basic types of professional development, traditional in-service workshops and more contemporary job-embedded support that focuses primary on coaching. Listed below are schools and districts in which LLTeach Inc. provided a significant amount of professional development and/or instructional materials to the teachers of mathematics in Grades 6-12 during the 2007-08 school year (and in some cases prior to that), thus having some degree of influence on student performance on the state-wide assessment. In addition, LLTeach has worked with many other schools and districts K–12, and information regarding the results from those schools will be made available on request to the extent that it is available to LLTeach Inc.

The primary source for the assessment results cited in this summary is the annual *School Report Card* available on the NJ Department of Education web site. This is the only consistent source of publicly available school results. The information available cites only scores from the two most recent school years at the most. A factor that complicates the analysis of the middle school scores is that in 2008, after the test had been administered, the DOE changed the cut points that identified the number of test items used to determine whether or not students' scores were *Partially Proficient*, *Proficient* or *Advanced Proficient*, thus raising the bar and increasing the number of assessment items a student had to get correct in order to pass the test. (A score of either "Proficient" or "Advanced Proficient" is considered to be passing.) Therefore, the result was that scores which would have previously been passing, were no longer so. For example, 34 correct items was the minimum number of for the ranking of Proficient for Grade 7 in 2007, but in 2008 the number was raised to 56 items correct. These factors should be kept in mind as one reviews the cited results.

We have also used district-generated data and analysis, as well as subjective evaluation comments, when they have been made available.

Bayonne High School

The 2008-09 is the third school year that LLTeach has had a “full-time” math coach working with the special education teachers in Bayonne High School. The goal is to help the teachers more effectively implement the district’s high school mathematics curriculum in regard to the special education students. Nevertheless, the coach is frequently asked to work with a variety of general education teachers as well.

Prior to the 2006-07 school year, no classified student had passed the HSPA at the time of the first administration of the test. In that school year, however, 25 of the 100 classified students passed the test the first time it was given. Furthermore, even though the coach works directly with the inclusion teacher, it is reasonable to assume that there may be some carry-over effect on the instruction provided by general education teachers as well, so the SAT scores are also provided in addition to the HSPA ones.

Bayonne High School --High School Proficiency Assessment					
Analysis			Proficiency Percentages		
Mathematics	Year	Number Tested	Partial	Proficient	Advanced
Students w/ disabilities	2006-2007	100	78.0%	21.0%	1.0%
	2007-2008	75	80.0%	18.7%	1.3%
All Students	2006-2007	522	28.9%	60.5%	10.5%
	2007-2008	528	28.8%	59.5%	11.7%

Scholastic Assessment Test (SAT) Results						
School Year	Students Tested		Average Score	Percentile Scores		
	#	%				
2007-08	362	69%	463	400	460	520
2006-07	419	74%	459	390	450	520

While the number of students tested on the SAT increased somewhat, suggesting a larger, perhaps less “selective” pool of students taking this non-mandated assessment, the scores remained essentially the same.

The district’s Math Supervisor and the Special Education Supervisor as well as district and building-level administrators report that they are pleased with the coaching that LLTeach has provided for the high school teachers. Despite budgetary pressures we anticipate that this effort will be continued into the 2009-2010 school year.

Camden City Middle Schools

LLTeach Inc. started working with the math teachers in Grades 6 - 8 in the Camden City schools during the 2006-07 school year, providing district-level professional development workshops and materials. In 2007-08, "lead coaches," LLTeach employees who are trained coaches, were engaged to work directly with teachers and to provide workshops and coaching support for the districts' own building level coaches. This move made more intensive professional development possible for both the teachers and the building-level math coaches. Intensive classroom coaching (primarily demonstration lessons) was provided by the Lead Coaches. In addition, selected materials from LLTeach Inc were used as the primary text in these grades.

Remembering that the scoring standards were upgraded during for the 2008 assessment results, notice that while there is no statistically significant difference or growth in the scores of the sixth grade students, **the number and percent of Camden's students passing both the Grade 7 and Grade 8 assessments remained stable. In effect, this means that there was dramatic improvement in student achievement even though it is not obvious from a cursory look at the test results.** The district is particularly pleased that for the first time all schools made safe harbor.

Percent Passing

	2006	2007	2008	2008* (2007 standards)
Grade 6	21.6%	39.9%	23.9%	32.0%
Grade 7	15.1%	17.4%	21.2%	54.8%
Grade 8	12.8%	14.5%	18.1%	24.1%

Source: District Report

2007-08 NJ- ASK Results -- Based on Higher Standards (Source: School Report Card)

Grade	Number Tested	Proficiency Percentages		
		Partial	Proficient	Advanced
6	854	76%	23%	1.1%
7	847	78.6%	19.7%	1.7%
8	962	81.8%	16.2%	2.0%

District reactions: For the 2008-09 school year, Camden added Grade 5 to the group of teachers using LLTeach Inc materials and intensive, job-embedded coaching services.

Jersey City Schools — Elementary and Middle Schools

Background (Grades 3 – 8):

LLTeach Inc. started working with the Jersey City Schools, Grades 3 – 5, in the 2002 – 03 school year. The following year, they added Grade 6 and the elementary Special Education program. Dramatic growth, from a passing rate in Grade 4 of 44 percent before the program started to as high as 75 percent, and roughly 70 percent for the last several years, with some year-to-year variation. (It should be noted that over the last couple of years, Jersey City has changed its professional development model, reducing the amount of program instruction and in-class coaching provided to the teachers and assigning the coaches to a greater number of grade levels. The district does have a relatively high rate of teacher turn-over and movement between grades and schools.)

It is also very important to note that the score gains achieved in math are reflected across all demographic groups, with bilingual and African American students in particular scoring showing growth equal to or greater than the improvement demonstrated by other sub-groups. (See the table on the next page.)

Middle School Details — Grades 7 and 8

The data above regarding Grades 5 – 8 is based on new performance standards established after the assessment had been administered. The Jersey City Schools provided the following evaluation of the test results.

Middle school, continued.

Grade	School Year	# Tested	Proficiency Percentages			Total Pass
			Partial	Proficient	Advanced	
3	2006-07	2078	24.2%	59.2%	16.6%	75.8%
	2007-08	2087	29.0%	57.0%	14.0%	71.0%
4	2006-07	2005	28.0%	49.8%	22.2%	72.0%
	2007-08	1971	30.8%	48.1%	21.0%	69.1%
New scoring standards (See additional analysis below.):						
5	2007-08	1979	41.9%	46.5%	11.5%	58.0
6	2007-08	1904	70.3%	29.0%	0.6%	28.0%
7	2007-08	2037	58.1%	34.0%	7.9%	41.9%
8	2007-08	2108	56.9%	32.2%	10.9%	42.2%

In 2005-06, the district was using Prentice Hall, Course 3 as the basic text for seventh grade math, and LLTeach Inc. held a number of large group workshops for all seventh and eighth grade teachers (attendance was required). These in-service programs focused on math content presented in a standards-based manner. During that same year, the basic text for Grade 8 was HBJ with a separate algebra program. The coaching model was instituted during this year.

The following year (2006-07) the Prentice Hall program was continued in seventh grade, but LLTeach Inc. provided a supplemental guide, called *Lesson Helper*, for its implementation. Likewise, a LLTeach Inc. program called *Lesson Quest* replaced HBJ in Grade 8, but it was

coupled with instruction in algebra. The professional development model of large-group, off-site workshops was continued with greater emphasis on pedagogy, and coaching was continued.

For the 2007-08 school year, Prentice Hall was abandoned by the district and replaced by *Meeting Middle School Math Standards*, another LLTeach text. In-service workshops were conducted for teachers new to the program and coaching continued, with special focus on low-performing performing schools.

Grade	Cut Points and Percent Passing			
	Before			After
Year	2005-06	2006-07	2007-08	2007-08
7	Cut Point: 33%			52%
	44.7%	40.3%	41.94%	71.76%
8	Cut Point 50%			56%
	43.1%	46.9%	50.1% %	43.1%

Score analysis provided by the Jersey City schools.

Conclusion (Grades 7 & 8):

If the cut scores had not changed for the 2007-08 school year, the performance by seventh grade students would have increased by 27% points, which is a 78.0% increase in the passing rate of for Grade 7 in one year, and for eighth grade, the scores would have reflected growth of 16.3% in two years.

Summary: Two years ago (2007-08) the Jersey City Schools were cited by the Broad Foundation as one of the five outstanding urban districts in the nation, in part because of the success of its math program and closing the achievement gap. LLTeach Inc. is honored to have been part of that effort. While it is inevitable that there will be changes in the professional development services that the district has LLTeach provide, it is anticipated that the relationship will continue, even though the charge of the original RFP, that is. to “change the culture of teaching mathematics in the district” has been achieved.

Edison Township — Herbert Hoover Middle School, Edison High School

LLTeach Inc. has presented occasional mathematics in-service workshops for Edison teachers over the last several years, on both a district-wide and school-level basis. The current LLTeach Inc. project in Edison started in 2007 – 2008 at the Herbert Hoover Middle School (one of four in the district). Historically, there have been two low-performing middle schools and two high performing middle schools, largely determined by demographics. Herbert Hoover and Thomas Jefferson MS are low-performing, and they are the feeder schools for Edison High School.

In 2007-08, an LLTeach coach worked with the math teachers at the Herbert Hoover Middle to assist that school since its scores on the GEPA had fallen sharply the previous year and were the lowest of those earned by the four middle schools in the district. The 2008 results for the building and comparative for the district are shown below.

There is no year-to year information available, which is true throughout the state, and because of changes in the tests themselves and/or changes in the scoring standards, no year-to-year comparison is possible. Nevertheless, the building reports significant improvement in the total number of students passing, and the scores for this middle school compare favorably with the other middle schools in the district.

Herbert Hoover Middle School

Assessment: New Jersey ASK 6, 7 and 8				Proficiency Percentages			Percent Pass
Test	Group	Year	# Tested	Partial	Proficient	Advanced	
NJ ASK6	School	2007-08	260	20%	59.6%	20.4%	80.0%
	District		1002	17.3%	43.5%	29.2%	72.7%
NJ ASK 7	School	2007-08	284	21.5%	52.8%	26.8%	79.6%
	District		1093	19.6%	40.9%	39.5%	80.4%
NJ ASK 8	School	2007-08	298	27.5%	45.0%	27.5%	72.50
	District		1043	21.8%	46.0%	41.3%	87.3%

Donald Jobbins, the district Math Supervisor reports that the Herbert Hoover teachers have gained sufficient insight into some key issues in math instruction, and since there has been no staff turnover in the building's math department from last year to next, the continuation of intensive in-service is not necessary.

However, the district has asked LLTeach to return this year and work with the mathematics teachers in Edison High School. They are following the same pattern individual and group demonstration lessons, bracketed by pre- and post-conferences as is the typical LLTeach Inc. job-embedded coaching pattern, and there is a very positive, preliminary reaction to these activities.

Elizabeth High School and Middle Schools

Samuel Etienne, the district Math Supervisor in Elizabeth states that he is very pleased with the services provided by LLTeach Inc., and for the 2008 – 2009 school year, the district has contracted for additional and continued services of the same type provided in the 2007 – 2008 school year.

For the three year period, (2004-05 thru 2006-07, LLTeach Inc. provided occasional in-service workshops to a variety of schools in Elizabeth at the elementary, middle and high school levels. Before that to that, Paul Lawrence did the initial orientation and training for district teachers at the time that *Everyday Mathematics* was introduced into the district.

More intensive coaching was provided at both the high school(s) and selected middle schools during the 2007-08 school year, but for only selected teachers who were chosen by the supervisor, principal and/or department head, so it is impossible to determine the degree to which the services provided have had an effect on the total scores for the buildings and the district. In addition the number of days spent at each school and/or with teach teacher varied widely. Nevertheless, the district expresses strong confirmation that they perceive the services as valuable and resulting in positive improvement in mathematics instruction.

Below, a variety of statistics are provided regarding the work done in '07-'08. However, it will be noted that no services were provided to Reilly Middle School. District personnel report that this school is not only located in the most affluent section of the city, but also is considered by some to be a kind of gifted and talented school. There was no sixth grade in that particular middle school, those students being disbursed among several elementary schools.

Elizabeth Middle Schools Assessment for 2007-08

Assessment: New Jersey ASK 6		Proficiency Percentages			
Group	Number Tested	Partial	Proficient	Advanced	Total Pass
District	1280	45.7%	45.9%	8.4%	54.3%
Battin	112	50.9%	46.4%	2.7%	49.1%
Hamilton	210	53.8%	42.4%	3.8%	46.2%
Holmes	118	49.2%	47.5%	3.4%	50.9%
Roosevelt	107	57.0%	40.2%	2.8%	41.0%
Reilly*	No 6 th grade in this building				
Assessment: New Jersey ASK 7		Proficiency Percentages			
Group	Number Tested	Partial	Proficient	Advanced	Total Pass
District	1398	52.5%	38.1%	9.4%	47.5%
Battin	131	65.6%	29.0%	5.3%	34.3%
Hamilton	229	60.3%	34.1%	5.7%	39.8%
Holmes	116	57.8%	35.3%	6.9%	42.2%
Roosevelt	136	54.4%	39.0%	6.6%	45.6%

Reilly*	114	14.0%	41.2%	44.7%	85.9%
Assessment: New Jersey ASK 8	Proficiency Percentages				
Group	Number Tested	Partial	Proficient	Advanced	Total Pass
District	1435	63.1%	28.5%	8.4%	36.9%
Battin	124	75.8%	21.0%	3.2%	24.2%
Hamilton	258	70.2%	24.8%	5.0%	29.8%
Holmes	158	73.4%	24.1%	2.5%	26.6%
Roosevelt	128	60.2%	36.7%	3.1%	39.8%
Reilly*	118	16.1%	39.0%	33.9%	72.9%

Elizabeth High School HSPA

Assessment: New Jersey ASK 8	Proficiency Percentages				
Group	Number Tested	Partial	Proficient	Advanced	Total Pass
2006-07	1055	62.9%	34.0%	3.0%	37.0%
2007-08	935	54.7%	40.3%	5.0%	45.3%

The scores at the high school show statistically significant improvement year to year. Several of the schools have indicated that they plan to continue the same program into the 2009-2010 school year.

Essex County Vocational Technical Schools (High School)

LLTeach Inc. started working with the Essex County Vocational schools in the late spring of 2005 by providing in-service workshops to selected groups of math teachers, primarily those with responsibility for HSPA instruction. Then, during the 2005-06 school year and continuing to the present, coaches from LLTeach have provided intensive job-embedded coaching to various groups of teachers, starting with the areas of greatest need as identified by the district.

It would be inaccurate to attempt to trace a direct correlation from the coaching that has been provided to the achievement scores earned by the students. The work has been too diffuse to do so. Nevertheless, it would not be accurate to say that the work with teachers has had no effect. Bickram Singh, the district's Supervisor of Program Accountability reports that the district's leadership is pleased with the effects achieved by LLTeach's efforts and they plan to continue, and increase to the degree fiscally possible, the amount of professional development provided. For example, he cites greater teacher enthusiasm and willingness to actively participate in professional development, enhanced teacher performance as reflected in their evaluations, added requests for support from the LLTeach Inc. coaches because of the quality of feedback and support they receive in regard to instructional issues.

The job-embedded model followed in Essex Vo Tech is a combination of focused workshops, group demonstration lessons, individual and small group co-planning sessions and individual demonstrations and co-teaching, all with appropriate follow-up. For example, a coach's day might start with a group session for all the teachers of a particular math course, such as Geometry, in a building. The coach would address some key instructional issues with the group and identify for them things to look for in a demonstration lesson to follow. Next, all the teachers would observe a full-period lesson taught by the coach to an actual class chosen by a teacher or the department. Following that lesson, there would be a group debriefing, in which the coach leads a discussion that helps the teachers think through the elements of the lesson, issues raised, etc. The logical follow-up to this kind of group demonstration is individual demonstration lessons in classes selected by each teacher, with a personal pre- and post-conference. The goal is for the teacher to think more analytically about their own teaching and to address the key issues that influence student learning in the classroom.

The coaches report greater receptivity now on the part of the teachers than when the program started. The quality of the questions raised has improved and focuses on important issues relating to how to help students be actively engaged in the learning, learning using a constructivist model, preparation for assessments that is supported by instruction that results in long-term retention of concepts taught rather than just a quick fix for test scores.

Nevertheless, a review of assessment results reveals some interesting observations. In 2007-08, district scores improved only slightly, created by a situation in which the scores at three facilities increased significantly, ranging from an increase of 8.3 to 24.5 percentage points. However, those earned at the North 13th Street school appear to be an anomaly, dropping by 17.5 percentage points. **Overall, the increase in scores at the three other schools is statistically significant.**

HSPA Mathematics — Essex Co Vocational Schools

School	Year	# Tested	Proficiency			Total Pass
			Partial	Proficient	Advanced	
District Totals	2006-07	456	35.1%	60.7%	4.2%	60.9%
	2007-08	484	35.7%	60.5%	3.7%	63.8%
Bloomfield	2006-07	112	22.3%	73.2%	4.5%	77.7%
	2007-08	106	11.3%	79.2%	9.4%	88.6%
W. Caldwell	2006-07	32	87.5%	12.5%	2.2%	14.7%
	2007-08	46	71.7%	26.1%	2.2%	28.3%
N. 13 th St.	2006-07	149	28.9%	66.4%	4.7%	71.1%
	2007-08	164	46.3%	53.0%	0.6%	53.6%
W. Market	2006-07	163	39.3%	56.4%	4.4%	60.8%
	2007-08	168	31.0%	65.5%	3.6%	69.1%

District personnel indicate that the student performance at North 13th Street School is of concern. Unfortunately, as is the case in many schools, it is difficult to find special education teachers whose knowledge of mathematics and standards-based pedagogy is appropriate to address the students' needs, especially at the high school level. Therefore, the district in consultation with the LLTeach coach has decided to help the teachers at this particular facility focus on:

- Believing that the students have both the physical and intellectual capability to complete calculations without the use of a calculator, and
- Recognizing that procedure-based mathematics instruction does not promote retention of skills and concepts. They need to help students think mathematically and to recognize some of the deep mathematical concepts.

During the 2008-2009 School Year, the coach has been asked to spend a high percentage of his time in the district working with the special education teachers whose background in mathematics is not sufficient to help students meet the demands of the HSPA.

Percentage of Students Satisfying the State Testing Requirements through different means — 2008

Graduation Type	Bloomfield	W. Caldwell	N. 13 th St.	W. Market	State Avg.
General Ed Passed HSPA	86.1%	0%	90.6%	82.8%	89.2%
All students Passed HSPA	86.1%	2.2%	80.4%	78.8%	81.2%
Via SRA Process	13.9%	0%	10.1%	21.3%	11%
Via LEP SRA	0%	0%	0%	0%	0.5%
HSPA Exempt	0%	97.8%	9.4%	0%	7.3%

Lakewood Middle School

During the 2006 – 07 School Year, LLTeach coaches worked with the teachers of grades 4 and 5 in Lakewood. Feeling that it would be more economical and have greater flexibility for the district if they had their own coaches, that move was made during the 2007 – 08 school year. At the same time, however, the district added an LLTeach coach to work directly with the Middle School teachers during the 2007 – 08 school year and has continued it into the current year.



The previous graph shows a comparison of student performance, but as we know the cut point for the passing score changed, so additional information is needed to determine real growth.

While overall declining statewide scores reflected this change, there were an increased number of Lakewood students demonstrating proficiency as is shown below. Here, one can see that the statewide scores declined significantly, while the Lakewood scores moved upward.



Middlesex County Vocational Schools (HS)

During the spring of the 2007-08 school year, LLTeach conducted intensive workshops and coaching for the math teachers in three of the five high schools in the Middlesex County Vocational system. The other two are selective academic schools and no professional development was requested for those schools.

School	Year	# Tested	Proficiency			Total Pass
			Partial	Proficient	Advanced	
East Brunswick	2006-07	146	46.6%	48.6%	4.8%	53.4%
	2007-08	117	41.0%	55.6%	3.4%	59.0%
Perth Amboy	2006-07	67	55.2%	37.3%	7.5%	45.0%
	2007-08	63	41.3%	54.0%	4.8%	54.8%
Piscataway	2006-07	95	67.4%	30.5%	2.1%	32.6%
	2007-08	103	61.2%	35.0%	3.9%	38.9%

Scores improved year to year to a statistically significant degree.

Conclusions

It would certainly be inappropriate for LLTeach Inc. to claim complete responsibility for the score increases in all of the schools cited here, which are all of the schools where we have done more than occasional in-service workshops. However, the comprehensive nature of the involvement of LLTeach in the Jersey City and Camden programs is worth noting, and it is not inappropriate for the company to say that the success in those two districts is due in large part to the materials and guidance (through coaching and consultation) they have provided for the mathematics programs.

The Lakewood program is less comprehensive and of shorter duration than these two, but is nevertheless a significant indication of the quality of the products and services LLTeach Inc. provides.

Finally, the success that the remaining districts have shown in improving scores is important, and it is fair for LLTeach Inc. to say that it has played a part in helping these schools assist students in learning mathematics more effectively.

New Projects for the 2008 – 2009 School Year

The districts and schools listed below have asked LLTeach to work with them this year.

Newark (MS)

During the 2007-08 school year, LLTeach Inc. provided occasional workshops to several schools and to the entire district. In addition, coaching was started in the Vailsburg school last spring.

During this school year, and additionally under the Title 1 SIA (part g) Grants, we are working with the following schools in Newark, providing coaching (and materials, if requested): Avon Avenue, Dayton St., Dr. William Horton, Dr. Martin Luther King, Quitman, Rafael Hernandez and Vailsburg.