Center X and LAUSD Evaluation of Effectiveness Report

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Abstract

This report has been prepared by UCLA's Center X to make evident the effectiveness of Center X's services to the Los Angles Unified School District (LAUSD). Over the past three years, Center X has provided a variety of professional development opportunities to teachers throughout the District. The findings included in this report convey that the work completed with teachers has contributed to student achievement in the classroom.

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Center X

Center X at the Graduate School of Education & Information Studies at UCLA is where research and practice intersect for urban school professionals. Center X brings together UCLA, public schools, and the diverse communities of Los Angeles, as we seek to demonstrate that schools for low-income minority children can become rich, rigorous, socially just, and caring learning communities where all children learn extraordinarily well and reach their full potential.

The guiding philosophy of Center X is that improving urban education requires coordinated, research-driven attention to many levels of the school system—new teachers, seasoned professionals, and school leaders. Center X fulfills UCLA's mission of research, teaching, and service grounded in a set of principles that include social justice, K-16 collaboration, and the integration of research and practice in Los Angeles K-12 schools. It unites 1) pre-service preparation for elementary and secondary school teachers entering Los Angeles urban schools; 2) professional development programs for practicing professionals in these schools; and 3) School-University Partnerships seeking to achieve UC's Outreach goals of a diverse student body in a post-209 admissions era. A significant part of Center X's research and practice focuses on teacher learning and continuous professional development. Using the tremendous intellectual resources of

UCLA faculty and students and the California Subject Matter Projects, Center X creates and implements new approaches to teacher learning and professional development.

Center X houses five sites of the California Subject Matter Projects: the California Reading and Literature Project at UCLA; the UCLA History-Geography Project; the UCLA Mathematics Project; the UCLA Science Project; and the UCLA Writing Project. Through each of these projects, UCLA provides leadership for professional development experiences. Since their inception in 1977, the UCLA Subject Matter Projects have responded to the needs of educators from schools and colleges with high populations of students from underrepresented minority groups. They have offered programs to help K-12 and community college faculty better prepare students for success in four-year colleges and universities as well as for success as literate citizens. Center X programs help teachers strengthen their content knowledge, develop a repertoire of teaching strategies, refine their understanding of reform in content areas, and develop their leadership expertise. Programs focus on affecting classroom change in keeping with University guidelines; state frameworks; national, state and district standards; statewide assessment programs; and the California Master Plan for Higher Education.

Overview of Center X's LAUSD Work

Center X LAUSD Master Contract work engages teachers in a variety of ways across many different content areas. However, this work can be generally divided into two major categories: professional development and School-University Partnerships. While these two categories share theoretical underpinnings about teacher and student learning,

their specific goals differ. In the professional development category, we include the work contracted with individual schools and teachers focused on short-term or long-term work around a particular focus. The School-University Partnerships involve ongoing Center X work with a cluster of schools intended to accomplish the goals of interest to both parties and to work towards those goals in ways designed by the parties together in cooperation.

Although we may take a somewhat different approach in the professional development and School-University Partnership work, in both cases we are guided by a set of theories and principled ideas about teacher learning. Our intent is to engage teachers in what we call "generative growth." (Franke, Carpenter, Levi, & Fennema, 1998) We want teachers to learn more than the current skills and knowledge necessary to teach; we want them to learn in a way that encourages continued learning once the formal professional development comes to an end. We want teachers to see learning as a part of teaching and to recognize that they can learn in the context of their classrooms and school communities. We draw on the research on teaching and teacher learning in designing our work with teachers. We engage teachers in acquiring detailed knowledge about their students' thought processes and the content of their thoughts; we work with teachers to help them see how they continue to build their knowledge base in the classroom, with their colleagues, and by engaging in their curriculum.

Center X's LAUSD Program Models

Professional Development Overview

The LAUSD Master contract professional development work with individual schools includes both short-term and long-term professional development that crosses content areas and grade levels. Utilizing our theory of teacher learning, we use data to evaluate the degree to which we engage teachers in learning, the extent to which teachers create networks of support for their learning, and the skills teachers acquire to continue to learn in the context of their practice. With the ultimate objective of impacting student achievement, we also look within content areas at the degree to which teachers are developing knowledge of the content and of content-specific strategies to support student learning.

To study the implications for professional development, psychologist Robert Kegan (Miller, 1995) suggests that we have to make the distinction between two kinds of professional development: informative and transformative. Informative training transmits information. It increases the teacher's content knowledge, understanding, and skills. Transformative professional development is a process that enables teachers to develop more complex capacities of mind. It is based on the idea that changes in professional practice come about because professionals change their minds.

Little (1993) has found most professional development to be informative by design. She found that the focus is primarily on expanding an individual repertoire of well-defined and skillful classroom practice. She argues that it does not adequately enable teachers to

implement the visions of teaching and schooling embedded in present reform initiatives. Professional development cannot be just a matter of better implementation of selected innovations. In fact, Little (1993) suggests that professional development should be tested against these six principles:

- Professional development offers meaningful intellectual, social and emotional engagement with ideas, materials, and colleagues;
- Professional development takes explicit account of the context of teaching and the experience of teachers. Focused study groups, teacher collaboratives, and long-term partnerships afford teachers a means of locating new ideas in relation to their individual and institutional histories, practices, and circumstances;
- Professional development offers support for informed dissent. Differences in values and beliefs can make agreement difficult to achieve and unstable over time;
- Professional development places classroom practice in the larger contexts of school practice and the educational careers of children;
- Professional development prepares teachers to employ the techniques and perspectives of inquiry. It provides the possibility for teachers and others to interrogate their individual beliefs and the institutional patterns of practice; and
- The governance of professional development ensures bureaucratic restraint and a balance between the interests of individuals and the interests of institutions.

These principles suggest that teachers must be actively involved in their own professional development. This does not mean participating in a "hands-on" activity as part of a

scripted workshop; it means that teacher development "must actively listen to and sponsor the teacher's voice; establish opportunities for teachers to confront the assumptions and beliefs underlying their practices; avoid faddism and blanket implementation of favored new instructional strategies; and create a community of teachers who discuss and develop their purposes together, over time" (Fullan & Hargreaves, 1992, p. 65).

In order to develop a framework that encompasses these ideals, Fullan and Hargreaves (1992) suggest that successful professional development must take into account four main elements:

- The teacher's purpose;
- The teacher as a person;
- The real world context in which teachers work; and
- The culture of teaching: the working relationship that teachers have with their colleagues inside and outside the school.

They believe that these four components have been neglected in the design of most professional development. In fact, they have concluded that professional development has not been well thought out and has thereby been deficient in producing significant change in the classroom.

Center X is well grounded in the research on professional development. This is one of the benefits of housing an in-service unit in an institute of higher education. The research

supports a theoretical framework for the professional development services that Center X provides.

The California Subject Matter Projects (CSMPs) are the foundation for the professional development work done by Center X. The programs of the CSMPs are designed to 1) provide support to teachers to develop and enhance specific content knowledge and pedagogical skills; 2) develop and strengthen the leadership skills of teachers; 3) support the development of long-term partnerships between the CSMPs and low performing schools; and 4) establish a network of professionals. The principles that guide the work of all components of the Center X professional development are a) content, assessment and instruction are interdependent; b) effective teachers are the best teachers of other teachers; c) all students must be provided with opportunities that allow them to achieve their full potential; d) all students must have equal access to effective instruction and to rigorous, concept-based curricula; and e) committed administrative, parent and community support is essential to lasting instructional change.
Ultimately, the major goal of any and all Center X professional development is to increase student performance and achievement.

School-University Partnerships Overview

Nearly everyone from politicians to the general public has now joined the lament over the state of public education. Most of the populations that were excluded from American schools from the start are still finding themselves excluded, although they are sitting in the seats of public schools all across the nation. Due to larger systemic social structures,

America's public schools are failing miserably in educating poor Latino and African American children.

All the California Subject Matter Projects at UCLA and the Teacher Education Program join together to engage in the School University Partnership work. The goal is to develop an organized relationship with partnership schools and create an ongoing and integrated approach to professional development across content domains with students, teachers, counselors, administrators, parents and other community members. It is within the context of this ongoing relationship between UCLA and the schools that the work is tailored to meet the unique needs of the partner schools. The work with the partnership sites includes, but is not limited to, professional development for teachers, counselors and administrators, classroom coaching, data analysis, family programs, and bridge programs for students. It is important to note that all of the work focuses on long-lasting systemic changes with the potential to impact students well beyond the current enrollment.

Center X's Partnership Objectives

Having worked at the issue of social justice in education for an extended period, UCLA has identified six conditions that need to be present in schools in order for all students, including disadvantaged youth, to be eligible and competitive for University of California admission. These conditions are (1) a college-going culture; (2) intensive academic and college-going support; (3) rigorous academic curriculum; (4) high-quality teaching; (5) a multicultural college-going identity; and (6) parent-community connections re: college going and academics. Early partnerships between UCLA and schools have made it

increasingly apparent that the University's goal of increasing the number of disadvantaged students who are competitive for admission to the University and the schools' goal of high academic achievement for all students are highly compatible.

Further, early partnerships with schools and solid research have borne out the efficacy of these conditions in achieving both of these goals. Exploring the relationship between the University and one school district can deepen our understanding of the term "partnership" as a collaborative relationship in which both parties contribute material and human resources to an integrated school-wide approach for establishing the six essential conditions. That partnership between UCLA and District I of LAUSD is described in this study.

In July 2001, UCLA and District I made the decision to collaborate around their shared commitment to social justice for all children. They decided to bring together University resources and research with the work of the District to impact the education of students, particularly those with the greatest unmet needs. At three high schools within the district we have focused on content literacy within reading and literature, history-geography, mathematics, social studies, and science. Although the work is in its infancy, the work that has been done thus far has produced important indicators of progress in significantly improving the conditions for, and the achievement of District I students.

Sharing the impact of our work in LAUSD

While we are engaged in a number of different projects within LAUSD it would not be possible here to share the details and impact of each endeavor. We have chosen to share the impact of our work through detailing one professional development project and one partnership. The LUCI Mathematics Project work and our partnership with District I represent our most extensive endeavors in LAUSD and in both cases represent the philosophical, theoretical and design principled approaches to our work.

Professional Development: LUCIMATH (LAUSD/UCLA Collaborative Institute)

I. Description of Services

A. Program Objectives

The LAUSD/UCLA Collaborative Institute (LUCIMATH) is a California Mathematics Professional Development Institute (MPDI) designed to increase teacher subject matter competence and confidence in the mathematics they teach, familiarize teachers with the components of their textbooks, and support them in raising the achievement of their students. The program has been designed to provide teachers with a cohesive, coherent, and mature look at mathematics taught in grades K-8, and emphasis is placed on building mathematical ideas based on the student's prior knowledge. The primary focus of this work during the period of this report was K-2. So we focus our report here on the K-2 LUCI work.

Leadership from the University of California Office of the President (UCOP) and funding from MPDI united members of the UCLA Department of Mathematics, Graduate School

of Education and Information Science, the UCLA Mathematics Project, Los Angeles Unified School District teachers and coordinators, and consultants from UCOP contributed to the development of the LUCI program.

B. Program Logic

The LUCI work was designed to address issues of teacher content knowledge, to strengthen understanding of the trajectories of students' mathematical thinking, and to deepen teachers' understanding of the mathematical tasks they pose to students through their textbook. The rationale here is that if we can improve the content knowledge of teachers in a way that helps them see that content knowledge in their students' thinking and the tasks they pose we will have provided teachers with the skills and knowledge they need to support each student's learning.

We know from the research literature that often elementary school teachers are not comfortable teaching mathematics and often report and demonstrate limited mathematical content knowledge. We see that teachers have had little opportunity to engage in mathematical ideas in their practice. Our goal was to provide teachers with a way of not only gaining more content knowledge but also learning how to learn it through their interactions with mathematical tasks and student thinking. We know that often pre-service programs with a number of mathematics courses and in-service programs focused on developing skills cannot address all the content an elementary school teacher needs, so our goal here is not only to enhance their knowledge but help them know how to enhance it on their own in the context of planning and carrying out their lessons. We wanted

teachers to become generative in their learning of mathematics. In addition, we knew that if we could get teachers intrigued with the mathematics and feeling more confident about their own understandings, they would carry this confidence and interest into their interactions with students.

We recognized, however, that content knowledge could not be learned in isolation from the mathematical ideas they were responsible for as teachers and the types of tasks they would engage their students in. We also know from the extensive research on the development of children's mathematical thinking that part of learning the mathematical content is understanding the various strategies students might use to solve problems and how those strategies are the same or different. So within the LUCI design we adopted a research based definition of content knowledge that includes understanding the depth and breadth of mathematics teachers will be engaging their students in (and the mathematics that will lead to) and the understating the ways students come to understand that mathematics. To accomplish this we also embedded the content knowledge learning within their curriculum and the pedagogical practices that support student learning.

II. Program Evaluation

A. Evaluation Questions

We set out to understand and answer the following questions:

1. Can we successfully engage over 5.000 teachers in professional development with a consistent design?
2. Does engagement in LUCI impact the content knowledge of teachers?

3. Does engagement in LUCI impact teachers' perceptions of their own abilities as teachers of mathematics?
4. Does participation in LUCI impact teachers' classroom practices as reflected in teachers own reports?
5. Does LUCI support the district in achieving their goals of raising the mathematics achievement of students?

B. Operationalization

Reaching teachers. One significant question was whether we could reach the large number of teachers in LAUSD and meet the needs of all those that wanted to participate, at the time they wanted to participate. Here we were interested in tracking the number of teachers, and the local districts they were from.

Content knowledge. As LUCI was a state and district mandated program we were required to collect particular data around the success of the program. However, we also benefited from measures designed for state-wide use by experts in the field. Our measure of content knowledge was designed by Deborah Ball, University of Michigan, hired by the University of California, Office of the President. The measure is tailored to elementary school teachers and is particularly focused on capturing the content knowledge teachers need in the context of their daily practice. This measure asks teachers to recognize the content in the context of tasks they would pose students and demands that they understand the range of strategies students bring to a task. In this way it is clearly aligned with the goals of LUCI. The measure consists of a total of 27 items

on the pre-test and 28 items on the post-test. All but two of the items on each assessment are multiple choice items and are designed to assess the mathematical skill of teachers in three content domains: number sense, algebra and functions, measurement and geometry. The open ended items provided an opportunity to assess more in depth understanding of the teachers' content knowledge as it pertains to students' mathematical thinking and teachers' classroom practice. These items assessed teachers around geometry and addition with place value. The measure was pilot tested by the state and has been shown to be reliable.

Teachers' perceptions. At the beginning of the institutes we asked teachers to complete a survey designed to gauge teachers' perceptions of their comfort with teaching the mathematics that was required of them for the grade level they teach. We also asked them to describe how well they understand the process young children follow in developing number sense. At the end of the institute we asked them the same questions to determine if participation had changed their comfort with the mathematics and their understanding of how children learn mathematics.

Teachers' reported practices. In understanding the ways teachers adapted their classroom practices as a result of their participation in LUCI we collected a couple of different types of data. We asked teachers in an initial survey how much time they spent teaching mathematics. We then asked again after LUCI. We asked teachers to describe their classroom practices both before and after LUCI. At the end of the LUCI follow up teachers were asked to write an open-ended essay on the impact participation in LUCI

had on their classroom practice. We also recognized that findings from these reports could be influenced by a number of other opportunities teachers might be engaged in so we asked teachers what other professional development around ideas of mathematics they were engaged in so we could better understand the range of influences.

Student achievement. As LUCI was one of the mandated programs for LAUSD, we had a large number of teachers participate from across a large number of schools. Due to the large number of participants we were able to look at SAT-9 mathematics scores for grade 2 as indicators of how LUCI contributed to the district's work on raising student achievement in mathematics. Our goal here was to look at patterns, looking for those that showed consistent growth in mathematics.

C. Design

The LUCI endeavor attempts to do something that has not been done previously in the state of California or in any other state to this magnitude. We set out to provide quality, consistent professional development for thousands of teachers within a limited period of time. This work required tremendous conceptual development, coordination, and cooperation amongst LAUSD and UCLA. An extensive amount of work went into the conceptualization of both the structure and the substance of this project to make sure that structure and substance worked together in ways that accomplished the goals of LAUSD and UCLA. In creating the design for our evaluation we had to take into account the demands of the work, the way the work was conceptualized and the number of teachers being reached.

Since the core aspect of this work, as mandated by the state, was to increase the content knowledge of teachers, we carefully examined this through a pre-post test design. However, in order to focus the teachers most on the professional development itself and not on data collection, we built the content assessment into the professional development. We collected the remainder of our data after teachers completed their LUCI institute. While we were unable to collect classroom observation data, we did ask teachers to report on their classroom practice in two different ways – one in an open response format and the other through specific questions.

Due to the mandated nature of this project we are unable to use comparison groups. There are few schools with no LUCI teachers participating and those schools are different to begin with (there is a reason no teachers are participating in LUCI) so they do not make adequate comparisons. Rather our goal in relation to student achievement is to build on the argument being used by LAUSD in their reports about the mathematics scores in their district and the impact of LUCI and examine the pattern of growth exhibited.

III. Measurement of Program Outcomes and Implementation

A. Intended Program Outcomes

- Reach the majority of K-2 LAUSD teachers
- Increase teachers' mathematics content knowledge
- Change teachers' perceptions about their abilities to teach mathematics

- Change teachers' classroom practices as reported by the teachers
- Positively impact the mathematics learning of K-2 students

B. Measures

- Content Knowledge Assessment
- Survey of Teachers' Perceptions and Practices
- Open-ended questionnaire regarding teachers practices
- Stanford 9 – second grade (2000-2002)

C. Implementation

All LUCI programs include at least forty hours of instruction, connecting mathematics to newly adopted textbook materials, and are carefully correlated to the California Mathematics Standards. Each session is a 120-hour institute divided into three components. The LUCIMATH institute is designed to increase teacher's confidence and competence in the mathematics they instruct, as well as bring awareness to how children learn mathematics. The three LUCIMATH components include:

1. The 40 hour / five day institute
2. The 40 facilitated follow-up hours participants complete on-line
3. The 40 non-facilitated follow-up hours participants obtain on their own time.

The LUCI K-2 program takes place in two phases. Phase I consists of forty hours and takes place during five consecutive days of a teacher's off-track time. Teachers choose from available hotel or school locations and attend for one week from 8:00 am-4:00 pm.

Once Phase I is completed, teachers sign up for a Phase II session -- another forty hours. The Phase II sessions take place while the teachers are on-track. The Phase II segment of the K-2 LUCI is designed around four case studies where teachers are teaching mathematics. Phase II participants meet at the beginning and the end of each case for a total of five two-hour meetings. The remaining thirty hours of Phase II are completed online from home. Participants must attend all five Phase II meetings. The final forty hours of the 120 hour LUCI program are satisfied by hours spent developing mathematics instruction (hours must fall outside of contracted time). Below is a table with a timeline of all LUCI events.

April 2001

- Pilot Institute: 110 teachers

May – August 2001

- Number of Institutes: 6 different weeks

Number of Teachers: 4,042

September – December 2001

- Number of Institutes: 3 different weeks

Number of Teachers: 410

January – March 2002

- Number of Institutes: 4 different weeks
- Number of Teachers: 270

May – August 2002

- Number of Institutes: 6 different weeks

Number of Teachers: 304

September – December 2002

- Number of Institutes: 3 different weeks
- Number of Teachers: 134

January – June 2003

- Institutes: 6 different weeks
- Teachers: 297

The substance of LUCI K-2 focused on counting concepts, place value, analysis of arithmetic problem types, addition and subtraction computation strategies, shapes and their properties, algebraic thinking through patterns, measurement, and assessment strategies. This program is heavily influenced by Cognitively Guided Instruction research.

IV. Results

A. Reaching Teachers

From April to October 2001, nearly 5,500 K-2 teachers benefited from 120 hours of mathematics professional development as they implemented the new mathematics curriculum. At the peak of LUCI, in July 2001, we held forty-five institutes in eleven locations. To date LUCIMATH k-2 has supported 5457 teachers (see Table 1). The teachers supported came from 550 different elementary schools. The teachers are drawn from all of LAUSD's local districts. The percent of teachers engaged within one school ranged from 4% to 50%.

Table 1: Schools and Teacher Participants in K-2 LUCI

District	Schools	Teachers
A	51	498
B	52	568
C	51	422
D	61	391
E	53	486
F	49	586
G	48	476
H	44	578
I	41	517
J	36	442
K	64	493
TOTAL	550	5457

Our data show that we successfully reached the anticipated number of 5,000 teachers (actually exceeded by 10%) through our LUCI work.

B. Content Knowledge

The content assessment results indicate that the LUCI professional development had a positive impact on teachers' mathematics knowledge and skill levels. The assessment consisted of multiple choice and open ended items. The multiple choice items assessed the mathematical skill of the teachers and the open ended items measured the teachers' understanding of particular areas of the mathematics as it relates to the use of that knowledge.

Table 2 shows teachers responses to the open-ended, quadrilateral problem. The problem posed asked teachers, "Name five different quadrilaterals. Describe the properties (characteristics) of their sides and angles in an organized way. Include a drawing for each one." Over one-fourth (28%) of K-2 participants were unable to respond to the item

on the pre-test, while only 4% responded at this level on the post-test. In contrast, only 5% of K-2 teachers during the pre-test responded at level-four, where they named five quadrilaterals and their properties properly and 44% responded at this level during the post-test.

Table 2: Pre-Test/Post-Test Results on Open ended Quadrilaterals Problem

Score	Grade K-2 (n . 140)	
	Pre-test	Post-test
1 (No codable response)	28%	4%
2 (Named 4-5 quadrilaterals and a few properties)	44%	22%
3 (Named four or five quadrilaterals and properties)	23%	30%
4 (Named five quadrilaterals and their properties properly)	5%	44%

Additional results from pre and post-tests showed similar findings. Table 3 demonstrates that on the multiple choice items, the mean percent correct increased from pre-test to post-test. The majority of the teachers correctly responded on the pre-test to the Number Sense multiple choice questions. The increase in this category went from 58% of participants responding correctly on the pre-test to 67% responding correctly on the post-test, an increase of 9%. Similarly, with the Algebra/Functions items 65% teachers successfully solved them at pretest and 71.5% at post-test. Lastly, the multiple choice category of Measurement/Geometry had 61% provide correct responses during the pre-test, which had the highest increase to 74% at the post-test point.

The greater increases can be seen in the free response questions, which were described previously. On a scale of 1-4, with 4 being the most complete response one could provide, the mean went from 2.06 on the Quadrilaterals question during the pre-test to a

3.12 on the post-test. Similarly, on the Puzzles question in the free response section, the mean during the pre-test was 2.27, whereas it was 3.39 on the post-test.

Table 3: Multiple Choice and Free Response Test Results for K-2 LUCIMATH

Multiple Choice							
Multiple Choice Question Type	Pre-Test (n_1 = 169)		Post-Test (n_2 = 158)		Differences in Scores (n_{diff} = 144)		
	Mean % Correct	Std. Dev.	Mean % Correct	Std. Dev.	Mean % Correct	Std. Dev.	p-value
ALL (25 / 26)	0.610	0.151	0.692	0.140	0.081	0.124	0.000
Number Sense (9 / 11)	0.583	0.220	0.671	0.213	0.092	0.194	0.000
Algebra/Functions (5 / 4)	0.650	0.221	0.715	0.235	0.065	0.246	0.002
Measurement/Geometry (11 / 11)	0.614	0.170	0.736	0.151	0.118	0.170	0.000
Part 1 - Free Response (on Scale of 1-4)							
Free Response Question Type	Pre-Test ($n_{1\text{-Quad}}$ = 148) ($n_{1\text{-Puzzle}}$ = 134)		Post-Test ($n_{2\text{-Quad}}$ = 137) ($n_{2\text{-Puzzle}}$ = 137)		Differences in Scores (n_{diff} = 123)		
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	p-value
Quadrilaterals (1 / 1)	2.061	0.851	3.117	0.908	1.129	1.044	0.000
Puzzle (1 / 1)	2.269	1.063	3.394	0.789	1.205	1.217	0.000
Notes: Differences in scores are based only on those participants who took both the pre-test and post-test. Numbers in parentheses in left-hand column represent the number of questions corresponding to each category in the pre- and post-tests, respectively.							
Part 2 – Free Response (on Scale of 1-4)							
Free Response Question Type	Pre-Test ($n_{1\text{-Quad}}$ = 148) ($n_{1\text{-Puzzle}}$ = 134)				Post-Test ($n_{2\text{-Quad}}$ = 137) ($n_{2\text{-Puzzle}}$ = 137)				Chi-Square Test for Homogeneity
	1	2	3	4	1	2	3	4	p-value
Quadrilaterals (1)	41	65	34	8	6	31	41	59	0.000
Puzzle (1)	40	40	32	22	3	17	40	77	0.000

C. Teachers' Perceptions and Reported Practices

Reported practices. In LUCIMATH, participants at the end of each program or course wrote a "final reflection" (about one page) where they commented on what they valued in the course. There were no written guidelines for this assignment, and participants were encouraged to write about whatever they wanted. It is important to note here that we did not give teachers "hints" or lead them to talk about changes in classroom practice or any particular changes. The teachers could have chosen to not report at all about their classrooms. However, this was not the case, suggesting that the teachers without prompting felt they had changed their classroom practices due to their involvement with LUCI.

Sixty final reflections of participants were selected at random from six different sections of LUCIMATH courses, and they were analyzed for self-reported evidence of changes in teaching practice. Ninety two percent of the participants reported some change in classroom practice. Five percent of the participants did not report any change, but they were positive about the experience and wrote about their personal growth only. Another three percent of the participants wrote negative comments, reflecting their dislike for the program. The changes in classroom practice reported by the teachers are summarized in Table 4. The specific changes are summarized below.

Table 4: Teachers Reported Changes in Classroom Practice

CHANGE IN CLASSROOM PRACTICE	Percent Teachers
Use specific activities from institute	56%
Make better use of the new curricula	44%
Use manipulatives/models to develop concepts	33%
Use new teaching strategies	32%
Improve classroom culture	25%
Include more exploration, concept development	22%
Present/encourage multiple methods for solving problems	24%
Address student anxieties about mathematics	16%
Increase oral and written communication about math	13%
Introduce more sophisticated mathematics earlier	8%
Include more skills practice	5%

It is not surprising that the largest percentage of teachers reported using the activities from the institute in their classrooms. This is often the first form of implementation for teachers. It is also important to note that without prompting, 44% of the teachers reported that they were making better use of the curricula. The institutes were designed to get teachers to pay attention to their text and maximize its use. And while a number of other changes are reported that we know are related to developing understanding in mathematics, what is most important here is that 92% of the teachers reported that they were making changes in their classroom practice. This is tremendous for an effort of this magnitude.

Teachers' perceptions. Along with the content assessment (pre-post) we asked a few additional questions to assess the teachers' perceptions of how comfortable they were in teaching mathematics, how they felt they understood the mathematical learning of young children, and the time they spent teaching mathematics. In addition we asked the teachers the extent to which they had been or were at the time engaged in other mathematics professional development. We found that fewer than half of the teachers

rated themselves as more comfortable teaching mathematics at posttest. Over 60% of the teachers rated themselves as having more understanding of young children's number sense development. In addition teachers had received little other mathematics professional development. And these teachers reported teaching mathematics more minutes a day at post test than at pretest.

We asked teachers specifically about how comfortable they felt teaching mathematics. Of the 40 randomly selected participants we selected (who completed the follow up) we found that 47.5% of the teachers reported feeling more comfortable. Teachers were asked on a pre and post measure how comfortable they were teaching mathematics on a 4 point scale, one being not very comfortable to 4 being very comfortable. Thirty percent of the teachers reported being somewhat comfortable at pre test and very comfortable at post test. Another 10% went from somewhat uncomfortable to somewhat comfortable. Seven and a half percent moved more than two levels.

We asked teachers to report the number of minutes a day they teach mathematics. At pretest the teachers reported on average teaching 48 minutes of mathematics a day. This is rather high for k-2 teachers nation wide. However, at post test teachers' reported teaching 62 minutes of mathematics a day. We know that spending time, which is opportunity to learn, plays a significant role in the mathematics achievement of young children. Sixty-five percent of the teachers reported increasing the time they teach mathematics each day. The thirty-five percent of the teachers reporting no change in time spent already averaged 55 minutes a day teaching mathematics. However, it is

important to note here that we do not know the amount of time teachers actually teach mathematics. What is relevant here is that teachers feel as though they are spending more time on mathematics. Teachers perceive they are doing more mathematics with their students as a result of LUCI.

One of the more interesting reported findings was the fact that only 18 percent of the teachers reported that they had taken a lot of mathematics in service classes. This did not change at posttest (nor would we expect it to). Additionally, 62.5% of these teachers' reported that LUCI was the only math in service they had received. So the LUCI work was not one of many mathematics professional development opportunities for the vast majority of teachers; it was the only professional development they were currently engaged with. This becomes important to consider as we look at the student achievement results and recognize that the teachers are not receiving other outside support for the teaching of mathematics.

D. Student Achievement

The mathematics subscale of the Stanford 9 assessment provided data for analyzing how LUCI supported the district's efforts to raise the mathematics achievement scores for students in LAUSD. While we cannot claim to be "the reason" that mathematics scores have risen in the district, we can make the case that we have contributed to this increase. We know from the previous analyses that LUCI reached a large percentage of the K-2 teachers in LAUSD, that LUCI has had an impact on the content knowledge of teachers, the teachers report changing their practice in some way, that teachers feel more

comfortable teaching mathematics and feel they know more about the development of student's mathematical thinking. We also know that few teachers participated in other outside mathematics professional support either before or during the time they participated in LUCI. We also see that the scores as reported below increase in correspondence with the LUCI timeline and begin to increase after the first year of LUCI training and continued through Year 2 of LUCI.

In assessing LUCI's contribution to mathematics student achievement we had to choose the achievement measure to use in our analyses. We opted not to use API scores as they integrate mathematics and literacy scores. We looked for an assessment score that was closely aligned with the LUCI work, one directly related to mathematics. The SAT-9 was used in 2001 and 2002 but not in 2003. In 2003, CAT-6 was introduced for use in the norm-referenced component of testing. So as CAT-6 is a new test with a different structure and difficulty level than SAT-9 we are not able to compare 2002 to 2003. An alternative would be to use 3 years of California Standards test data. The percentages of students in the various performance level categories (i.e., advanced, proficient, basic, below basic and far below basic) is reported in the math area for 2002 and 2003. However, in 2001, those percentages are reported in English language arts but not in math. Alternatively, in math, they report the average number correct out of the number possible (this type of data is not reported in 2002 and 2003 as mean scaled scores are alternatively reported). So no adequate data is available at this point to look closely at mathematics only across 200-2003 years. We use for our analyses what happened as LUCI began in the District after 2000 and compare the 2000 scores to the 2001 and 2002

scores. Her we are able to examine the pattern of change over time as teachers began to participate in LUCI. During this period we can also compare the changes in reading scores to the changes in math scores to see if there is a similar rise across the content areas.

LUCI and SAT-9.

Figure 1 shows the dramatic increase in LAUSD's SAT-9 scores from 2001 to 2002 with less of an increase from 2000 to 2001. Between 1997 and 2001, second grade median mathematics scores on the SAT-9 increased from the 32nd to the 44th percentile. In the single year following LUCI intervention (2002), the scores rose from the 44th to the 53rd percentile.

In order to look closely at the math scores we examined the SAT-9 scores for all of local District I and District B schools. We particularly chose local districts where we recognized SAT-9 scores started at different places when we began LUCI.

We conducted preliminary analyses to examine the trends in mathematics student achievement across the two separate districts. To do this we conducted multivariate tests of the linear trends (see Figure 2). And while we cannot claim that the trends here are due only to LUCI we can say that LUCI has contributed to them. Specifically, the trend we see matches the timeline for our LUCI work. We see little growth from 2000 to 2001 but a significant increase from 2001 to 2002 after we carried out much of the LUCI work.

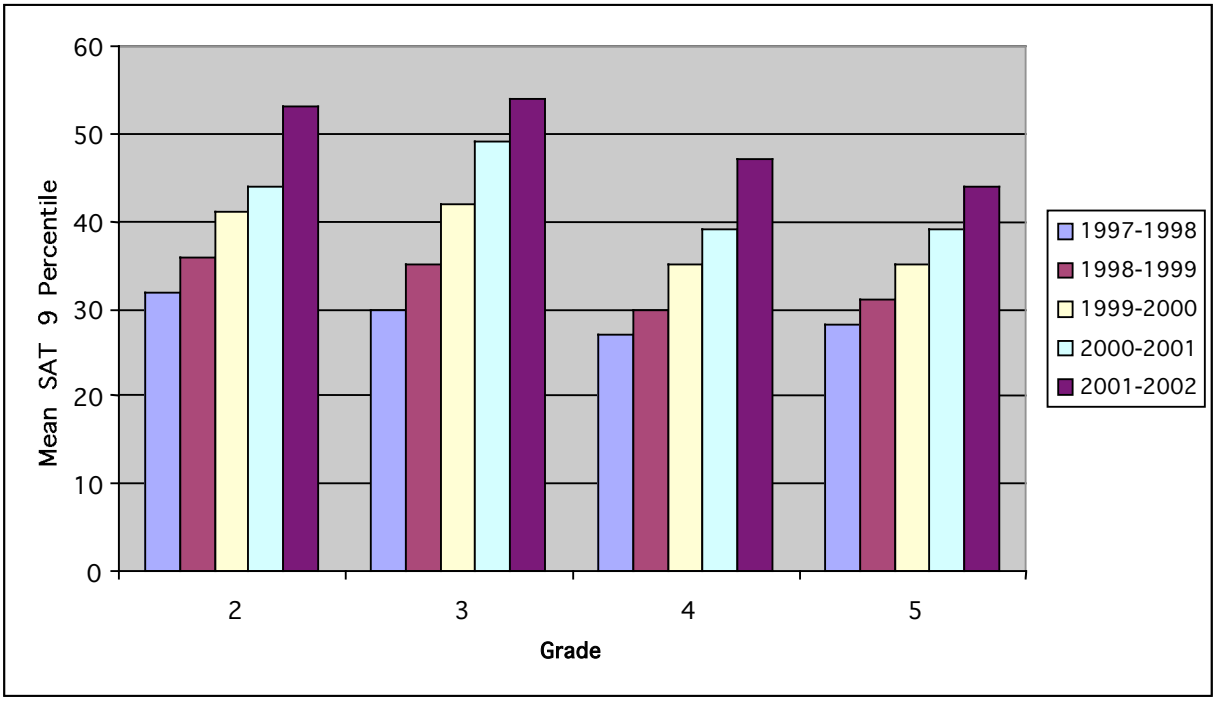

Figure 1: LAUSD SAT-9 Math Scores, 1997-2002

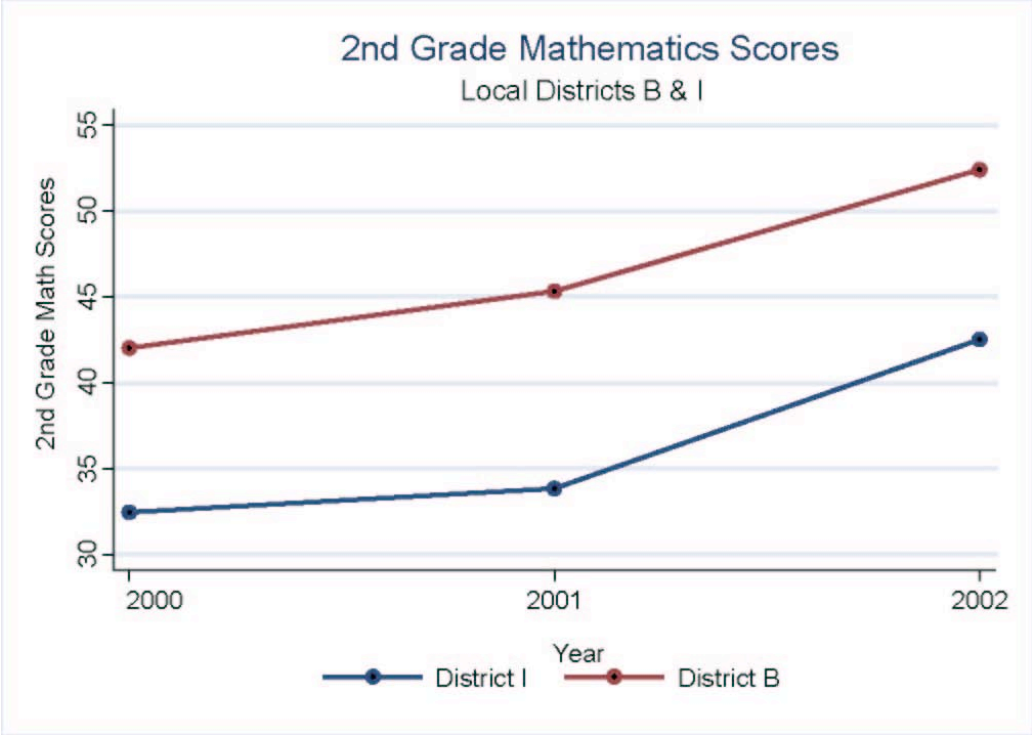

Figure 2: Trends in Second Grade SAT - Scores for Districts B and I

The tables and analysis that follow demonstrate that there is a statistically significant change over time (test of the linear trend) and that while the District B performed uniformly better than District I in all years, the changes in the districts are parallel across the three time points (no significant interaction between Year and District).

Table 5: 2nd Grade Mathematics Scores in Districts B & I

Year	District	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
2000	District I	32.45	2.32	27.82	37.08
	District B	42.00	2.10	37.82	46.18
2001	District I	33.84	1.96	29.93	37.75
	District B	45.32	1.77	41.78	48.85
2002	District I	42.52	1.82	38.89	46.14
	District B	52.42	1.64	49.15	55.70

Table 6: Multivariate Tests

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Wilks' Lambda	.043	486.55(a)	3.00	65.00	.000
District	Wilks' Lambda	.768	6.53(a)	3.00	65.00	.001

a = Exact statistic

Table 7: Test of Linear Trend across Years

Source	Sum of Squares	df	Mean Square	F	Sig.
Linear Contrast	7264.69	1	7264.69	64.16	.000
Error	7699.30	68	113.23		

E. Summary

All of the results point to both students and teachers being positively impacted from the LUCIMATH professional development. With teachers' obtaining additional skills, knowledge and abilities in the realm of teaching math, students SAT-9 scores have increased. This is a positive indicator that teachers are able to better teach the material to

students when they themselves can better understand the rationale for the material being taught.

School-University Partnership – District I

I. Description of Services

A. Program Objectives

A School-University Partnership between District I and UCLA Center X was established during Fall 2001 with an emphasis on supporting content literacy. The partnership brings together District I teachers, administrators, parent leaders, and Center X professional developers, teacher educators and teachers. The partnership focuses on content literacy, standards based instruction, and instructional leadership through on-going professional development and coaching. Thus, the overall goal is to develop a collaborative relationship with secondary teachers in District I where together we engage in content literacy-focused professional development as a part of teachers' ongoing work in a way that impacts the literacy achievement of their students.

B. Program Logic

As a part of the Center X- District I partnership, UCLA Subject Matter coaches are paired with Locke, Jordan and Fremont High Schools so that the English, Math, Social Studies and Science departments at each site have ongoing professional development support. In addition, content professional developers work with teachers outside their classrooms one day a month on content literacy. All professional development occurs at the school site and is specific to the needs of the teachers in a given content area at a specific site. In

addition, each content area at each school has designated a Cadre Leader responsible for leading and supporting their colleagues in their respective department with content literacy. Cadre leaders and Center X coaches work closely together to ensure that the needs of teachers are met by providing expertise with content and literacy and the resources to support their work. Center X coaches and cadre leaders meet once a month (rotating school sites for meetings) to examine student work and instructional practices discussing the challenges and successes they have encountered throughout the previous month.

This partnership focuses on developing literacy across the content domains. Together we have agreed to create a common focus and language around the teaching and learning of literacy, where literacy skills are developed throughout the students' academic school day. Judith Langer in the article "Beating the Odds: Teaching Middle and High School Students to Read and Write Well" emphasizes the necessity of literacy throughout the academic disciplines. Langer states, "Overall, higher performing schools seemed to focus on students' overall literacy learning, using the tests to be certain the skills and knowledge that are tested are related to and being learned within the framework of improved language arts instruction. They regarded tests as one of many literacy activities students needed to learn to do well, and believed that the underlying skills and knowledge required to do well on tests were related to the underlying skills and knowledge needed to do well in coursework, thus needing to be encompassed within the ongoing curriculum" (p. 863). This research has guided the partnership between Center X and District I.

With Langer's points as background, a critical component of the professional development in District I has been developing standards-based instruction and performance assessments. On January 16, 2002, at Jordan High School, Maryann Nielsen of the UCLA History-Geography Project presented information that distinguished standards-based instruction from traditional instruction. In the traditional classroom, a teacher conducts the following steps:

- Design curriculum
- Plan instruction
- Teach
- Design the test
- Test the students

In transitioning to a standards-based classroom, the following is stressed to enhance content literacy:

- Focus is on student work
- Based on the premise that all students can learn
- Performance-based results
- Use of rubrics to guide assessment
- Use of assessments as prescriptive and diagnostic tools
- Continuous feedback
- Measure progress
- Communication with students, parents and the community

When the above is kept in mind, the standards-based classroom has the following components:

- Write content standards
- Design assessment
- Establish performance levels
- Design curriculum
- Plan instruction
- Teach
- Assess student learning
- Evaluate the process

Teachers participating in the professional development sessions worked with coaches to develop literacy strategies, such as "Vocabulary as a Habit of Mind," for adaptation in their classrooms. Throughout the professional development sessions and classroom coaching, the literacy strategies help teachers reflect upon the lesson and revise it so that it meets the standards and increases student understanding and achievement.

II. Program Evaluation

A. Evaluation Questions

We set out to understand and answer the following questions:

1. Could we successfully work with all Mathematics, Science, Social Studies and English teachers at Locke, Jordan and Fremont over an extended period of time where professional development occurred during the work-day?

2. Do teachers use the content literacy strategies in their classrooms?
3. Does participating in focused professional development on content literacy strategies impact the literacy achievement of the students?

B. Operationalization

Teacher participation. One significant question is whether we could sustain teacher participation in the professional development if it were held during the school day rather than after school or on Saturdays. We were looking for all teachers to participate as a part of their schoolwork, to include all teachers in each content domain not only those who would volunteer. We knew we would need to make the work worthwhile if we wanted teachers to continue to participate. We tracked the extent to which attendance at the professional development sessions overtime was sustained. We tracked the number of teachers by department who participated.

We were also interested in what teachers perceived they were taking away from the professional development. Our hypotheses was that if teachers saw the professional development as useful and linked to their classroom practices they would continue to participate, welcome the coaches into their classrooms, and learn more about literacy through their work with their students. At the end of each professional development session we asked teachers three open-ended questions as a reflection. The questions were administered to get the teachers to make explicit their thinking around the professional development. We asked the same questions each session but did not discuss the responses as a part of the professional development. These responses were open ended

and allowed the teachers to report what they felt comfortable with, without our lead. We took the teacher responses from one random fall session and one spring session, again from Locke High School, from each content area. We coded the responses looking for teachers' specific comments about the strategies they were learning from the professional development and trying in their classrooms. We did not ask for any specifically but looked to see what the teachers felt they learned. We tracked the percent of specific strategies in the following categories: (1) literacy strategies, (2) rubric/standards based strategies, (3) other specific strategies. Here the teachers had to give a particular example of a strategy for it to be coded in one of these strategies. Saying they learned about literacy strategies in the session would not have been coded here. They would have to name a particular literacy strategy. In the other strategy category, some teachers mentioned other strategies they learned that were about things like making use of students' prior knowledge.

Literacy strategies. To learn about the extent to which teachers were making use of literacy strategies in their classrooms we asked the teachers to rate the teachers at the beginning of our work together and then again at the end of the 2002 school year. The teachers ranked all of the teachers that they coached (spent time with outside of professional development on an ongoing basis). They coded each teacher's strategy use on a four point rubric:

1: Not using any literacy strategies

2: Implementing one literacy strategy occasionally

3: Implementing one (or more) regularly

4: Regularly implementing/integrating literacy strategies

In addition to the ratings, the coaches were asked to justify the rubric codes they assigned to each teacher. These were completed in relation to any change occurring. We used the justifications to make sure the coaches were using the rubric in the same way (interpreting the rating levels in similar ways) and to get a sense a more qualitative sense of what was happening in teachers using of the strategies. We report both the ratings and a representative sample of the justifications.

Student achievement. Because the focus of our District I work was on content literacy, we looked at data connected to the literacy achievement of students. The California High School Exit Exam specifically assesses the literacy skills of students and is administered to all students in each of the LAUSD High Schools. We felt this test would be the best indicator of the impact of our work and the teachers work as it is developed by an outside group and seen as a valid measure administered district wide. The test does not match exactly our work with teachers but it does measure the core ideas. In examining the literacy scores we drew on the districts' analyses of the data in looking at patterns over time.

C. Design

The UCLA-District I Literacy Partnership focuses on developing literacy across the content domains. A unique aspect of the partnership is that the professional development

sessions take place during the work-day rather then after school or on Saturdays. Teachers are subbed out of classes monthly to participate in professional development around literacy strategies and standards based instruction. In creating the design for our evaluation we had to take into account the extent to which teachers continued to participate, the implementation of the literacy strategies into instructional practice and the impact this work had on student achievement as well as school culture. We tracked teacher participation by sign in sheets at every session. We collected data from coaches who observed regularly in classrooms in order to track change in classroom practice. Because of the focus on literacy across content areas, we used student test results from the English Language Arts section of the California High School Exit Exam to be able to track impact on literacy achievement of students.

III. Measurement of Program Outcomes and Implementation

A. Intended Program Outcomes

- Sustain teacher participation in professional development during the work-day over extended period of time
- Increase use of content literacy strategies in classrooms
- Positively impact student achievement in literacy

B. Measures

- Professional development attendance records
- Professional development reflection sheets
- Literacy strategy rubric ratings and justifications

- CAHSEE in literacy 2001-2003

C. Implementation

A number of structures have been put in place to support the development of the partnership work in District I.

- Regular meetings with the Local Superintendent and district leadership
- Regular meetings with professional developers, teachers and district leadership
- Regular meetings with teachers during their work day
- Regular informal interactions with teachers
- Regular meetings with Center X staff around the work

The California Subject Matter Projects (CSMPs) play a significant role in working with teachers and administrators to strengthen curriculum, deepen teacher content knowledge, improve instructional strategies, understand student learning and create a college going culture. The CSMPs customize professional development activities that support the district's objectives. District I has identified literacy as a major area of focus for the professional development work with teachers. Teachers are released from the classroom twice a month to participate in inquiry groups around literacy as it is embedded in all content instruction. CSMP Directors and teacher leaders facilitate these groups, as well as provide coaching and other classroom support. CSMPs also include District I teachers in their leadership development projects and CPDI programs in mathematics, writing and reading. Working with teachers in these ways strengthen opportunities for academic success for the students.

IV. Results

A. Teacher Participation

To begin our analyses we tracked the number of teachers who participated in the all-day professional development monthly focusing on literacy strategies and standards. What we found in tracking this data was that the number of teachers participating remained consistent over time (see Table 8). We saw a decline from 14 to 8 teachers participating in science professional development at Locke. This was due to the fact that the school administration did not want to have the entire science department subbed out at the same time because the science classes are all located together. Too many substitutes at one time changed the day to day culture of the school and created problems. Half the department was subbed out at one time. This was also the case in our April meetings at Fremont where only one track at a time was subbed out. However, throughout the year teachers consistently participated.

What is notable in the data shared about participation over time in the different schools is the number of professional development sessions cancelled. These sessions, in every case, were cancelled on the school end, not on the UCLA end. These sessions were cancelled often for very appropriate reasons, due to violence in the school community and not wanting too many teachers out of the classroom and so on. The canceling of professional development is one of the ways that working within schools, especially schools struggling to meet the needs of low income students of color, becomes so difficult. Yet, even though meetings were cancelled we did not lose teachers along the way. We were able to keep the teachers coming even though meetings were missed.

This is not usual. Typically when teachers missed a session, they often feel they should not come back.

Table 8: Teacher Participation in UCLA Literacy Professional Development by High School and Content Area

Date	Number of Teachers			
	Language Arts	Mathematics	Social Studies	Science
Locke HS				
October	22	C	16	14
November	C	17	17	14
December	23	13	C	C
January	C	11	C	8
February	C		13	8
March	19	17	13	C
April	C	C	16	C
Jordan				
October	22	20	12	14
November	25	12	16	13
December	21	19	13	C
January	NS	NS	NS	12
February	18	17	16	14
March	C	17	13	13
April	20	14	13	14
Fremont				
July	32	22	19	14
August	31	9	19	18
September	17	21	16	16
October	25	17	14	11
November	27	33	13	18
December	12	14	16	15
January	29	10	15	C
February	30	20	16	16
March	NS	26	17	NS
April	14	10	8	14

C = cancelled; NS = not scheduled

Beyond continued participation we also examined what specific strategies teachers self-reported they learned from the professional development. We do not use this to indicate the strategies used, but rather as a way to indicate that the teachers were acquiring some

knowledge and skill from the literacy professional development we provided. We report the percent of teachers specifying specific strategies on the open-ended reflection sheets given at the end of each professional development session. The teachers could have reported none as they were not asked to offer strategies but were asked what they were taking away from the professional development. Table 9 shows the teachers' responses from the fall and the spring of 2003.

Table 9: Percent of Teachers Specifying Learning Specific Strategies for Supporting Literacy in their Classrooms from 2001 to 2003

	November 2001 N = 86	April 2002 N = 126	April 2003 N = 112
Literacy Strategies	60	25	30
Standards	0	29	15
Other	40	37	47
No Response	0	10	8

The data shows that only 10% or fewer teachers did not voluntarily share a specific strategy that they learned in the professional development to support their teaching. The majority of teachers at each of the three points in time were reporting learning strategies. It is worth noting the patterns in what teachers reported over time. The patterns reflect some of the changes in the focus of our work with teachers. In the initial year of work we focused much of our professional development on literacy strategies as they could be used within content domains. Often in these cases a literacy expert was paired with a content expert. This is also the point in our teacher responses where we see the largest percent of teachers reporting learning literacy strategies (60% verses 25% and 30%). In our second year of work the district was working with teachers to use standards-based teaching and we adapted our work to include the development of these ideas in relation to the use of literacy strategies and so you see teachers in April 2002 reporting learning some standards-based strategies and this continues the following year but to a lesser

extent. We continued throughout the years to have teachers share strategies that they learned that did not fall cleanly into literacy strategies or standards-based strategies but were often related. We had teachers share that they learned strategies such as using students' prior knowledge, teacher collaboration, or using Lesson Study approaches. Overall we found that this teacher self report of strategies learned showed that teachers were learning some specific classroom based skills through our professional development work.

B. Content Literacy Strategies in the Classroom

We focused our work with the teachers on implementing a set of content literacy strategies and tying those strategies into the standards based lessons they were designing. As a part of the professional development work, the UCLA coaches at each site spent time supporting teachers in their classroom work as they made sense of using these literacy strategies. We asked the coaches to rate the extent teachers used these strategies at the beginning of our work together. We then asked them to rate the teachers at the end of the school year. All coaches rated the teachers from 1 to 4, 1 indicating no evidence of strategy use and 4 consistent use of literacy strategies.

Table 10 presents the results of the coaches' ratings for all of the teachers they visited in their classrooms within their content domain. Remember because our focus was on literacy in the content areas we focused our classroom observations on the use of literacy strategies during teachers' classroom practice and not on other aspects of teaching. We report these findings from Locke High School. We are presenting the data consistently for Locke so that we can see the patterns across types of data. On average the teachers

used more literacy strategies at the end of the year than they did at the beginning of the project. Note that not all teachers changed in their use of the strategies but this was not typical. For example, 11 of the 13 Locke mathematics teachers increased in the coaches ratings of their literacy strategy use. The same pattern holds across the domains of Science, Social Studies and English.

Table 10: Ratings of Teachers' Use of Literacy Strategies from First Visit to Last of the School Year

Mathematics Department:
Implementation of Literacy Strategies

Teacher	First Visit	End of School Year
01	1	3
02	1	2
03	1	3
04	1	4
05	1	2
06	1	2
07	1	1
08	1	3
09	1	1
10	1	3
11	1	2
12	1	2
13	1	2

II. Social Studies Department
Implementation of Literacy Strategies

Teacher	First Visit	End of School Year
A	2	3
B	2	2
C	3	4
D	2	3
E	1	1
F	1	1
G	2	2
H	1	2

III. Science Department

Implementation of Literacy Strategies

Teacher	First Visit	End of School Year
A	2	3
B	3	4
C	3	4
D	2	3
E	1	2
F	2	3
G	2	3
H	2	3
I	2	2
J	NA	NA
K	1	1

IV. Language Arts Department

Implementation of Literacy Strategies

Teacher	First Visit	End of School Year
A	2	4
B	2	3
C	3	4
D	1	2

These numbers are supported by the field notes coaches used to justify their responses. The justifications demonstrate how the teachers were using the strategies, not just that they were using them. In collating this data we chose a representative entry for each coach.

I. Mathematics Coach Justification
Teacher 02 First visit 1 End of school year 4
When I first started meeting with Teacher 02 we spent a lot of time planning for standards-based lessons. As the year progressed and she attended the professional development sessions, Teacher 02 began to use more literacy activities in her classroom. Teacher 02 often created her own activities to get her students to demonstrate their understanding of mathematical definitions, concepts, and procedures. By the end of the school year, Teacher 02 was regularly including reading and writing activities in her classes.
II. Social Studies Coach Justification
Teacher A First visit 2 End of the school year 3
I met Locke Teacher A in October of 2002. At the beginning of the school year, when teachers signed up for classroom visits, this teacher asked me to visit his "best" class- meaning this was

the class with the least management issues and with student that he considered the most academic… I think that he was aware of some of the literacy strategies that we were working on, but I only saw one or two of them being employed in an Advanced Placement class and that was on an occasional basis. I feel that I made a break-through with this teacher on a day that my professional development session was cancelled, and I was asked to do demonstration lessons. Again, I was invited to his "best" class. I proceeded with the lesson for one period, and he was encouraged by what he saw. He taught the same lesson with another period while I watched. It did not go as well and I could tell that he was frustrated by the experience. I offered to try the lesson again with another class. This time we team-taught the lesson. After this day I was a regular participant in many of this teacher's classes. I think that at the end of the year … I saw this teacher more consciously working on vocabulary development with his students. I also saw that he was employing some of the literacy strategies that I had shared with him during our professional development sessions.
III. Science Coach Justification
Teacher D First visit 1 End of the school year 3
Locke Teacher D was a first year teacher. He began the year doing very few literacy strategies. He was working to teach science without having the students read. He admitted that reading and writing is not one of his strengths and therefore did not feel comfortable teaching it. We encouraged him that the very fact that he finds reading and writing challenging is something he can relate to his students to help them open up about the difficulties they face when they read and write. He made a conscientious effort throughout the year to incorporate more literacy strategies. He used Think Alouds, Talking to the Text (text, paraphrase, response) and Say Mean Matter on a regular basis. He was also beginning to use Cornell notes and Graphic Organizers. Teacher D was further supported in his use of literacy strategies by being an AVID teacher and having a strong science department to work with. By the end of the year he was implementing one or more literacy strategies regularly.
IV. Language Arts Coach Justification
Teacher A First visit 2 End of the school year 4
During the year Teacher A worked on developing rubrics for her main classroom assignments. Doing so allowed her to clarify her expectations and concretize them for her students. In addition, Teacher A began to regularly incorporate graphic organizers as scaffolding tools for her students, as well as making double-entry journals a more regular classroom practice as tied to the students' reading. Throughout the year, Teacher A was highly receptive of the various literacy strategies that were introduced during professional development and was willing to try them out as appropriate. During conference period meetings, we worked on lesson planning and had the opportunity to follow-up on the success/challenges that she and her students faced.

The ratings and their justification support the notion that teachers were beginning to use literacy strategies in their teaching. It shows that overall teachers incorporated strategies more consistently as the year progressed. This is not particularly surprising given the focus of the monthly professional development work but it does provide specific data to

support the informal comments we heard from teachers. The one we heard most often was that the English teachers were surprised to see students coming to their classrooms already knowing the literacy strategies they were used to teaching. The coaches' justification also point to some of the work coaches were doing to support teachers in the classrooms. Teachers needed time and support in making sense of these strategies in relation to the particular curriculum they were using.

C. Student Achievement

The California High School Exit Exam Literacy scores as presented by District I and LAUSD show that the percent of District I tenth grade students scoring proficient or advanced increased from 2002 to 2003.

Table 11: District I Tenth Grade Students Scores on the Literacy Portion of the California High School Exit Exam

			Year		Total
			2002	2003	
Student Scores	Proficient or advanced	n	128	220	348
			8.1%	15.8%	11.7%
	Below proficient or advanced	n	1462	1174	2636
			91.9%	84.2%	88.3%
		N	*1590*	*1394*	2984
		Total	53.3%	46.7%	100.0

We tested the difference in passing rate from 2002 to 2003 using the Pearson Chi Square Test and found the difference to be statistically significant ($\chi = 43.1$, $p < .001$). Figure 3 also shows the same pattern when looking within group at the African American and Latino students.

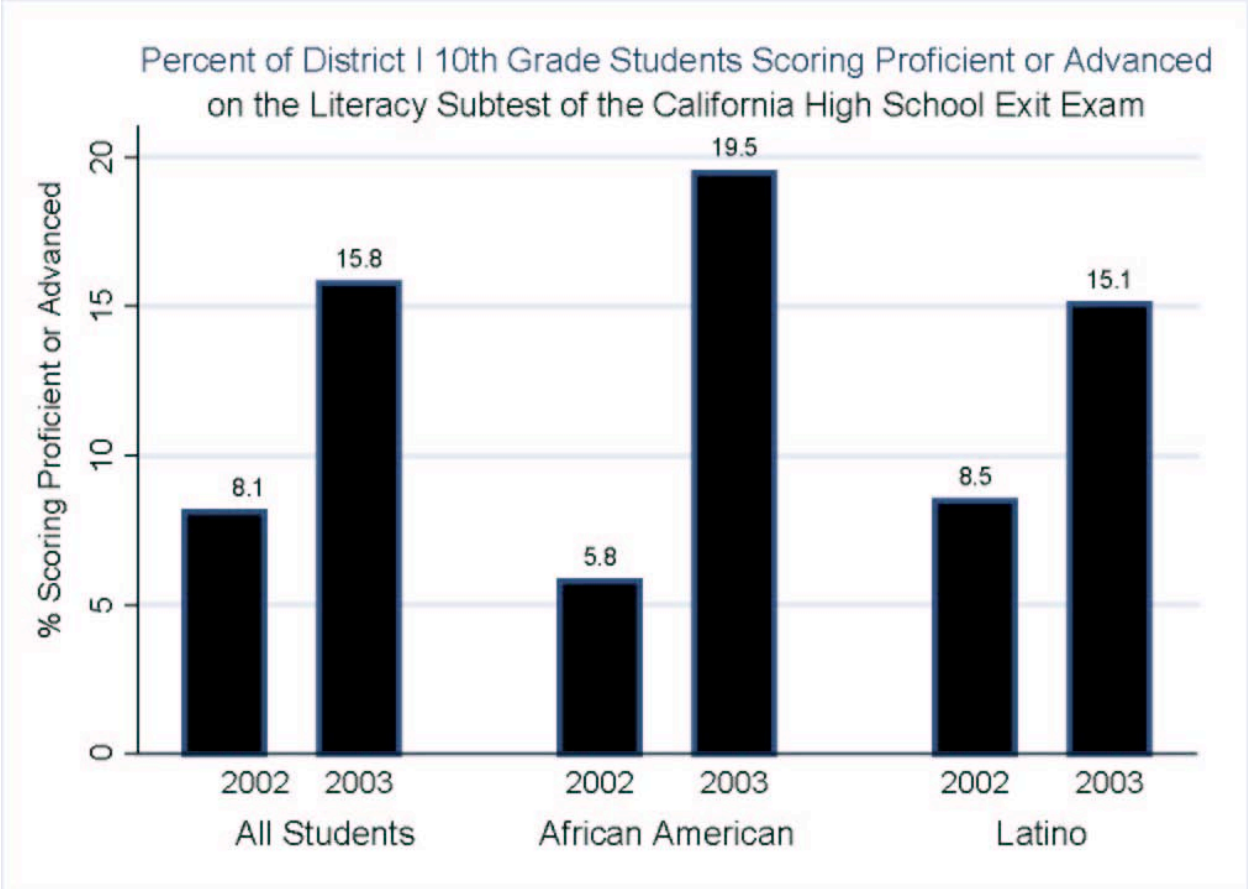

Figure 3: Literacy Scores of District I Tenth Grade students on the High School Exit Exam across 2002 and 2003

For African American students the percent increase in passing went from 5.8% to 19.5% and for Latino students the percent increase was from 8.5% to 15.1%. The District I Tenth Grade results on the literacy portion of the high school exit exam demonstrate that the work around literacy is having an impact on the learning of students.

D. Summary

The results of the evaluation we have shared here show that after a short time line our work has begun to have an impact in District I. We have seen a continued participation by teachers under sometimes very trying circumstances. We see teachers trying the literacy strategies in their classrooms (and we hope to have a continued impact on

increasing their use). We see students passing the CAHSEE at a higher rate than in the past- in literacy only (where we have had our focus).

Yet, it is difficult to share an evaluation of our partnership without presenting the perspectives of the administrative partners in District I with whom we work daily. While we spend a great deal of time making sure we are on the same page in meeting the needs of the teachers and students in District I, we feel we have formed positive relationships with the District that will help support the future of the work. The District does not hesitate to contact us with concerns or needs for support. Because of our presence we can often anticipate challenges to the work and engage with the District to meet the challenges before they lead to additional challenges. Our feedback from the administrators has been that we are making headway; we need to stay the course set by the district and continue to challenge the teachers, students and administrators as they continue to challenge us.

Conclusion

Center X is strongly committed to supporting LAUSD's goal of improving student achievement. Over the years, Center X has worked extensively with LAUSD and other LA County districts designing individualized professional development workshops that positively impact teachers and, in turn, have a positive impact on student achievement. Center X's work is not limited to professional development. Our School-University Partnerships work to change school culture so that all students of color can become high

achievers and go on from their LAUSD high schools to higher education institutions and are UC eligible.

The evaluation report we have presented is meant to capture the essence of the work we have engaged in LAUSD over the past three years and the impact those efforts have had on teachers and students. We have attempted to be careful in the claims that we make about impact while at the same time sharing both quantitatively and qualitatively the teachers' and students' responses to our work. We recognize that our efforts and the results of those efforts are a result of the work of a number of people, not only Center X personnel. We have tried to carefully highlight how we have contributed to the mission, practices and learning of those working with the District. Our goal has been to not do this work without collaborating around the intentions of those in the districts. In both our professional development work we see ourselves as partners with the districts. As partners our data suggests that we have found a way to support the district in their work in ways that impacts teachers, students and district achievement test scores.

We began this report by describing our two types of engagement with LAUSD: our professional development work and our partnership work. We have presented in this report evidence of our work in both of these areas. However, it is important to note again that these endeavors are at very different points in their development. Our partnership work with District I is at the beginning of a longer commitment of work together. The results we shared represent what we have been able to accomplish in a quite short amount of time. The trends that we see in the data along with the feedback we are getting from

the district administrators, teachers and students show that together we are making a difference. We have formed a relationship with District I that is in many ways different than that we have had in the past and that in many ways demonstrates our ongoing commitment to the teachers and students of District I. We plan to submit our next evaluation plan with continued details around the learning occurring in this partnership.

The LUCIMATH project is a strong example of the ongoing efforts by UCLA's Center X to provide an increased knowledge and skill base for LAUSD teachers. The increase in teacher confidence and competence positively impact the individual student, the larger classroom, and the school at large. The thousands of teachers who have been a part of this professional development are only beginning to demonstrate the program's effectiveness. The increase in school SAT-9 scores, at both high-performing and low-performing schools, demonstrates the program effectiveness, along with the high number of teachers who continue to participate in the workshops.

The pre-tests and post-tests of LUCI also convey teachers' increase in knowledge as a result of their participation in the professional development. They are learning how to teach mathematics in a meaningful manner, as the results show the percentage of teachers who answered questions at a higher-reasoning level in the post-test.

The emphasis on content literacy through the partnership between District I and Center X is already demonstrating changes in teachers' attitudes. Teachers in math, science and history-social studies formerly believed content literacy was designated solely for the

language arts teachers. The professional development workshops held over the past year have allowed teachers in these areas to realize the significance of content literacy and how it can produce results in the area of student achievement. District I teachers and UCLA coaches have worked in close collaboration over the past year to implement the professional development, overcoming hostile reactions and strong resistance. As a result, the creation of a college-going culture in the local high schools is starting by positively impacting student achievement on standardized tests.

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