

**Final Report to School, University Partnership Program**

**CAL Reads**

**For Academic Year 2001-2002**

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## **Background**

CAL Reads: Literacy Intervention for Low Achieving Urban Youth. The overall goal of Cal Reads is to increase the literacy achievement of compensatory education intermediate and middle school students. Participating students receiving services through CAL Reads have typically made average gains of two grade levels or more in a number of reading measures. During the academic year 2001-02, CAL Reads served students at two schools within two local districts: Sixth grade students at Lowell Middle School in Oakland Unified School District, and 4<sup>th</sup> and 5<sup>th</sup> grade students at Malcolm X School in Berkeley Unified School District. Over the course of the year 51 total students participated in the program. These students were served by approximately 35 volunteer undergraduate tutors from UCB, and 12 graduate students in the Graduate School of Education at UCB.

The heart of CAL Reads is an individualized tutorial that is tailored to each child's particular needs. Participating students are given a diagnostic assessment battery, and based upon these assessments, lessons are designed to teach these students the range of strategic behaviors that they need to read texts assigned in the school curriculum. Students work with their tutors three times a week for 50 minutes. CAL Reads completed its fifth year of operation at the close of Spring 2002; during the academic year 2001-02 approximately 51 low achieving students in grades 4-6 at two participating schools received CAL Reads' services.

CAL Reads is a collaboration that brings to bear resources from several areas: urban San Francisco Bay Area School Districts, the Graduate School of Education (GSE) at U.C. Berkeley, and AmeriCorps National Service program. The GSE provides expertise in the area of literacy assessment and instruction through the participation of faculty and graduate students. These individuals provide oversight to the program, coordinate scheduling, conduct literacy assessments, plan individualized instructional lessons, coordinate the evaluation and data-gathering associated with research efforts, and provide professional development training to tutors and teachers in the project. Tutors are drawn from the undergraduate population at UCB. The school district and school sites provide a room on-site for the housing of the administrative components of the project, a .4 FTE ("full – time equivalent") at each site to assist in program coordination, and various materials utilized in instruction and administration of the program.

CAL Reads is operationally- defined by five main areas: assessment, instruction, materials, training and administration.

1. Assessment. All students involved in the program complete an assessment battery composed of ten sections drawn from a variety of commercially-available informal reading inventories and commonly-used reading methods textbooks. Components of these informal measures are adapted so as to insure that sufficient information is being collected to identify the strategies that students are employing when approaching text.

The assessment battery contains the following measures: an Interest Inventory (adapted from Ruddell, 1998); Sight-Word Recognition (drawn from Gillet & Temple, 1994); Word Recognition (in isolation) and Word Analysis (both drawn from The Diagnostic Assessment of Reading, Rosewall & Chall, 1992); Echo Reading (drawn from Gillet & Temple, 1996, and used with passages adapted from The Qualitative Reading Inventory, Leslie & Caldwell 1995); and Oral Reading, Silent Reading, Spelling, and Word Meaning (all drawn from Rosewall & Cha ll, 1992).

Assessment measures are administered and interpreted by assessment teams composed of project staff. The teams administer and interpret data, and present it in individual write-ups. Copies of all assessment write-ups are given to the classroom teachers and are discussed in teacher-training sessions. All measures are administered at three points during the academic year: in the fall, winter and spring.

2. Instruction. The instructional component of the intervention is based on a modified Reading Recovery lesson format (Clay, 1993). The tutor's role in these settings is to provide the supportive teaching necessary to 1) develop the student's awareness of the processes employed while reading; 2) help the student develop new strategies for attacking text; and 3) create opportunities for the student to experience success. The lessons are structured such that the attention of the tutor and student is on strategies or operations that lead to successful comprehension.

Each fifty-minute lesson is personalized and prepared by the coordinators. Each is composed of the following activities: 1) check-in (both an opportunity for the student to transition into the lesson and for the tutor to ascertain the student's mood, focus, and attitude at the moment); 2) skill-work (word segmenting and sorting activities or various "word – bank" activities, for example); 3) guided reading (with a focus on the application of word recognition and comprehension strategies); and 4) interactive writing.(with a focus on spelling strategies and basic writing skills). Following each lesson the tutor spends five to ten minutes responding, in writing, to various questions on a "lesson evaluation form."

3. Materials. The materials employed are all drawn from commercially - available leveled reading materials. Care is taken to provide material at students' instructional levels which make a visual impact, attract interest and generally motivate students to engage further in the text. Texts represent a range of subject matters including science, social science, history and literature. Students have opportunities to appraise and then choose the materials employed in the tutorials.

4. Tutor Training. As noted above, the tutors are undergraduate and graduate students from the University of California, Berkeley (UCB). The purpose of training component of the program is to help tutors develop the skills that are required to accelerate their tutees' literacy development. Training sessions are designed and conducted by the project coordinators and are delivered through a credit bearing university course offered by the Graduate School of Education and taught by the Project Coordinator. The course meets once a week for 3 hours, and attendance is a key requirement for passing the course.

Within the course, participating tutors are introduced to the goals of the program, the underlying model of reading employed, the lesson format, activities employed within the lesson, tips for working with middle school students, and the administration of the program. Specific presentations are made covering various approaches to comprehension and word – strategy instruction, and specific issues and questions that tutors might have about their particular tutee. Tutors are asked to bring their questions to the sessions, and considerable time is spent problem-solving and discussing directions for instruction. These discussions give coordinators opportunities to reinforce material presented earlier as well as to provide on-going monitoring of progress, encouragement and support.

Tutors also receive individualized feedback from the CAL Reads coordinators who write the lesson plans for their tutees. After each lesson, the tutor evaluates the session by responding to various questions on a post – lesson feedback form. Coordinators review these comments and in turn respond, both in writing on the subsequent plan and in face-to-face conversations with the tutor. Coordinators also observe tutoring sessions and follow up with verbal feedback to tutors. This on-site training reinforces and extends the course work by linking the broader issues to the specific context of the school and student.

Additional evaluative feedback is gained by examining the written reflections that tutors are asked to complete during the course and tutoring experience. Tutors are asked to reflect on their views of low achieving students, their role in instruction and the nature of the language they employ, the nature of schooling and its impact on students, and the nature of the change in their

own views as they take part in the program.

5. Administration The day to day aspects of the project rest with the site coordinators. For this proposal, the school provided a .5 FTE to cover the coordination of the project. This individual had the responsibility for arranging space and materials, acting as a liaison with teachers, coordinating tutors, maintaining the files, and producing individualized lesson plans. A second coordinator from UC Berkeley, had responsibility for the overall management of the program. This person trained and managed the graduate student researchers (GSR's) who, in turn, had responsibility for conducting assessments, writing three lesson plans a week for each of ten tutoring pairs, training tutors, and meeting with teachers and other project members.

### **Design and Methodology**

*Participants.* Participating students were chosen for inclusion in the program based on a two step process. First, all students in the targeted grade levels who scored two or more years below grade level on the SAT9 were identified at each site. Second, participating students were chosen at random from the overall pool. At Malcolm X, approximately half of the total pool was chosen to participate, and the remaining students were designated as the control group for the purposes of this study. At Lowell, approximately 30 students were chosen from the larger pool of 150 students, and another 30 students were selected to form a control group.

All students involved in the study were given the same assessment battery at three times during the school year: fall, winter and spring. The primary assessment used to determine general grade level gains in reading ability was the Qualitative Reading Inventory. The Qualitative Reading Inventory assesses both oral reading (oral fluency and decoding) and comprehension of level passage. Scores from both oral and silent reading are taken into account when determining an informal reading level (IRL). The highest level of mastery on the Qualitative Reading Inventory determines, in part, their informal reading level. Both comparison and intervention students were administered pre, mid and post assessments. In addition, a range of covariates were collected for all participating students. These variables included status (treatment or control), school, year of birth, gender and ethnicity.

*Key Research Questions.* Five key questions were tested in this report. These key questions are listed below.

1. Question: Are the treatment and control groups comparable?
2. Question: Which set of variables appears to be the most strongly related to gains from pre-post test?
3. Question: Is program participation associated with higher mid assessment scores?
4. Question: Is program participation associated with an increase in IRL scores from time 1 (mid) to time 2 (post)?
5. Question: Is program participation associated with higher post assessment scores?

## **Results**

Question 1: Are the treatment and control groups comparable?

All subsequent analyses are contingent upon the results of the tests associated with question #1. If the groups (treatment and control) are not comparable, the assumptions necessary for employing the regression/ANOVA model will not be met.

A logistic regression was employed to answer the question. The groups appear to be comparable. (see Figure #1). No relationship was found between STATUS (placement in treatment/control group) and SCHOOL, YOB, GENDER, and EHTNICIY (checked all possible reference groups).

**FIGURE 1: Binary Logistic Regression: Test of Comparable Groups**

Link Function: Logit

Response Information

Variable	Value	Count
Status	1	52
	0	40
	Total	92

92 cases were used  
2 cases contained missing values

Logistic Regression Table

Predictor	Coef	StDev	Z	P	Odds Ratio	95% CI	
						Lower	Upper
Constant	0.0848	0.9423	0.09	0.928			
IRL0	-0.0571	0.1286	-0.44	0.657	0.94	0.73	1.22
School	0.0038	0.1498	0.03	0.980	1.00	0.75	1.35
Gender	0.5669	0.4498	1.26	0.208	1.76	0.73	4.26
AA	0.0136	0.6687	0.02	0.984	1.01	0.27	3.76
MidEast	10002	500011	0.02	0.984	*	0.00	*
API	1.487	1.267	1.17	0.241	4.42	0.37	52.98
Other	-1.480	1.335	-1.11	0.267	0.23	0.02	3.11

Log-Likelihood = -57.328

Test that all slopes are zero: G = 11.313, DF = 7, P-Value = 0.125

Question 2: Which set of variables appears to be the most strongly related to IRL2 (Total IRL from post test)?

A best subsets regression was used to address this question. (see Figure #2). Results indicate that IRL0 (Total IRL from pre test) and STATUS are the two most strongly related variables. The fact that IRL0 came up is expected; the fact that STATUS came up is encouraging. This is exploratory, just to get a handle on what to expect with the other regression models.



### Figure 3: Regression Analysis

The regression equation is

$$\text{IRL1} = - 1.0 + 0.903 \text{ Status} + 0.874 \text{ IRL0} + 0.136 \text{ School} + 0.011 \text{ YOB} \\ - 0.115 \text{ Gender} + 0.385 \text{ AA} - 0.711 \text{ MidEast} + 1.03 \text{ API} + 0.063 \text{ Other}$$

65 cases used 29 cases contain missing values

Predictor	Coef	StDev	T	P	VIF
Constant	-0.96	22.05	-0.04	0.965	
Status	0.9032	0.3514	2.57	0.013	1.2
IRL0	0.87417	0.09753	8.96	0.000	1.2
School	0.1362	0.1553	0.88	0.384	2.2
YOB	0.0111	0.2404	0.05	0.963	2.0
Gender	-0.1154	0.3292	-0.35	0.727	1.1
AA	0.3850	0.4986	0.77	0.443	2.0
MidEast	-0.7108	0.9181	-0.77	0.442	1.5
API	1.0300	0.8109	1.27	0.209	1.5
Other	0.0625	0.9428	0.07	0.947	1.6

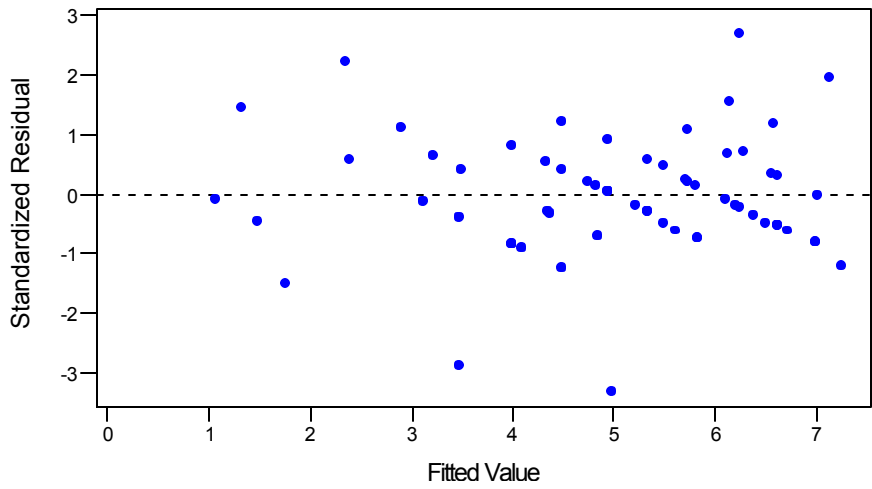
S = 1.275      R-Sq = 62.5%      R-Sq(adj) = 56.4%

#### Analysis of Variance

Source	DF	SS	MS	F	P
Regression	9	148.950	16.550	10.18	0.000
Error	55	89.412	1.626		
Total	64	238.362			

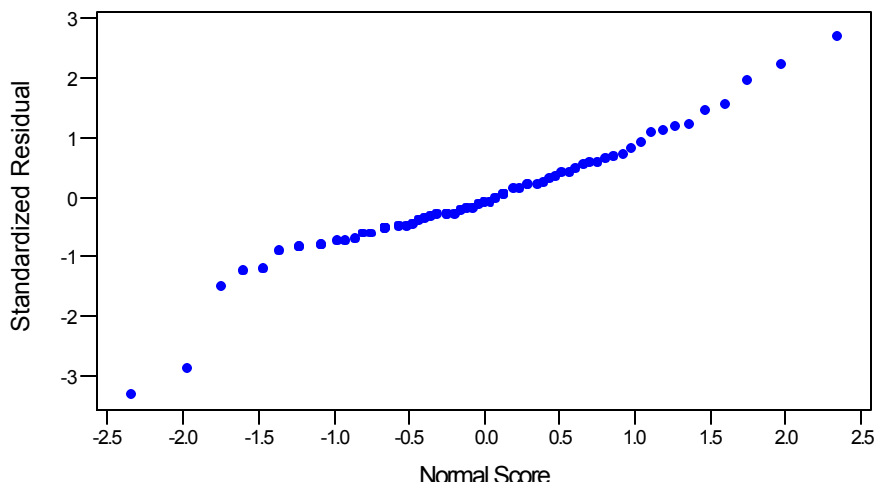
### Residuals Versus the Fitted Values

(response is IRL.1)



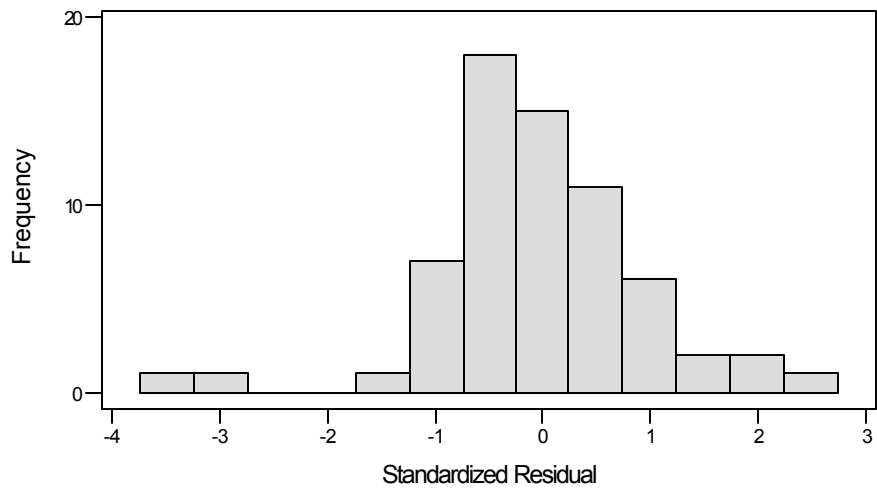
### Normal Probability Plot of the Residuals

(response is IRL.1)



### Histogram of the Residuals

(response is IRL.1)



Question #4: Is program participation associated with an increase in IRL scores from time 1 (mid) to time 2 (post)?

Again the answer appears to be yes. (see Figure #4). Students exhibited a similar gain from mid to post (0.83 points on the IRL) holding the other variables constant. Again, SCHOOL, YOB, GENDER, and ETHNICITY were not significant. The same two strong caveats apply to this model as the previous model.

### Figure 4: Regression Analysis

The regression equation is

$$\text{IRL2} = -13.2 + 0.833 \text{ Status} + 0.772 \text{ IRL1} + 0.090 \text{ School} + 0.160 \text{ YOB} \\ + 0.211 \text{ Gender} + 0.243 \text{ AA} - 0.10 \text{ MidEast} - 0.287 \text{ API} + 0.689 \text{ Other}$$

63 cases used 31 cases contain missing values

Predictor	Coef	StDev	T	P	VIF
Constant	-13.16	22.47	-0.59	0.561	
Status	0.8325	0.3517	2.37	0.022	1.2
IRL1	0.77168	0.08389	9.20	0.000	1.1
School	0.0901	0.1525	0.59	0.557	2.1
YOB	0.1597	0.2454	0.65	0.518	2.1
Gender	0.2109	0.3278	0.64	0.523	1.1
AA	0.2429	0.4872	0.50	0.620	1.9
MidEast	-0.099	1.052	-0.09	0.925	1.4
API	-0.2867	0.7884	-0.36	0.718	1.5
Other	0.6887	0.9071	0.76	0.451	1.5

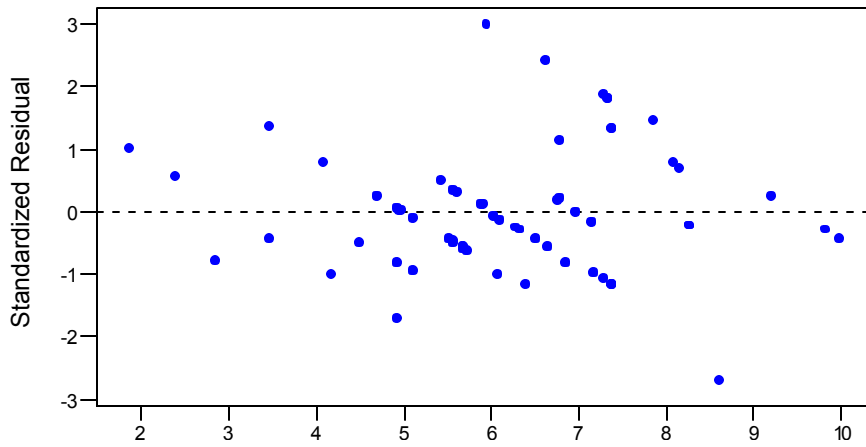
S = 1.239      R-Sq = 66.9%      R-Sq(adj) = 61.3%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	9	164.378	18.264	11.90	0.000
Error	53	81.336	1.535		
Total	62	245.714			

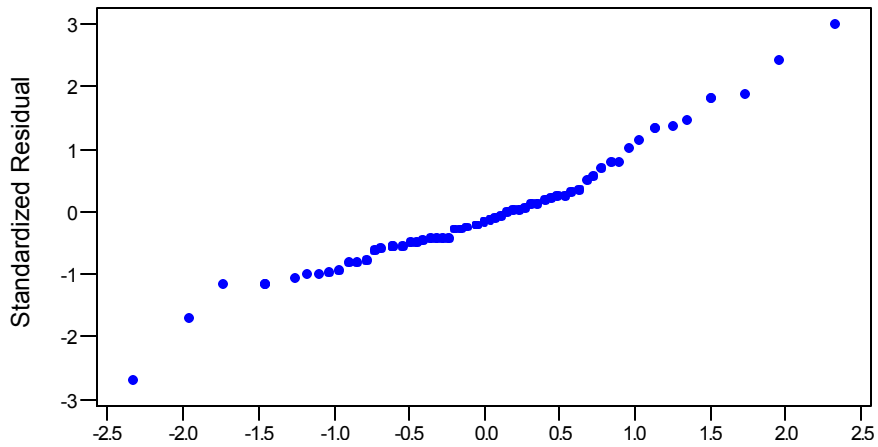
Residuals Versus the Fitted Values

(response is IRL2)



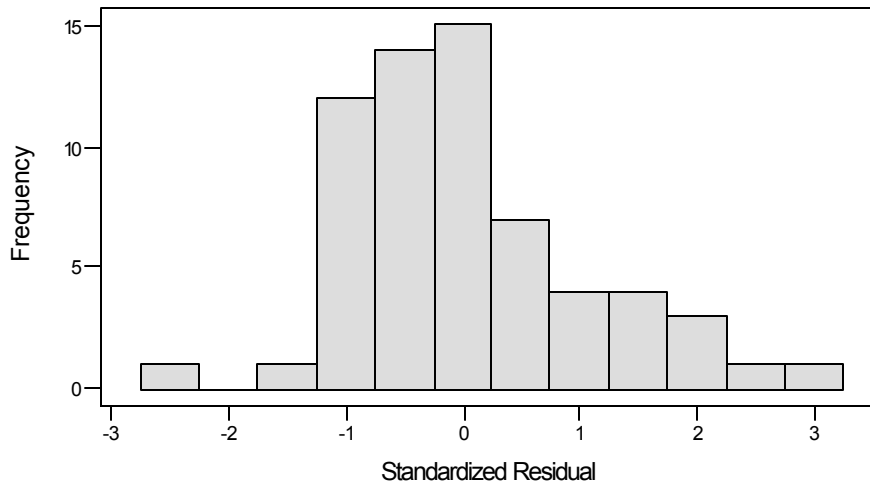
Normal Probability Plot of the Residuals

(response is IRL2)



Histogram of the Residuals

(response is IRL2)



Question #5: Is program participation associated with higher post assessment scores?

This is the key question for the analysis: Are students better off for having participated in the program? Again the answer appears to be yes. (see Figure #5). Participants scored 1.72 points higher on the post test than non-participants, holding all the other variables in the model constant. This is very large program effect -- a year and three-quarters reading gain in less than a school year. And given that randomization looks good (at least with an initial test), the data support the causal claim that this effect is due to the students participation in the program.

Again, SCHOOL, YOB, GENDER, and ETHNICITY were not significant. And, the caveats mentioned in previous tests are toned down a bit for this model. First, the residual plots look much better. There is a slight positive skew, but that could be adjusted for pretty easily. And there are a few outliers (students who improved a much more/less than expected) that are perhaps of interest for qualitative follow up. Second, the model is based on 80 of the 94 cases. 80 out of 94 cases provide a much better starting place than 65 or 63 out of 94.

### Figure 5: Regression Analysis

The regression equation is

$$\text{IRL2} = -1.4 + 1.72 \text{ Status} + 0.723 \text{ IRL0} + 0.189 \text{ School} + 0.030 \text{ YOB} \\ - 0.076 \text{ Gender} + 0.226 \text{ AA} - 0.832 \text{ MidEast} + 0.382 \text{ API} + 0.463 \text{ Other}$$

80 cases used 14 cases contain missing values

Predictor	Coef	StDev	T	P	VIF
Constant	-1.45	23.22	-0.06	0.950	
Status	1.7218	0.3280	5.25	0.000	1.1
IRL0	0.72294	0.09291	7.78	0.000	1.2
School	0.1893	0.1554	1.22	0.227	2.3
YOB	0.0298	0.2527	0.12	0.906	2.3
Gender	-0.0763	0.3187	-0.24	0.811	1.1
AA	0.2256	0.4963	0.45	0.651	2.0
MidEast	-0.8320	0.9617	-0.87	0.390	1.4
API	0.3822	0.7787	0.49	0.625	1.5
Other	0.4630	0.8798	0.53	0.600	1.6

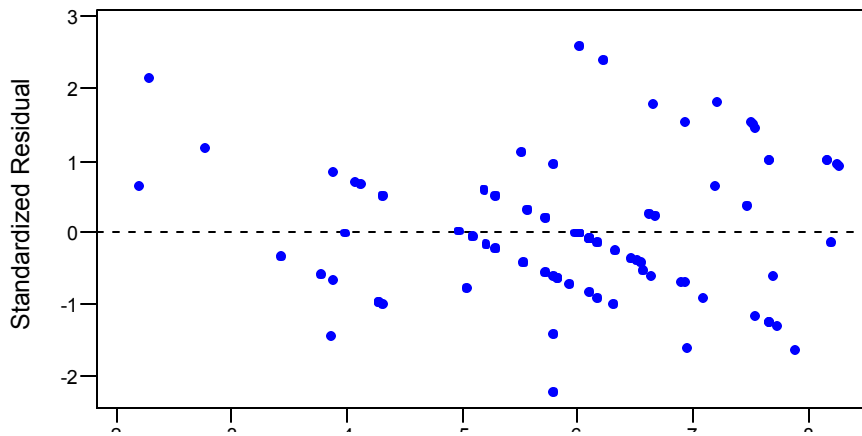
S = 1.375      R-Sq = 55.2%      R-Sq(adj) = 49.4%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	9	162.888	18.099	9.58	0.000
Error	70	132.284	1.890		
Total	79	295.172			

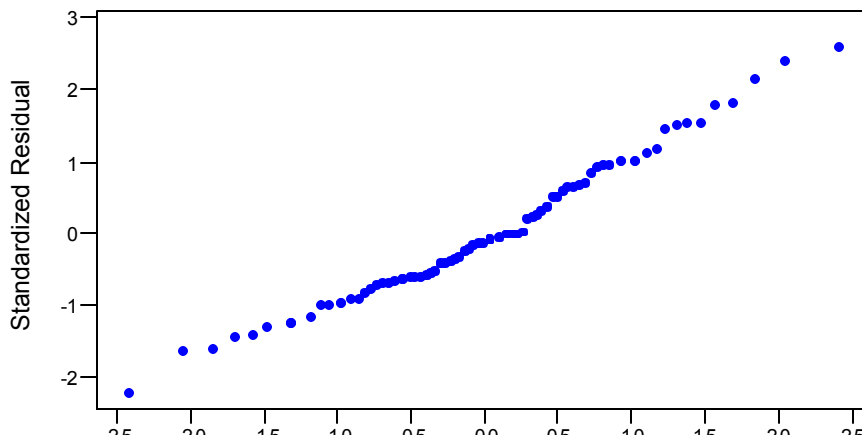
Residuals Versus the Fitted Values

(response is IRL2)



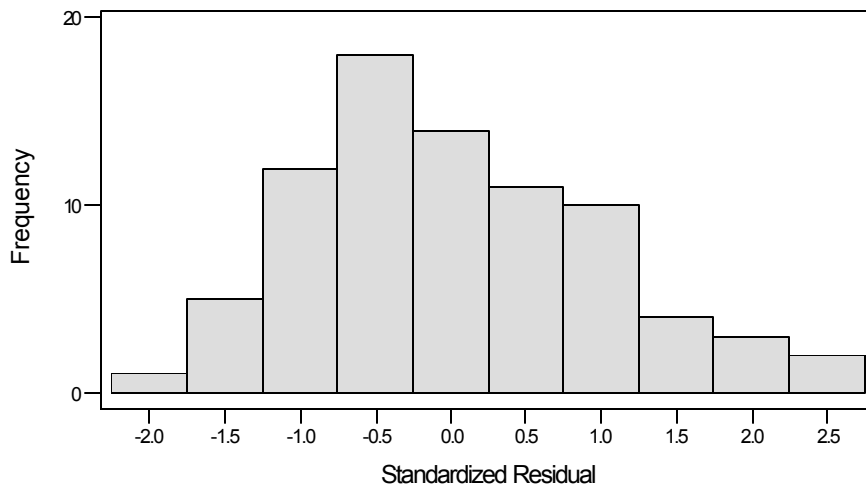
Normal Probability Plot of the Residuals

(response is IRL2)



Histogram of the Residuals

(response is IRL2)



## **Discussion**

Results of the regression/ANOVA analyses suggest that the program had a significant effect on the reading ability of students who took part in the program. The finding that students in the program scored, on average, 1.84 and 3.0 grade levels higher at the end of instruction ( for Malcom X Elementary and Lowell Middle schools respectively) than students who were not in the program ( 0.5 grade gain for both control groups), suggests that the program had a powerful impact on participating students. Further, this effect held even when other covariates such as ethnicity, date of birth, and school were considered. In other words it appears that the program is effective both for elementary students and middle school students regardless of their ethnicity.

This finding is consistent with results from previous analyses of CAL Reads. Over the course of the last five years we have been able to show that low achieving students, when given individualized strategy based instruction can make significant gains in reading – even though instruction occurs twice a week for 50 minutes and is conducted by undergraduate volunteer tutors. There are two key issues that are implicit in this finding that must be acknowledged, even though they were not the focus of this report.

The instruction that tutors provided to these low achieving students was supported by two very key components of the program. First, the tutors were involved in a semester long training course taught by members of the CAL Reads team. In this course, tutors were introduced to the nature of the reading process, their role in instruction, and attuned to the key dimensions of the program that are designed to foster independent strategic reading. These issues were addressed via video-taped analysis of instruction, activities, and simulations in class. In addition to the issues addressed in the course, tutors received specific on-site training from CAL Reads staff. Tutors were supported on-site with assistance adjusting and adapting instruction (is the text too hard?), changing their focus and language employed (what are you asking your student to attend to?), and building interest and motivation for students. The focused and specific nature of the training is a key element in the success of the program.

The second key dimension of the program that must be acknowledged is the role that the Graduate Student Researchers (GSRs) played in the implementation of the program. As mentioned, tutors were not asked to conduct assessments, write lesson plans or in other ways

carry the responsibility associated with planning for instruction. These tasks and responsibilities fell to the GSRs. As former teachers and reading specialists in training, these individuals were key to the effective implementation of the program. Their contribution cannot be underestimated. In effect, these GSRs were the tutors for the tutors, and such a design make sense given the model of learning implicit in the program (tutors provide scaffolding and support as students learn to read. GSRs play the same role for the tutors).

CAL Reads is based on the belief that professional development in reading (for whatever constituent group – tutors, teachers, specialists, administrators) must be anchored upon direct interaction and work with students. The knowledge that tutors and GSRs take away from their experience with CAL Reads (and I believe that this knowledge is considerable) is directly related to the fact that we did not just TALK about reading (the normal course of events for professional development), we TAUGHT real kids with real problems how to be strategic readers.

## **Collaborators**

### 1. Graduate School of Education

Provides structure, graduate students, and training course for tutors. CAL Reads is also housed in the GSE.

### 2. AmeriCorps

Provided each site with two AmeriCorps members who recruited tutors, managed tutor attendance and tutor appreciation. Each AmeriCorps member also tutored one student each. AmeriCorps also organized an event called “Cubs for a Day” for tutors and tutees.

### 3. America Reads

Provided work study tutors.

### 4. Lowell Middle School (OUSD) and Malcolm X Elementary School (BUSD)

Provided space, materials and supplies on site, support from teachers, and .4FTE who assisted in the coordination of the program and acted as a liaison between UC Berkeley and the school.

### 5. Patten College

Provided undergraduate tutors who were pursuing a career in teaching. Tutors participated in training course and received credit for it at Patten College.

**CAL Reads  
Malcolm X Elementary School  
Participants  
2001-2002**

Name	OUSE ID	Grade	Gender	Ethnicity	Date of Birth	WR-Pre	WR-Post	Gain	WM-Pre	WM-Post	Gain	Overall IRL-Pre	Overall IRL-Post	Gain
XXXXXXXX		4	2	1	51692	1	2	1	1	3	2	2	3	1
XXXXXXXX		5	1	1	1991	4	5	1	1	4	3	4	7	3
XXXXXXXX		5	1	6	111691	2	2	0	4	4	0	4	4	0
XXXXXXXX		4	2	5	103191	5	7	2	2	2	0	1	4	3
XXXXXXXX		4	2	5	1292	4	7	3	3	4	1	3	6	3
XXXXXXXX		5	1	1	12591	4	7	3	3	4	1	4	4	0
XXXXXXXX		4	2	1	82091	2	2	0	2	3	1	-1	3	4
XXXXXXXX		5	1	1	1191	5	8	3	3	5	2	4	7	3
XXXXXXXX		5	1	1	63090	3	4	1	2	4	2	3	4	1
XXXXXXXX		4	2	1	12992	2	3	1	1	2	1	-2	1	3
XXXXXXXX		5	2	4	11590	5	5	0	3	3	0	4	4	0
XXXXXXXX		5	1	2		2	3	1	1	2	1	-1	3	4
XXXXXXXX		5	1	5	10991	6	7	1	3	3	0	3	4	1
XXXXXXXX		5	1	1	11391	3	5	2	3	4	1	4	4	0
XXXXXXXX		4	1	1	2892	3	4	1	3	5	2	1	5	4
XXXXXXXX		5	1	1	2891	5	7	2	4	4	0	3	7	4
XXXXXXXX		4	1	4	31892	2	5	3	1	3	2	1		
XXXXXXXX		5	1	1	62091	3	5	2	3	3	0	4	4	0
XXXXXXXX		4	1	1	101392	3	4	1	1	1	0	-1	3	4
XXXXXXXX		5	1	2	123190	4	5	1	3	3	0	3	5	2
XXXXXXXX		5	2	1	4490	1	3	2	2	4	2	1	3	2
XXXXXXXX		5	1	1	61991	4	6	2	3	4	1	3	4	1
XXXXXXXX		5	2	1	21891	3	4	1	4	5	1	4	4	0
XXXXXXXX		5	1	1	22690	2	3	1	2	2	0	2	3	1
XXXXXXXX		5	1	4	41190	2	3	1	2	2	0	4	4	0
XXXXXXXX		5	2	1	103089	3	5	2	3	5	2	3	3	0
<b>AVERAGE GAIN</b>								<b>1.5</b>			<b>1.0</b>			<b>1.8</b>

**CAL Reads  
LOWELL MIDDLE SCHOOL  
Participants  
2001-2002**

Name	OUSE ID	Grade	Gender	Ethnicity	Date of Birth	WR-Pre	WR-Post	Gain	WM-Pre	WM-Post	Gain	Overall IRL-Pre	Overall IRL-Post	Gain
XXXXXXXX		6	1	4	121389	1			1			-2		
XXXXXXXX		6	1	1	10191	5			1			3		
XXXXXXXX		6	2	1	32090	1.5			4			3		
XXXXXXXX		6	1	1	72590	5	5	0	5	5	0	4	6	2
XXXXXXXX		6	2	1	70190	3	3	0	3	3	0	1	4	3
XXXXXXXX		6	2	1	51790	2	2	0	2	2	0	1	4	3
XXXXXXXX		6	1	1	52789	4	7	3	5	5	0	4	7.5	3.5
XXXXXXXX		6	1	1	71690	6			4			4		
XXXXXXXX		6	2	1	32290	4	6	2	5	5	0	3	7.5	4.5
XXXXXXXX		6	1	1	82890	2	3	1	4	4	0	1	7.5	6.5
XXXXXXXX		6	1	2	20889	7	11.5	4.5	1	3	2	3	7.5	4.5
XXXXXXXX		6	1	1	71990	1	1.5	0.5	2	3	1	-2	0	2
XXXXXXXX		6	2	1	61989	4			4			4		
XXXXXXXX		6	1	2	32990	1.5	1.5	0	2	3	1	1	1	0
XXXXXXXX		6	2	1	82390	3	5	2	3	3	0	3	4	1
XXXXXXXX		6	2	1	62690	4	7	3	2	2	0	1	3	2
XXXXXXXX		6	1	1	62689	5	9.5	4.5	5	8	3	4	7.5	3.5
XXXXXXXX		6	2	1	41090	6	6	0	3	4	1	1	4	3
XXXXXXXX		6	1	5	91889	1.5	1.5	0	6	6	0	-2	2	4
XXXXXXXX		6	1	2	32690	2	5	3	1	1	0	1	2	1
XXXXXXXX		6	1	1	52390	5	7	2	4	6	2	3	6	3
XXXXXXXX		6	1	2	12490	3	5	2	3	4	1	0	3	3
XXXXXXXX		6	1	5	70589	7			4			3		
XXXXXXXX		6	2	1	122689	6	7	1	4	5	1	3	7.5	4.5
XXXXXXXX		6	2	1	21190	5			4			4		
<b>AGERAGE GAIN</b>								<b>1.6</b>			<b>0.7</b>			<b>3.0</b>