

# First 5 Service Corps Project Evaluation 2012-2014

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# First 5 Service Corps Project Evaluation

## Orange County THINK Together Preschool Program



Teaching Helping Inspiring & Nurturing Kids



**DavisConsultantNetwork**

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## Introduction

In 1998, voters passed Proposition 10 which levied a tax on tobacco products in order to fund programs for California's children prenatal through age 5 years and their families. In 2001, First 5 California, the First 5 Association, which represents the 58 County First 5 Commissions, CaliforniaVolunteers, the State Commission for the Corporation for National and Community Service (CNCS), and Prevent Child Abuse California (PCA CA) formed a partnership to implement a statewide AmeriCorps Initiative. First 5 Service Corps (F5SC) first received CNCS funding in 2002 to engage AmeriCorps members to help children enter kindergarten developmentally ready to learn and better-prepared to succeed in school. PCA CA administers F5SC and provides technical assistance for successful placement of AmeriCorps into school readiness programs being offered by 13 county First 5 Commissions.

The request for F5SC evaluation services for the period of 2012 through 2014, sought to narrow the scope to programs that had already collected data suitable for quasi-experimental design (QED) as defined by the What Works Clearinghouse (WWC) as follows:

1. They collect valid and reliable outcome measures;
2. They train and monitor for standardized measurement procedures;
3. There is a comparison group with baseline equivalency; and
4. There are limited attrition rates of target and comparison groups.

Two researchers from the Davis Consultant Network visited the THINK Together program site at Marjorie Veeh Elementary School where they observed the program in session; interviewed program staff, AmeriCorps members. They also met with the Children and Families Commission of Orange County evaluation and program administrators; and asked questions about the program models and assessment methods. From this visit and follow-up calls, program logic models and evaluation plans were drafted, reviewed and finalized with program staff. Data sets were received analyzed and serve as the basis of this report.

## THINK Together Outcome Evaluation

### Program Description

The THINK Together preschool program has been designed to increase reading, math and social emotional readiness for children with no prior preschool experience. Families whose children will be enrolling in pre-K or kindergarten the following year in Buena Park, Huntington Beach City, Santa Ana or Tustin School Districts are eligible to apply to the THINK Together (TT) early learning Program. Priority is given to children with no prior preschool experience and those residing in lower income elementary school catchment areas.



School District	Target Elementary Schools	% Free or Reduced Lunch	
		Target School	District
Buena Park	Carl E. Gilbert	94.8%	73.9 %
Huntington Beach City	Joseph R. Perry	52.1%	18.2%
Santa Ana	Hoover	92.2%	88.1%
	Monroe	94.3%	
	Jose Sepulveda	92.1%	
Tustin	Marjorie Veeh	76.2%	40.7%

**Table 1: The THINK Together preschool program was designed to draw from elementary catchment areas from district schools with lower income student populations, demonstrated by eligibility for free or reduced lunch.**

The THINK Together Preschool model includes three complementary evidence-based programs. This includes a 15-week High Scope preschool program, with the Raising a Reader take-home book bag program, and a 14-week Incredible Years parent education program. Children and one parent enroll in a 15-week session which meets twice a week for 3 hours.

Classroom teachers are trained to deliver a high-quality preschool experience. Each lead teacher has a Bachelor’s degree in child development or equivalency, a minimum of 3 years pre-k teaching experience, and is trained in the High Scope Preschool approach.



The lead teachers supervise 4-6 AmeriCorps members who: participate in activity planning and preparation; lead small group activities; help manage free choice-time activities; and participate in daily team reflection. Each AmeriCorps volunteer has 19 days of AmeriCorps member training from various providers. They participate in the 5-day AmeriCorps Orientation at the start of their service year. This includes 6 hours of training in how to administer the

GOLD Assessment for school readiness which is used in this study. The THINK Together program provides 4 days of program orientation, a two-hour Raising a Reader training, 8 days of High Scope training, and other professional development activities.

Classrooms have a very high 1:4 adult-child ratio, with 1 lead teacher, 5-6 AmeriCorps members. Additionally, for 1 hour of each session, parents are in the room observing and joining in activities with their child. They leave to another room for 2 hour of Incredible Years parent education.

### ***Evaluation Design & Tools***

The evaluation design sought to measure comprehensive program impacts using existing data collection tools and procedures. The study examined the impact of the program participation on the following three school readiness outcomes: literacy skills, numeracy skills, and socio-emotional skills.

The child outcomes analysis is supplemented with AmeriCorps member perceptions of their service experience. These findings can be found in Appendix IV.

Children were administered two types of tests of school readiness. The Teaching Strategies GOLD<sup>1</sup> is an early learning school-readiness assessment. It is administered at the beginning and end of each program year. The Phonological Awareness Literacy Screening (PALS) assesses 8 areas of pre-literacy. It is administered at the end of the session. These tests were individually administered by trained AmeriCorps volunteers.

### ***Evaluation Summary***

A full description of evaluation methods may be found in Appendix I, Data Analysis Overview.

Three different analytical approaches were taken to measure school readiness: a simple attainment of a benchmark score; matched pre/post; and quasi-experimental design. All three demonstrated that participation in the 15-week THINK Together program positively impacted readiness.

### ***PALS Benchmarks***

A simple benchmark for pre-literacy readiness was measured by PALS in the last week of the program. The majority of 4-year olds were assessed as “on track” in all 8 pre-literacy skill areas.

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<sup>1</sup> <http://teachingstrategies.com/assessment/>

### Pre-Literacy Readiness

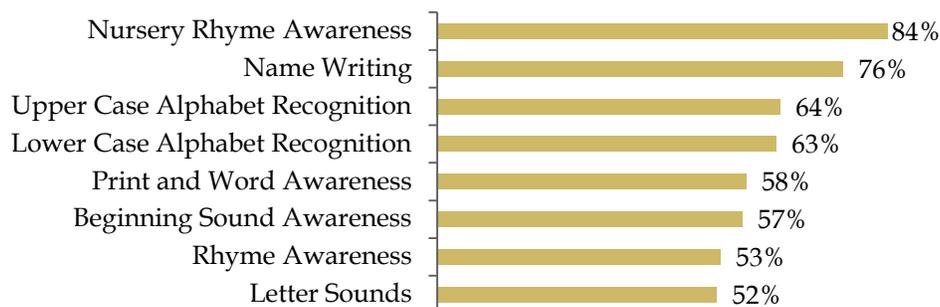


Figure 1: Percent of children assessed as “On Track” using the PALS pre-literacy assessment

### Pre/Post Teaching Strategies GOLD

All children were assessed twice with Teaching Strategies GOLD.

#### Early Literacy

Five early literacy skills (phonological knowledge, alphabet knowledge, print knowledge, pre-reading skills, pre-writing skill, and an aggregate literacy score) were assessed using GOLD. Significant gains were found in all area using paired t-tests at  $p < .001$ .

### Pre- Post- Literacy Gains

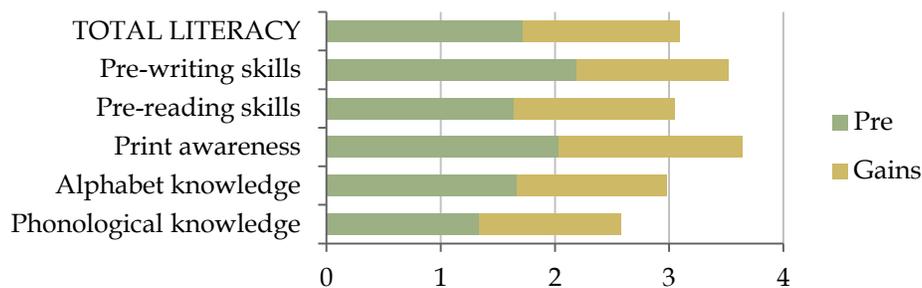


Figure 2: Changes in literacy from entry to completion of 15-week program, using GOLD assessment.

#### Numeracy

Two numeracy skills (special concepts and number concepts) were assessed using GOLD. Significant gains were found in all area using paired t-tests at  $p < .001$ .

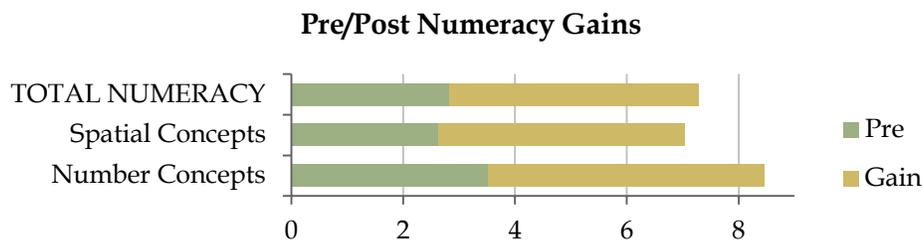


Figure 3: Changes in numeracy from entry to completion of 15-week program, using GOLD assessment.

### Social Emotional

Three social-emotional skills (cooperation with others, positive relationships, and self-regulation) were assessed using GOLD. Significant gains were found in all area using paired t-tests at  $p < .001$ .

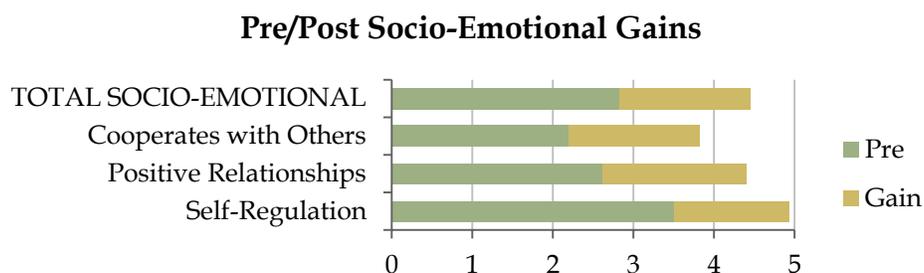


Figure 4: Changes in socio-emotional skills from entry to completion of 15-week program, using GOLD assessment.

### Quasi-Experimental Design (QED)

While pre-post comparisons revealed significant improvements in GOLD scores over the course of the program session, a QED comparison provides a more rigorous test of program effectiveness. Because there were two sessions of the program, we were able to approximate such a comparison by comparing the cohort of children in Session 1 at the end of their session (post scores) with cohort of children in Session 2 at the beginning of their session (pre scores).

### Comparability of Comparison Groups

The two groups were analyzed using t-test and Chi-square analyses to determine comparability. This revealed that the groups were not significantly different on: gender, ethnicity, language, maternal education level, family income, or parental marital status. However, children without program experience (Session 2, pre) were somewhat younger (.3 year difference of mean age) than children with program experience (Session 1, post). This finding required that analytical methods account for child age.

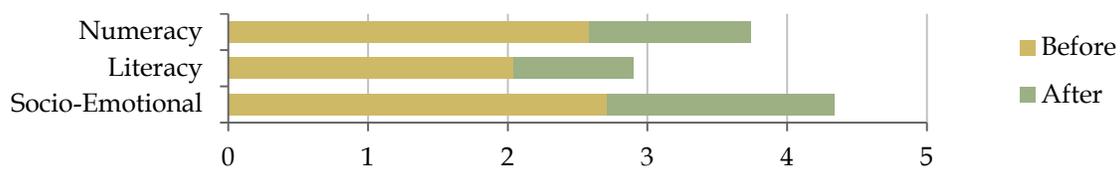
GOLD Scores were then examined for significant associations with demographic variables.

Analysis revealed that child age, gender, mother’s education, primary language were predictors of test scores. This finding required that these variables be addressed in analyses of program effects.

### *Analyses Accounting for Covariates*

Two types of statistical analysis were conducted to account for the differences in target and comparison groups, using regression and linear model analysis.

Accounting for the contribution of age, language, gender and maternal education, these analyses also found that children who participated in the THINK Together preschool program demonstrated better literacy, numeracy and social-emotional skills than like-children that had not participated in the program.



**Figure 5: Mean scores differences between cohorts with and without THINK Together preschool experience, demonstrate significant gains ( $p < .001$ ) while accounting for initial differences in age, language, gender and maternal education.**

### **Limitations**

The investigators were introduced to this project in the spring of the program year, and therefore reliant on existing data. The design assumed faithful implementation of three evidence-based programs (High-Scope, Raising a Reader, and Incredible Years) but did not assess fidelity or attempt to identify how each program element may have been responsible for improvements. The design also assumes validity and reliability of assessments. It was not possible to use random assignment to the two sessions, which would provide a higher experimental design.

## Conclusions

The integrated approach of high quality evidence-based preschool program, meaningful parental education and engagement, and providing children’s literature for at-home use is effective to achieve improved school readiness in a 90-hour 15-week program.

## Considerations for Future Investigation

1. Validate inter-rater reliability of the assessments.
2. Measure fidelity to each of the three program component models.
3. Consider the development of an experimental design by using waitlists of children whose parents indicate interest in enrolling in THINK Together to randomly assign participants to sessions for comparison.
4. Consider process evaluation to describe the roles AmeriCorps members play.
5. The engagement of parents in the classroom and their participation in the Incredible Years program was observed at the site visit. The First 5 Service Corps evaluation of the Santa Cruz Reading Corps program discovered significant associations between parental behaviors and school readiness. This study did not address the contribution of the parent engagement component to the overall impact. Consider assessing changes in parental knowledge of their role in school readiness and children’s development or another means to examine the contribution of this component.
6. Work with program staff in advance to implement strategies to collect more complete data.
7. Discuss, coordinate and plan for how the data will be matched and cleaned.

## Appendix I

# DATA ANALYSIS OVERVIEW

## 2013-14 Orange County THINK Together Program Data

### SAMPLE

The initial sample included 439 preschool aged participants (*M* age = 3.93 years at program entry) from a single program year (2013-14) for the THINK Together program. The program runs two 15-week sessions over the academic year, as well as a summer session (not evaluated in this report). There were data available for 206 children in session 1 and 233 children in session 2. A portion of children (*n*=88) participated in more than one session, and while both sets of scores for these children were evaluated for changes across session in pre-post comparisons, these children's second set of scores were excluded from independent comparisons between groups. Thus, a total of 351 individual children contributed data for these analyses. Below are demographic descriptors for the resulting sample.

**Table 1: Demographic Information for Total sample (n=351)**

Categorical Variable		Chart
<b>Ethnicity</b> (n=339)	7.7% White	
	57.8% Latino/a	
	0.6% Afrn-American	
	12.1% Asian	
	1.2% Am. Indian	
	0.6% Pacific Islander	
	17.1% Bi-racial	
	2.9% Other	
	0.6% American Indian	
	0.6% Pacific Islander	
0.6% African American		
<b>Hispanic</b> (n=331)	22.4% No	
	77.6% Yes	
<b>Gender</b> (n=350)	47.4% Male	
	52.6% Female	
<b>Parents' Marital Status</b> (n=187)	72.2% Married/Domestic Partnership	
	8.6% Single Parent	
	19.3% Cohabiting	
	0.6% Other	
<b>Primary Language</b> (n=349)	51.6% Spanish	
	39.5% English	
	8.9% Other	

Continuous Variables	Mean (std)	Chart
<b>Age at Entry in Years</b> (n=351)	3.81 (.57)	
<b>Mother's Educational Attainment</b> (7 point scale) (n=195)	3.28 (1.90)	<ul style="list-style-type: none"> <li>Less than GED</li> <li>HS/GED</li> <li>Some technical school or AA</li> <li>Bachelors or more</li> </ul>
<b>Family Income</b> (10 point scale) (n=162)	4.19 (2.70)	

## MEASURES AND DATA COLLECTION

Children were administered two types of assessments of school readiness, the Teaching Strategies GOLD at the beginning and end of each session and the Phonological Awareness Literacy Screening (PALS) at the end of the session. These tests were individually administered by trained AmeriCorps volunteers. Additionally, parents provided demographic data.

### Teaching Strategies GOLD

The Teaching Strategies GOLD is an observation measure designed to assess 38 objectives linked to curriculum standards that are likely to “predict next steps in every area of development and learning. The objectives cover 10 areas of development and learning, including broad developmental areas, content areas, and English language acquisition”.<sup>2</sup> Each item is rated on a 1-9 scale by trained AmeriCorps volunteers.

THINK Together children were assessed on a subset of these objectives, including:

<sup>2</sup> From Web site: <http://teachingstrategies.com/assessment/>

## Appendix I

- Socio-emotional skills (objectives 1-3) – regulation, cooperative behavior, and positive relationships;
- Numeracy (objectives 20-21) – spatial concepts and number concepts; and,
- Literacy (objectives (15-19) - phonological knowledge, alphabet knowledge, print knowledge, pre-reading skills, and pre-writing skills;

### **PALS**

The PALS-PreK Assessment was administered once at the end of each session. The PALS-PreK “is a scientifically-based phonological awareness and literacy screening that measures preschoolers’ developing knowledge of important literacy fundamentals and offers guidance to teachers for tailoring instruction to children’s specific needs. The assessment reflects skills that are predictive of future reading success and measures name writing ability, upper-case and lower-case alphabet recognition, letter sound and beginning sound production, print and word awareness, rhyme awareness and nursery rhyme awareness. The assessment scores indicate children’s strengths and those areas that may require more direct attention. The assessment is designed to be administered to 4-year-olds in the fall of Pre-K in order to guide instruction during the year.”<sup>3</sup> Developmental ranges for 4-year olds are provided by test developers to establish whether a child is “on track” for literacy readiness.

### **Demographic and Classroom Data**

Classroom data included teacher, classroom group, and session as well as child gender, ethnicity, and language. Additional demographic data were collected from parents at the time of the PALS assessment, including family income, marital status, maternal education, caregiver ethnicity, and maternal educational level.

### **Missing Data**

Pre- and post-test GOLD data were evaluated for missing values and attrition. There were a total of 457 cases available for the two sessions combined. Cases were examined for (a) whether the pre-test score was missing (i.e., incomplete data) (b) whether the post test score was missing (i.e., attrition) and (c) whether both scores were missing (i.e., the student was not ever assessed on that item). The results varied slightly by outcome and are presented in Table 2. At < 20% these attrition rates are generally acceptable by WWC standards.

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<sup>3</sup> From Website: [https://www.palsmarketplace.com/assessments/pals\\_prek/](https://www.palsmarketplace.com/assessments/pals_prek/)

**Table 2: Frequencies for Missing Pre-Post Data and Data Attrition**

<b>Outcome</b>	<b>Complete Data</b> <i>(used in analyses)</i>	<b>Incomplete Pair</b> <i>(missing pre score)</i>	<b>Missing Pair</b> <i>(missing pre and post scores)</i>	<b>Attrition</b> <i>(missing post score)</i>
<b>Social Emotional</b>	329 (72%)	46 (10%)	22 (5%)	<b>60 (13%)</b>
<b>Literacy</b>	335 (73%)	69 (15%)	23 (5%)	<b>53 (12%)</b>
<b>Numeracy</b>	316 (69%)	35 (8%)	24 (5%)	<b>82 (18%)</b>

PALS data were available for 221 (48%) of the children, child demographics available for 351 (77%) and parent report of family demographics was available for 195 (43%) children.

Missing data within cases were handled in one of two ways. First, total scale scores were created by taking a mean of scale items, thereby averaging across any missing items within the scales. Second, missing data were excluded per each analysis, rather than listwise, i.e., all available data for a given analysis were used, rather than excluding cases for which there were *any* missing data.

## Appendix I

### Descriptive Results For PALS Literacy Data

A total of 221 (76 three to four-year-olds and 145 four years and older) THINK Together (TT) Children were administered the PALS at the end of their program sessions. Given the short 15-week program duration, the program did not administer a pre-test. Neither was the PALS administered to a comparison group. As such, no direct evaluation of program effectiveness is possible using these data. However, descriptive analyses are possible, and comparisons can be made with norm ranges provided by the test developers. The results of these analyses are summarized in Table 3.

**Table 3: Results of End-of-Session PALS Assessments**

PALS Item	Mean Score (std) (n 220)	Maximum Score	PALS Developmental Ranges*	% "On Track"
Name Writing	4.59 (2.45)	7	5-7	57.0%
Upper Case Alphabet Recognition	12.72 (10.00)	26	12-21	48.9%
Lower Case Alphabet Recognition	10.56 (9.63)	26	9-17	48.9%
Letter Sounds	6.10 (7.68)	26	4-8	38.5%
Beginning Sound Awareness	4.56 (3.95)	10	5-8	46.6%
Print and Word Awareness	5.65 (3.05)	10	7-9	44.3%
Rhyme Awareness	4.70 (3.14)	10	5-7	46.2%
Nursery Rhyme Awareness	6.74 (2.90)	10	6-10	47.8%

\*Developmental Ranges designed for use in the spring of the four year old year and represent "a range of development associated with later reading success".

Because PALS developmental ranges are specific to 4-year-olds, PALS data were also evaluated by age group. As shown in the Table 4, separating PALS scores by age group reveals higher "on-track" rates on PALS literacy outcomes for the 4-year and older group, the children likely to be entering school the following year.

**Table 4: PALS Results by Age Group**

PALS Item	PALS developmental ranges*	Mean Score (std) 3 4 year olds (n=75)	Mean Score (std) 4 5 year olds (n=145)	"On Track" 3 4 year olds	"On Track" 4 and older
Name writing	5-7	2.45 (2.08)	5.69 (1.83)	21.1%	75.7%
Upper Case Alphabet Recognition	12-21	7.15 (8.83)	15.65 (9.37)	21.1%	63.9%
Lower Case Alphabet Recognition	9-17	5.24 (7.81)	13.35 (9.37)	22.4%	63.2%
Letter Sounds	4-8	2.21 (4.70)	8.15 (8.16)	13.2%	52.1%
Beginning Sound Awareness	5-8	2.61 (3.08)	5.56 (3.99)	26.3%	56.9%
Print and Word Awareness	7-9	3.95 (2.99)	6.54 (2.71)	19.7%	57.6%
Rhyme Awareness	5-7	3.25 (2.65)	5.43 (3.13)	32.9%	52.8%
Nursery Rhyme Awareness	6-10	5.52 (3.40)	7.37 (2.39)	65.8%	84.0%

\*Developmental Ranges designed for use in the spring of the four year old year and represent "a range of development associated with later reading success".

## Appendix I

### Pre/Post Comparison of Readiness Outcomes

#### LITERACY

**OUTCOME 1:** “As a result of program participation, there will be an increase in early literacy skills in English as measured by the AmeriCorps GOLD assessment” including:

- book and print rules (PRINT, PREREAD);
- phonological awareness (PHONE); and
- early writing & alphabetic knowledge (ALPHA, PREWRITE).

Table 5: GOLD Summary Literacy Variables for time 1 (beginning of program) and time 2 (end of program), computed as mean of relevant items for each objective.

GOLD Variable	Skill
PHONE1, PHONE2	Phonological knowledge (obj 15)
ALPHA1, ALPHA2	Alphabet knowledge (obj 16)
PRINT1, PRINT2	Print knowledge (obj 17)
PREREAD1 PREREAD2	Pre-reading skills (obj 18)
PREWRITE1 PREWRITE2	Pre-writing skills (obj 19)
LITERACY1 LITERACY2	Total literacy (obj 15-19)

#### Results of Comparisons of GOLD Pre-Post (difference) Scores

As shown in Table 3, paired sample *t*-tests revealed significant differences in Pre- and Post-scores for all literacy measures ( $p < .001$ ), such that children scored significantly higher on literacy at the end of the program.

Table 6: Pre-Post Comparisons for Literacy Outcomes

Outcome Variable	n	Mean (std) Time 1	Mean (std) Time 2	Paired <i>t</i> *
Phonological knowledge	311	1.34 (1.23)	2.58 (1.84)	13.47
Alphabet knowledge	311	1.67 (1.44)	2.98 (1.89)	15.81
Print awareness	312	2.03 (1.40)	3.64 (1.55)	18.14
Pre-reading skills	311	1.64 (1.29)	3.05 (1.77)	18.29
Pre-writing skills	311	2.19 (1.60)	3.52 (1.66)	18.49
TOTAL LITERACY	312	1.72 (1.22)	3.09 (1.60)	20.04

\*Note: All *t*s are significant at  $p < .001$

## NUMERACY

**OUTCOME 2: “As a result of program participation, there will be an increase in early numeracy skills as measured by the AmeriCorps GOLD assessment, including”**

- **Number concepts**
- **Spatial relationships**

Summary GOLD numeracy variables for time 1 (beginning of program) and time 2 (end of program), computed as mean of relevant items for each objective) included as follows:

**Table 7: GOLD Variables**

GOLD Variable	SKILL
NUMBER1 NUMBER2	Number concepts (obj 20)
SPATIAL1 SPATIAL2	Spatial concepts (obj 21)
NUMERACY1 NUMERACY2	Total numeracy (obj 20-21)

As shown in Table 8, Paired *ts* revealed significant differences between pre- and post-test scores for numeracy items ( $p < .001$ ), such that children scored significantly higher on number and spatial concepts at the end of the program.

**Table 8: Pre-post Comparisons for Numeracy Outcomes**

Outcome Variable	n	Mean (std) time 1	Mean (std) time 2	Paired t*
Number Concepts	328	3.51 (1.86)	4.94 (1.20)	17.83
Spatial Concepts	328	2.62 (2.10)	4.41 (1.55)	18.72
TOTAL NUMERACY	329	2.82 (1.93)	4.45 (1.51)	19.76

\*Note: All *ts* are significant at  $p < .001$

## SOCIO-EMOTIONAL

**OUTCOME 3: “As a result of program participation, there will be an increase in early socio-emotional skills as measured by the AmeriCorps GOLD assessment, including”**

- Self-regulation (REGULATE)
- Establishes Positive relationships (POSREL)
- Positive interactions with peers (COOPER)

## Appendix I

### *Pre/Post Comparisons of Socio-Emotional Outcomes*

GOLD summary variables for socio-emotional skills for time 1 (beginning of program) and time 2 (end of program), computed as mean of relevant items for each objective were as follows.

**Table 9: GOLD Socio-Emotional Variables**

GOLD Variable	SKILL
<b>REGULATE1</b> <b>REGULATE2</b>	Regulates, manages feelings (obj 1)
<b>POSREL1</b> <b>POSREL2</b>	Establishes positive relationships (obj 2)
<b>COOPER1,</b> <b>COOPER2</b>	Cooperates with others (obj 3)
<b>SOCEMOT1</b> <b>SOCEMOT2</b>	Total social emotional (obj 1-3)

As shown in Table 10, paired *ts* revealed significant differences between pre- and post-test scores for all socio-emotional items ( $p < .001$ ), such that children showed significantly higher GOLD socio-emotional scores at the end of the program.

**Table 10: Pre/Post Comparisons for Socio-Emotional Outcomes**

Outcome Variable	n	Mean (std) time 1	Mean (std) time 2	Paired t*
Self-regulation	328	3.51 (1.86)	4.94 (1.20)	17.83
Positive Relationships	328	2.62 (2.10)	4.41 (1.55)	18.72
Cooperates with others	329	2.20 (1.89)	3.82 (1.51)	17.84
TOTAL SOCIO-EMOTIONAL	329	2.82 (1.93)	4.45 (1.51)	19.76

\*Note: All *ts* are significant at  $p < .001$

### **DOSAGE**

Attendance data in the form of minutes attended and days of attendance were available for 158 children. These two measures were highly correlated and therefore redundant. Pearson correlations were computed between change scores for all GOLD outcome variables and service days attended revealed significant associations between days attended and change cores in spatial concepts ( $r = .234, p = .004$ ) and total numeracy ( $r = .189, p = .020$ ) only. Attendance data was not associated with any other outcomes.

## Quasi-Experimental Comparison

While pre/post comparisons revealed significant improvements in GOLD scores over the course of both program sessions, a controlled comparison provides a more rigorous test of program effectiveness, and is necessary to conform to WWC standards. Because there were two sessions of the program, we were able to conduct a quasi-experimental static-group comparison (Campbell & Stanley, 1963) by comparing children in session 1 at the end of their session with children in session 2 at the beginning of their session. We therefore formed two groups representing *Children with Program Experience* (session 1 post scores) and *Children without Program Experience* (session 2 pre-scores). For children who were repeating the program, we excluded the second set of (duplicate) scores (n=88) for this comparison. This resulted in a total sample of 351 children - 206 in session 1 (post) and 145 in session 2 (pre). We compared these two groups using GOLD outcome scores for total socio-emotional, total literacy, and total numeracy outcomes.

### Comparability of Comparison Groups

The first task in a quasi-experimental comparison is to establish to whatever extent possible that the groups are comparable. At the outset, there is reason to think that these two groups are relatively comparable. The children were drawn from the same neighborhoods, and the teachers and sites were comparable across the groups. In some cases, children who would have been served in the first session were waitlisted to the second session. GOLD assessments for post-test session 1 and pre-test session 2 were conducted within a few months of each other by trained AmeriCorps members.

**Table 11: Demographic Characteristics of Comparison Groups**

Categorical Variable	WITH Program Experience (Session 1 Post)	WITHOUT program Experience (Session 2 Pre)
Ethnicity	8.2 % White 58.5% Latino/a 14.0% Asian 19.3% Bi/multi-racial/other	10.0% White 50.8% Latino/a 13.3% Asian 25.8% Bi/multi-racial/other
Gender	46.9% Male 53.1% Female	45.1% Male 54.9% Female
Marital Status	72.4% Married/Partnership 9.2% Single Parent 18.4% Cohabiting	77.9% Married/Partnership 6.5% Single Parent 16.6% Cohabiting
Primary Language	51.1% Spanish 40.9% English 4.0% Other	45.1% Spanish 41.8% English 4.9% Other

## Appendix I

Continuous Variables	Mean (std) WITH Program Experience	Mean (std) WITHOUT program experience
<b>Age in Years</b>	4.10 (.49)	3.81 (.62)
<b>Mother Education</b> (7 point scale)	3.48 (2.05)	3.37 (1.84)
<b>Income</b> (10 point scale)	4.27 (2.64)	4.54 (2.76)

Group differences were assessed using *t*-tests and Chi-square tests. The groups were not significantly different in gender composition, child ethnicity and language, as well as maternal education level, family income, and marital status. However, children without program experience (session 2 pre) were somewhat younger than children with program experience (session 1 post),  $t(298) = 4.56, p < .001$ , thus indicating that *analysis of any differences between these groups should account for child age*.

Further mean comparisons were conducted to analyze differences in baseline (pretest scores) between the two groups. Results indicated that the no program experience group had somewhat *higher* pre-test scores than the group with program experience, that is the no-experience group started the program with higher socio-emotional, literacy, and numeracy scores. Such differences at baseline should actually work against the finding significant program effects, so did not require analytical adjustments.

### Initial Results of Quasi-Experimental Comparison

Mean GOLD scores for the two groups were compared using simple independent groups *t*-tests, revealing significantly higher scores on all three GOLD outcome areas for children who had participated in the program as compared to children who had not yet participated in the program (Table 12).

**Table 12: Mean Differences in GOLD Outcome for Comparison Groups**

Outcome Variable		n	Mean (std dev)
<b>Total Socio-Emotional</b>	After program	163	4.25 (1.49)
	Before program	116	2.11 (1.47)
<b>Total Literacy</b>	After program	171	2.84 (1.25)
	Before program	107	1.22 (.99)
<b>Total Numeracy</b>	After program	171	3.41 (1.27)
	Before program	107	1.64 (1.14)

**Note:** All mean differences are significant at  $p < .001$

### Associations between Demographic Variables and GOLD Scores

GOLD Scores were then examined for significant associations with demographic variables

(covariates). Initial bivariate correlations (Pearson  $r$ ) and t-tests revealed the following significant predictors of test scores: age, gender, mother education, and child language. Thus, these variables were controlled as covariates in subsequent analysis of program effects.

### Univariate and Multivariate Analysis Accounting for Covariates

A univariate linear model was used to analyze group differences on total numeracy, literacy, and socio-emotional scores while adjusting for the main effects of child age, gender, language, and mother’s education level. In these analyses, group membership (experience vs. no experience) remained a significant predictor of socio-emotional ( $\beta = -.533, p < .001$ ), literacy ( $\beta = -.487, p < .001$ ), and numeracy ( $\beta = -.447, p < .001$ ) scores, after accounting for age, gender, language, and maternal education.

A multivariate linear model was used to further account for the possible dependence among the scores, and potential interactions of group response with the covariates. Estimated marginal means from this analysis are listed in Table 10. The pattern of responses is similar to the unadjusted means, with slightly smaller differences between groups at equal covariate levels.

Table 10: Mean Differences Adjusted for Covariates and Existing Differences

Outcome		Estimated Marginal Mean	Standard error of the mean
<b>Total Socio-Emotional</b>	After program	4.34	.187
	Before program	2.71	.111
<b>Total Literacy</b>	After program	2.90	.145
	Before program	2.04	.086
<b>Total Numeracy</b>	After program	3.74	.153
	Before program	2.58	.105

\*Means significantly different ( $p < .001$ ).  
Means are adjusted child age, maternal education, child language, and child gender.

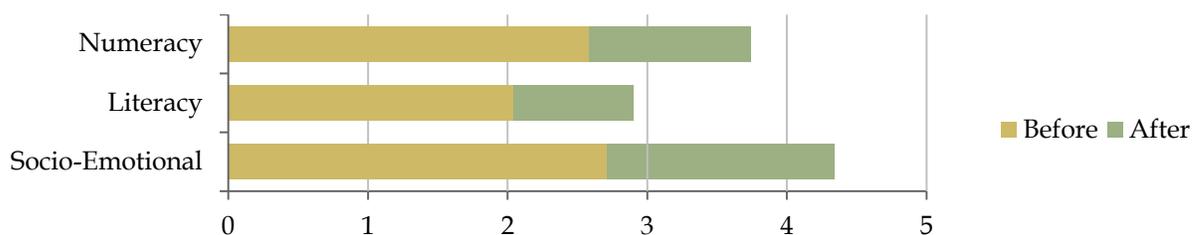


Figure 6: Mean scores differences between cohorts with and without THINK Together preschool experience, demonstrate significant gains ( $p < .001$ ) while accounting for initial differences in age, language, gender and maternal education.

## Appendix I

### *Accounting for Attrition*

While overall attrition rates for the total sample were acceptable (see Table 2) , per WWC standards attrition rates need to be considered in making comparisons between groups. For example, if there are large *differences* in attrition rates between comparison groups, then the comparison may not be valid. In the current static comparison design, it is possible that the post test scores used to represent the program experience group may be inflated because poorer scorers might be more likely to drop out before they were assessed at the end of the program. This would not be the case with the pretest scores used in the no experience group.

As a way to account for attrition in this design, analyses were therefore conducted again, eliminating the scores of those children in the no experience group who eventually dropped out (or who were not assessed) at the end of the session. Results indicated that the pattern of responses is similar to previous results. There is a main effect for group membership even after controlling for potential attrition effects.

### *Conclusion*

**Overall, these results provide good evidence that children with program experience show better socio-emotional, literacy, and numeracy skills than similar children who have not yet attended the program, even after accounting for demographic differences and covariates.**

THINK Together Logic Model

Resources	Activities	Outputs	Outcomes
<p>THINK Together Preschool-Based annual budget of \$565K</p> <p>Children and Families Commission of Orange County(CFCOC): Early Literacy and Math Program grant; AmeriCorps costs &amp; program administration. (Funded various TT programs at \$1M/year; in Feb 2012 invested \$10M/10 years to include marketing, communications, fund development, building purchase.)</p> <p><b>17 AmeriCorps Members</b></p> <p><b>4 School District Partners:</b> Buena Park; Huntington City; Santa Ana, and; Tustin.</p> <p>Provide 16 host classrooms</p> <p><b>THINK Together</b></p> <p>.8 FTE Early Learning Program Manager 4 FTE preschool teachers (High-Scoped &amp; PALS trained, BA in Child development or equivalency, min. 3 years Pre-K experience.)</p> <p>2 FTE Incredible Years facilitators</p> <p><b>Evidence-based programs</b></p> <ul style="list-style-type: none"> <li>• <b>High Scope Preschool Model</b> (began in 2014)</li> <li>• <b>Raising a Reader (RAR)</b> bag program (ongoing since 2008)</li> <li>• <b>Incredible Years</b> parent education program (began in 2014)</li> <li>• Prior to Jan. 2014, program used locally developed program.</li> </ul>	<p><b>CFCOC</b> AmeriCorps administration</p> <p><b>CFCOC &amp; TT:</b> AmeriCorps member recruitment, screening, hiring.</p> <p><b>District partners</b> distribute program participant recruitment flyers.</p> <p><b>19 days of AmeriCorps member training</b> from various providers:                      - 5-day AmeriCorps Summer Institute (Sept) which includes 6 hours in PCAC GOLD Assessment. 12-hour online professional development. .6 FTE trainer                      - 4 days of program orientation sessions: 2 hour RAR training                      - 8 days High Scope training                      - Professional development, CalTech 2-day STEM Conference</p> <p><b>17 AmeriCorps members</b> actively plan &amp; prepare, support teacher, teach in small groups of 5 students, share in managing choice time activities, and reflect daily as a team.</p> <p><b>4 Host Teachers-</b> High-Scope-trained lead classroom teachers; work with AmeriCorps in lesson planning, preparation, and reflection.</p> <p><b>Early Learning Program Manager</b> provides oversight, coordinates training, liaisons with district, site coaching. Manages RAR program (1600 bags). Oversee IY parent educator.</p> <p><b>2 15-week preschool sessions, 3 hrs/day, 2 days/week</b>                      ~500 Children receive Raising a Reader books to take home weekly for at home reading.                      ~ 373 parents participate in 14 week Incredible Years program for 2 hours/week.</p> <p><b>Teaching Strategies GOLD assessment</b> conducted for each child within 1<sup>st</sup> three weeks and in 15<sup>th</sup> week.</p> <p><b>Phonological Awareness Literacy Screen (PALS)</b> conducted by head teacher in weeks 14 and 15.</p>	<p><b>17 trained AmeriCorps members</b> each engaged in ~1700 hours of Preschool Program activities (Sept-May)</p> <p><b>16 sessions of 3 hour classes 2x/week for 15 weeks of preschool</b> with enriched literacy and math environments and activities .</p> <p><b>~500 children</b> ages 3 and 4years, per year, receive ~90 hours of high quality preschool</p> <p><b># of parents</b> who accompany their child in preschool and participate in # hours of Incredible Years parent education</p>	<p><b>Increased early literacy skills</b> as measured by the AmeriCorps GOLD assessment, PALS</p> <ul style="list-style-type: none"> <li>▪ conversation skills</li> <li>▪ vocabulary</li> <li>▪ book and print rules</li> <li>▪ visual discrimination</li> <li>▪ phonological awareness</li> <li>▪ early writing &amp; alphabetic knowledge</li> <li>▪ English language</li> </ul> <p>Increased at-home reading frequency as demonstrated in RAR pre/post parent survey.</p> <p>AmeriCorps volunteers report satisfying service experience which contributed to community and their professional growth as reported in AmeriCorps survey.</p>

Data Sources

1. **DEMOGRAPHIC:** TT intake form includes self report of family income, # of household members, home language, and a TT child-identifier that can be used to match intake to other child-level data. (Will add prior pre-k experience in form in fall 2014.)
2. **RAISING A READER:** Pre/Post standard assessment, entered by TT and available in excel or SPSS, linked to TT child-student identifier. Can be used to demonstrate changes in at-home reading behavior.
3. **INCREDIBLE YEARS Program (IY)** is using the IY session feedback, but not pre/post IY parent scale.
4. **AMERICORPS MEMBER SURVEY** is created and administered by Tiffany at the end of each program year. She is open to us adding additional questions.
5. **ATTENDANCE** data: collected by TT and can be linked to child. Can also be used to identify children who have attended multiple sessions. IY parent attendance also available.



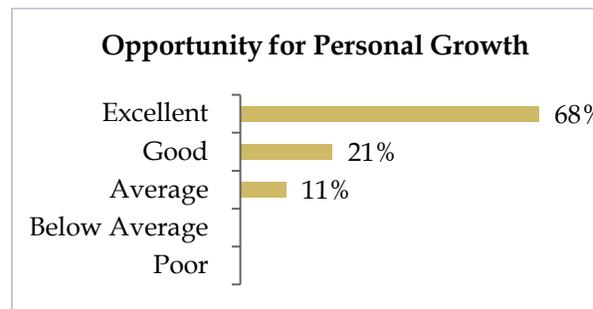
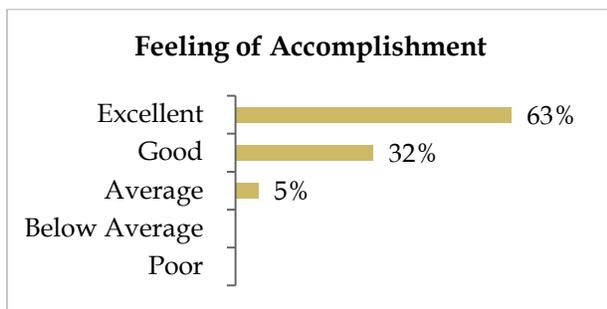
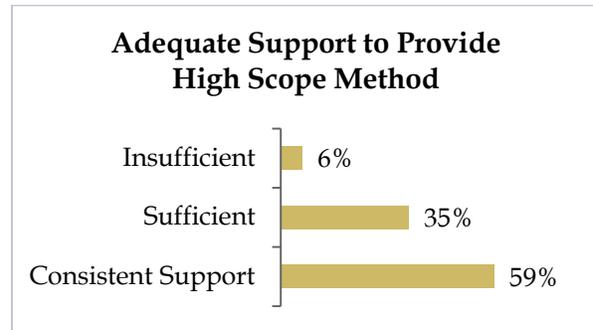
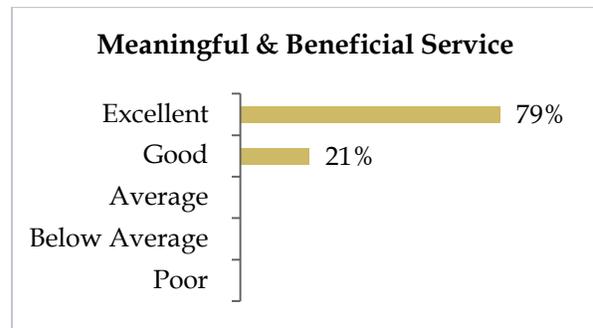
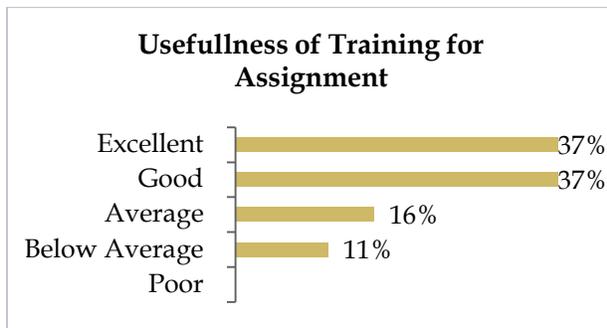
### Appendix III

#### THINK Together Pre-K School Readiness Evaluation Plan

Out-come	Indicators	Data Collection Methods & Tools	Frequency/Schedule of Data Collection	Sample Size	Analytical Methods
Increased Early Literacy & Math Skills & Social/Emotional Development	<ol style="list-style-type: none"> <li>1. Name writing</li> <li>2. Alphabet knowledge</li> <li>3. Beginning sound awareness</li> <li>4. Print word awareness</li> <li>5. Rhyme awareness</li> </ol>	PALS Post  (PRE-Test NOT IMPLEMENTED)	By Head Teacher, 1x within last week of program	~500 (100% service population)	Compare TT with Buena Park 4 week summer preschool.
	<ul style="list-style-type: none"> <li>- Manages feelings</li> <li>- Follows limits &amp; expectations</li> <li>- Takes care of own needs</li> <li>- Forms relationship with adults</li> <li>- Responds to emotional cues</li> <li>- Interacts with peers</li> <li>- Makes friends</li> <li>- Balances needs and rights of self and others</li> <li>- Solves social problems</li> <li>- Demonstrates phonological awareness: a) notices and discriminates: a) rhyme; b) alliteration; c) smaller &amp; smaller units of sound.</li> <li>- Demonstrates knowledge of the alphabet: a) Identifies and names letters (PALS 2); and b) uses letter knowledge</li> <li>- Demonstrates knowledge of print and its uses: a) uses and appreciates books; b) uses print concepts</li> <li>- Comprehends and responds to books and other texts: a)Interacts during read-aloud &amp; book conversations; b)Uses emergent reading skills; and c)Retells stories</li> <li>- Demonstrates emergent writing skills: a) writes name (PALS1); b) writes to convey meaning</li> <li>- Uses number concepts &amp; operations: a) counts; b) quantifies; c) connects numerals with their quantities</li> <li>- Explores and describes spatial relationships: a) understands spatial relationships; b) understands shapes</li> </ul>	Teaching Strategies GOLD Assessment	By AmeriCorps, within first 2 weeks and last week of each program	~500 (100% service population)	Paired T test for pre/post  Compare statistically (linear mixed effects) with other AmeriCorps program Gold Assessment scores when accounting for child age, language, gender.
At-Home Reading	<ul style="list-style-type: none"> <li>- Increased at-home reading frequency</li> <li>- Increased use of child engagement strategies</li> <li>- Increased reading routines</li> <li>- Increased library usage</li> </ul>	RAR pre/post parent survey (NOT IMPLEMENTED)	At start and end of 15 week program.	~500 (100% service population)	T test for pre/post
Contribution	<ul style="list-style-type: none"> <li>- Self report of perceived contribution to community from “not at all” to “great”; Narrative explanation</li> <li>- Self-report of perceived benefit for career path from “not at all” to “great”. Narrative explanation.</li> </ul>	AmeriCorps Survey	1x, in last month of service.	All AmeriCorps serving TT Pre-K program	Qualitative narrative, simple response rates.

## AmeriCorps Member Perceptions

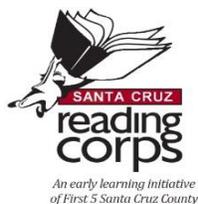
While the central purpose of this evaluation was to ascertain the effectiveness of the Think Together preschool program for preparing children for kindergarten, the researchers were interested in how the AmeriCorps members who were so instrumental in service delivery felt about their experience. Since the THINK Together Early Learning Program Manager was already planning to implement a feedback survey at the end of the program year, she agreed to include several additional questions. All 17 First 5 Service Corps members responded. While for most (90%) it was their first year of service, there was one 3<sup>rd</sup> year and one 4<sup>th</sup> year member.



The AmeriCorps members described their personal goals for participating in the THINK Together program to include: providing community service; first-hand experiences of classroom teaching; and exploring working with young children. All but one reported that their experience met their expectations, with 53% saying it exceeded their initial hopes. First 5 Service Corps Project Evaluation.

## First 5 Service Corps Project Evaluation

### Santa Cruz Reading Corps Preschool Program



**DavisConsultantNetwork**

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Agency		
<b>First 5 Association/ California Children &amp; Families Foundation</b>	Moira Kenney	Executive Director
<b>Prevent Child Abuse California</b>	Sheila Boxley	President and CEO
	Stephanie Biegler	Chief Program Officer
	Sara Fung	Program Manager – AmeriCorps
	Ian Hadley	First 5 Service Corps Project Manager
<b>First 5 Santa Cruz County Commission</b>	David Brody	Executive Director
	Vicki Boriack	Senior Program Officer
	Irene Freiberg	Master Literacy Coach
	Holly Maclure	Research and Evaluation Analyst
	Christine Sieburg	Santa Cruz Reading Corps Coordinator
<b>First 5 Service Corps Members</b>	Sophia Bassett	Santa Cruz Reading Corps Tutors 2013-2014
	Lauren Carriere	
	Melody Curl	
	Aundrella Dennings	
	Rachel Griffin	
	Marilyn Guerra	
	Cassandra Guzman	
	Esdras Juarez	
	Natalia Loken	
	Vista Pickett	
	Heather Purchase	
Caroline Simmons		

*Cover Photo by Shmuel Thaler/Santa Cruz Sentinel*

## Introduction

In 1998 California voters passed Proposition 10 which levied a tax on tobacco products in order to fund programs for California's children prenatal through age 5 years and their families. In 2001, First 5 California and the First 5 Association, which represents the 58 County First 5 Commissions, CaliforniaVolunteers, the State Commission for the Corporation for National and Community Service (CNCS), and Prevent Child Abuse California (PCA CA) formed a partnership to implement a statewide AmeriCorps Initiative. The First 5 Service Corps (F5SC) first received CNCS funding in 2002 to engage AmeriCorps members to help children reach school-age developmentally ready to learn and better-prepared to succeed in school. PCA CA administers F5SC and provides technical assistance for successful placement of AmeriCorps into school readiness programs being offered by 13 county First 5 Commissions.

The request for evaluation services for the F5SC 2012 through 2014 years, sought to narrow the scope to programs that had already collected data suitable for quasi-experimental design as defined by the What Works Clearinghouse.

This portion of the comprehensive evaluation focuses on the Santa Cruz Reading Corps program which was developed and administered by the First 5 Santa Cruz County Commission.

Two researchers from the Davis Consultant Network met with program administrators who provided information about the program history, the Reading Corps Model, implementation across sites, and assessment protocols. They then observed the program in action at the Linscott State Preschool program in Watsonville. At the site they observed the classroom environment, arrival, parent interactions, implementation of the Reading Corps intervention model, and interviewed the AmeriCorps member who was working in that classroom. From this visit and follow-up calls, a program logic model and evaluation plan were drafted, reviewed and finalized with staff. Data was received and analyzed. This report addresses those findings.

## Santa Cruz Reading Corps Outcome Evaluation

### Program Description

In 2012, First 5 Santa Cruz County initiated the Santa Cruz Reading Corps. This program places trained AmeriCorps members, called Reading Corps Tutors, in state preschool and transitional kindergarten classrooms with SEEDS trained staff to provide early literacy strategies and provide small group and one-on-one interventions.

First 5 Santa Cruz County had already been training early child educators in the SEEDS of Early Literacy Curriculum<sup>4</sup> methods since 2007. SEEDS is a mnemonic device to teach five qualities of teacher/ student interaction:

1. to be **Sensitive**
2. to be **Encouraging**;
3. to **Educate**;
4. to “**Develop through doing**” by promoting active learning; and
5. to help develop a positive **Self-image**.

The program also trains “the big 5 early literacy skills”:

1. conversation and oral language;
2. phonological awareness;
3. books and print rules;
4. alphabet knowledge; and
5. vocabulary and meaning of words.

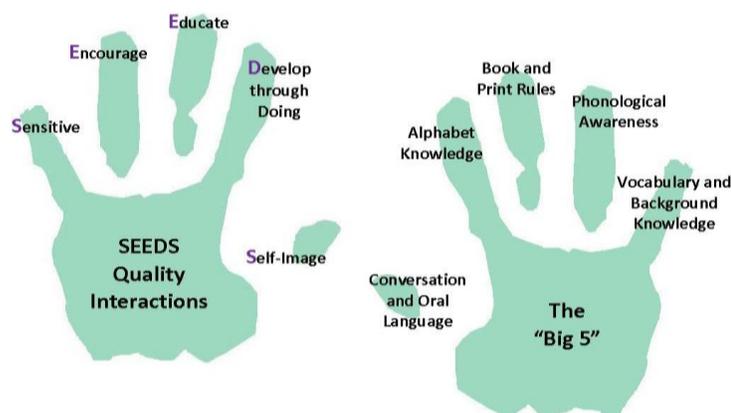


Figure 7: SEEDS of Early Learning School Readiness Qualities and “Big 5” early literacy skills.

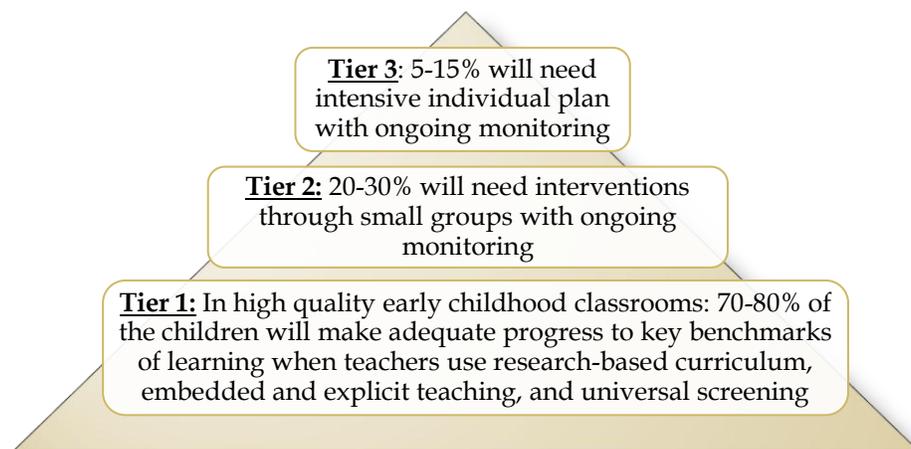
<sup>4</sup> <http://www.seeds-learning.com/>

Santa Cruz Reading Corps tutors were placed in classrooms in which at least one of the early childhood professionals on the teaching team was trained in SEEDS of Early Literacy. SEEDS trainings include how to evaluate and create a classroom that offers many opportunities for developing literacy skills, and how to integrate literacy-rich exchanges with their students throughout the day.

Reading Corps classrooms also use the Raising a Reader<sup>5</sup> book bag program to ensure that all children have access to appropriate children’s literature at home through a rotating book bag system which is facilitated by the Reading Corps Tutor. Raising a Reader is another evidence based program that engages families by bridging at-home and at-school readiness activities.

When the Reading Corps program was launched in 2012, State Preschool programs from the Child Development Divisions of Pajaro Valley Unified School District and Live Oak School District agreed to participate. The 23 classrooms in these two districts which qualified to receive Reading Corps Tutors had existing SEEDS-trained staff who had already implemented the “Literacy and Math Rich Schedule” into their programs. This daily schedule provides the comprehensive and structured implementation of all of the components of SEEDS.

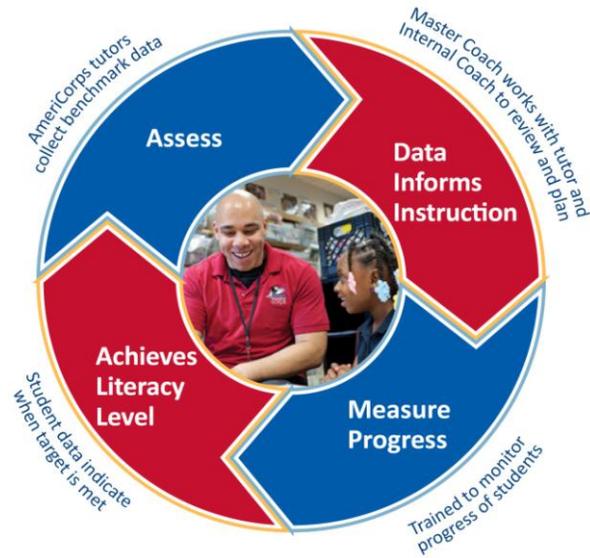
The Santa Cruz Reading Corps replicated the Minnesota Reading Corps<sup>6</sup> program model which uses individual assessments to monitor each child’s early literacy skills. This model has a Response to Intervention (RtI) component which offers supplemental individual instruction from the Reading Corps Tutor every day for the five children with the lowest initial scores. This may be delivered through a “Tier 2” small group intervention for 5-10 minutes, or a “Tier 3” on-on-one intervention for 3-5 minutes. All children in the classroom participate in the “Tier 1” daily routine of the SEEDS literacy and math rich schedule.



**Figure 8: Reading Corps is a “Response to Intervention” model which uses periodic assessment to determine which Tier of intervention is most appropriate.**

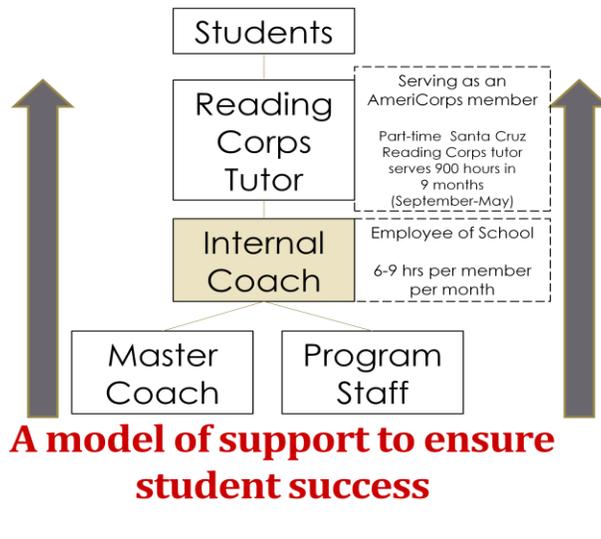
<sup>5</sup> <http://www.raisingareader.org>

<sup>6</sup> [www.minnesotareadingcorps.org](http://www.minnesotareadingcorps.org)



**Figure 9: Minnesota Reading Corps Program Model**

During their 9 months of service, each Reading Corps Tutor receives over 200 hours of training in SEEDS strategies, child assessments, AmeriCorps training, and professional development. (See Logic Model in Appendix II). Ongoing supervision and coaching are provided throughout the year. At each school site, a designated staff member also serves as the Internal Coach. She observes and mentors the Reading Tutors on the implementation of SEEDS strategies. First 5 Santa Cruz County provides overall program support with a Program Coordinator who handles administrative issues and a Master Coach who provides training and ongoing program support.



**Figure 10: Santa Cruz Reading Corps Coaching Model**

## Evaluation Design & Tools

The evaluation design sought to measure comprehensive program impacts on early literacy using existing data collection tools and procedures. The child outcomes analysis was to be supplemented with AmeriCorps member perceptions of their service experience. This can be found in Appendix V.

Three assessment tools were administered to collect data on school readiness; the “IGDIs/FAST”, the “Child Snapshot”, and a measure of school readiness taken from the Desired Results Developmental Profile (DRDP) assessment summary.

The first tool was created from elements of the Individual Growth and Development Indicators<sup>7</sup> (IGDIs) and the Formative Assessment System for Teachers<sup>8</sup>(FAST) to assess a child’s competency in:

1. picture naming;
2. rhyming;
3. alliteration;
4. letter sounds ; and
5. letter naming

The Reading Corps Tutors administer the IGDIs/FAST assessments three times a year: once in late September-early October, once in late January - early February, and once in May. These assessments help Tutors select children who receive tailored literacy-based intervention on a daily basis (Tier 2 small group and Tier 3 one-on-one), as well as to clarify the needs of the whole class (Tier 1). Each of the selected children’s progress is monitored monthly. Before conducting each of the IDGIs and FAST benchmarks (fall, winter and spring) with children, all tutors are observed by program staff on their assessment procedures, which is measured with a fidelity checklist by their coach on each of the five assessments.

Each child also had a Transition to Kindergarten Child Snapshot (Snapshot) which included data from forms completed by parents and from the preschool teacher at the end of the preschool year. The parent report section includes demographic information and home-based readiness activities, participation in transition to kindergarten activities, participation in other community support activities, and child health. The preschool teacher support section includes narrative description of child’s learning styles, and progress in language development, and overall attendance.

Additionally, the teachers attach the DRDP summary form which is a simple 1-page teacher observation score sheet of school readiness competencies: self-care and motor skills; self-

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<sup>7</sup> <http://www.myIGDIss.com/>

<sup>8</sup> <http://www.fastforteachers.info/>

regulation; social expression and kindergarten academics. Desired Results Developmental Profile (DRDP)<sup>9</sup> is used for public preschool programs in California to assess school readiness.

## Evaluation Findings

A full description of evaluation methods may be found in Appendix I, Data Analysis Overview. The evaluation used statistical analyses to measure: pre/post changes; rates of changes for the students participating in Tiers 2 and 3 versus students who participate only in Tier 1; rates of achievement of school readiness benchmarks; relationships between school readiness and parent reports of at-home early learning activities; and a descriptive comparison of readiness of children in SEEDS programs in Santa Cruz County, with and without the Reading Corps component. The data were examined for potential quasi-experimental design analysis, but there was not a qualifying set of comparison group data.

### Pre/Post Paired T Analysis

A paired t-test was conducted which compared pre- and post-scores for the IGDI/FAST for the total sample. This method examines the difference between paired scores and accounts for the repeated assessments of the same children.

There were significant ( $p < .001$ ) improvements in pre- and post-scores for all literacy measures. The children who participated in the Santa Cruz Reading Corps program scored significantly higher in picture naming; rhyming; alliteration; letter sounds; and letter naming at the end of the program, for both program years. The greatest gains were in letter naming, picture naming and letter sounds.

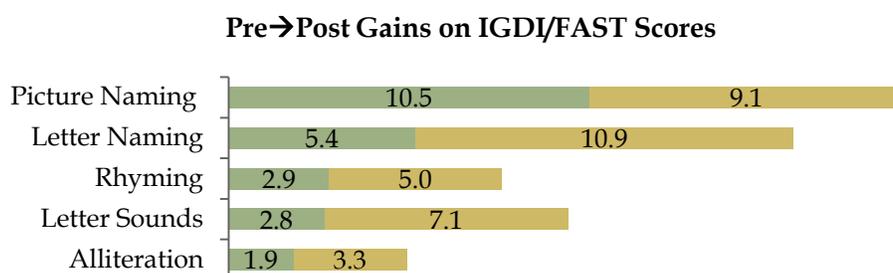


Figure 11: Gains (difference between post and pre scores) were seen in all 5 early literacy skills assessed.

### Comparison of Tiers 2 & 3 with Tier 1 only Scores

Based on the Reading Corps Response to Intervention model, by definition, the children in Tiers 2 or 3 started the school year with low scores. With additional individualized attention, would

<sup>9</sup> [http://www.desiredresults.us/form\\_drdp.htm](http://www.desiredresults.us/form_drdp.htm)

their IGDIs/FAST change scores be comparable with the Tier 1 only students? We examined differences in performance for intervention and non-intervention students.

As may be expected, children receiving the Tier 2 or 3 intervention also had significantly lower final scores than children not receiving the supplemental interventions (See Figure 6).

However, children in both groups experienced significant gains in literacy and the individual rates of change of children in Tiers 2 and 3 were similar to the non-intervention children in letter-naming, rhyming, and alliteration.

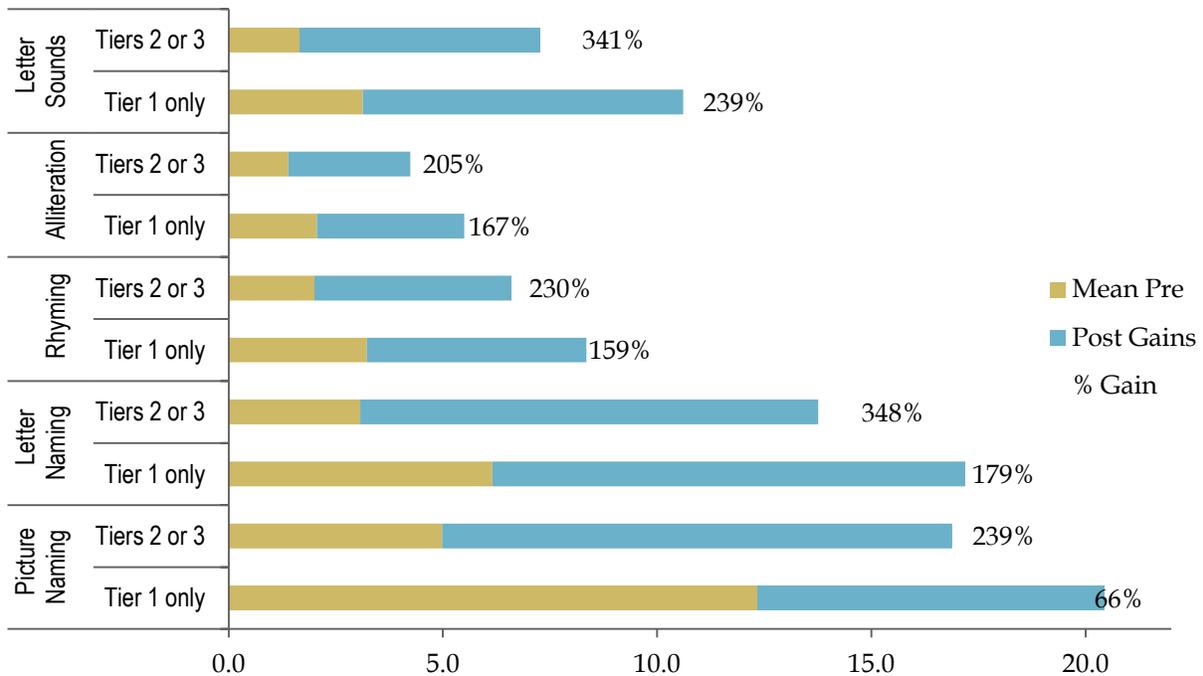


Figure 12: Paired sample statistics (only including children with a pre- and post- IGDIs/FAST assessment) demonstrates that each group achieved significant gains in early literacy skills. Students in Tiers 2 & 3, by definition, started with lower scores. Gains are the difference between mean post scores and mean pre scores.

In the case of picture naming, children receiving the Tiers 2 and 3 interventions experienced significantly *greater* gains than non-intervention children (see Table 5 of Appendix 1 and Figure 7), approaching a closing performance gap. Picture naming was the most repeated assessment for Tiers 2 or 3, and this finding suggests there may be a testing effect on performance in this area.

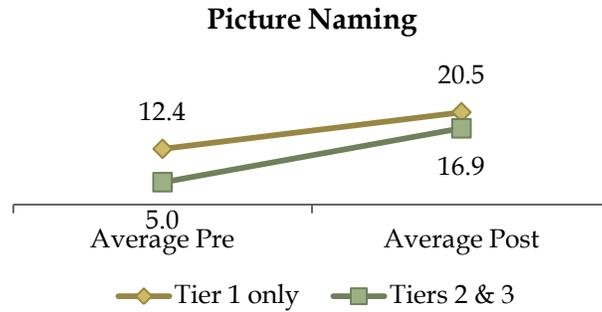


Figure 13: Comparison Tiers 2 or 3 and Tier 1-only average pre- and post-scores in Picture Naming

### Kindergarten Readiness Benchmarks

Preschool teachers assessed 30% of the children in the program with the DRDP near the end of the school year. Both the mean and median DRDP scale scores were in the “in-progress” and “proficient” ranges. This finding demonstrates strong school-readiness skills for children participating in Reading Corps. The evaluators do not have information on why only 30% of the children were assessed, but the preliminary finding is encouraging and bears further investigation with a larger sample.

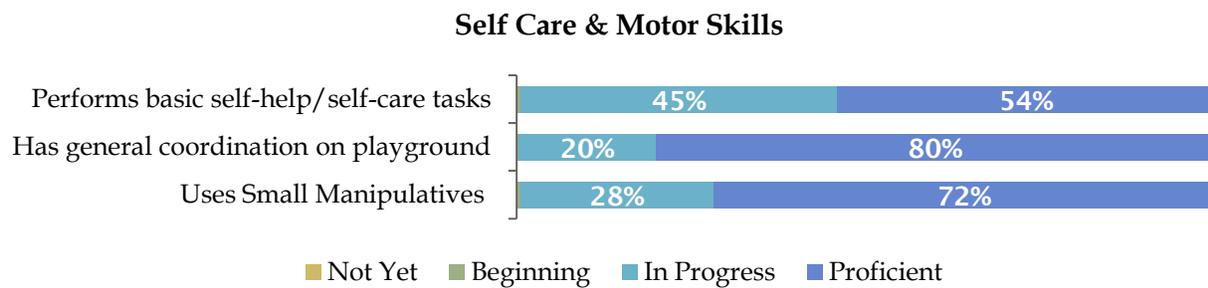


Figure 14: Percent of Pre-Kindergarten Observation Form year-end assessments by readiness skills in Self-Care and Motor Skills for children in Reading Corps program. n=315.

### Self-Regulation

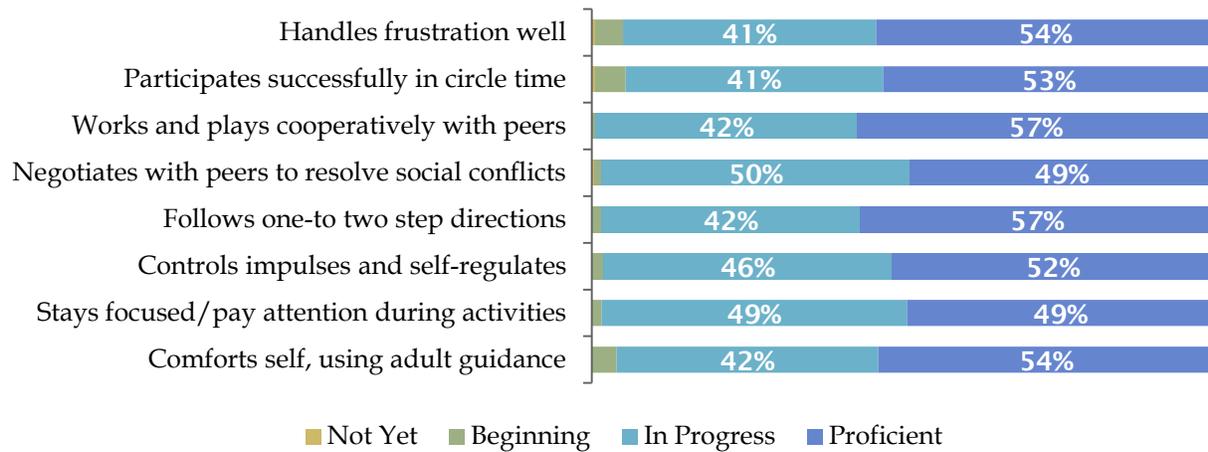


Figure 15 Percent of Pre-Kindergarten Observation Form year-end assessments by readiness skills in Self-Regulation for children in Reading Corps program. n=199-318

### Social Expression

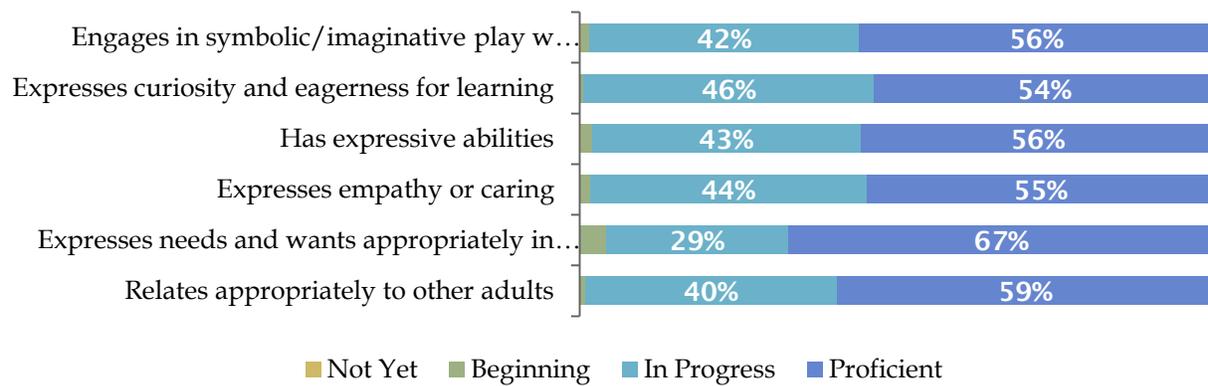
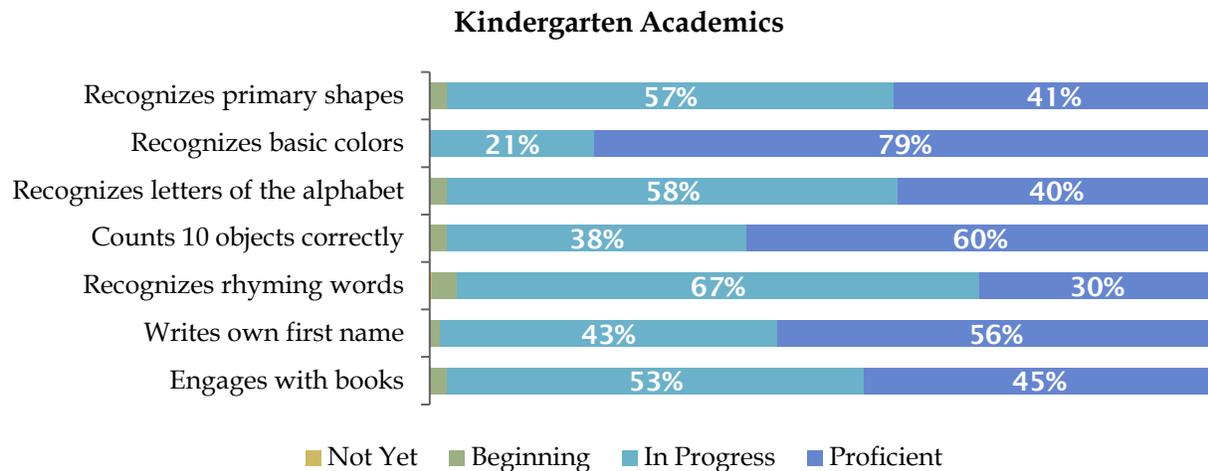


Figure 16: Percent of Pre-Kindergarten Observation Form year-end assessments by readiness skills in Social Expression for children in Reading Corps program. n=197-318



**Figure 17: Percent of Pre-Kindergarten Observation Form year-end assessments by readiness skills in Kindergarten Academics for children in Reading Corps program. n=205-318**

### ***Correlations between Literacy Scores and Readiness***

Snapshot indicators of socio-emotional and academic readiness as reported by parents and teachers were examined for relationships with IGDIs/FAST early literacy scores. Significant associations were found between IGDIs/FAST literacy change scores and teacher’s assessment of kindergarten readiness (see Table 7 of Appendix 1) particularly with the academic readiness subscale. This relationship indicates that progress in early literacy skills (especially in rhyming, alliteration, letter sounds) predicted preschool teachers’ perception that the child was ready for kindergarten, especially in the academic skills domain. This supports the idea that the Reading Corps literacy intervention indexed skills needed in kindergarten.

### ***Home Readiness Activities and Children’s Readiness***

The Snapshot parent data offered an opportunity to examine associations between reported parental behavior and children’s literacy and kindergarten readiness. There were several small but significant correlations between parent-reported behaviors and kindergarten readiness ratings from both the IGDIs/FAST and DRDP. Specifically: higher frequency of singing songs; drawing and solving puzzles; and eating meals together were linked to kindergarten readiness outcomes.

Similarly, several of the reported parenting kindergarten preparation activities were significantly linked to one or more literacy change score measures. These included: seeking out registration information; seeking out information on becoming involved in school; participation in “Raising a Reader” book program; having help from extended family and neighbors; and being engaged with community resources such as health clinics, churches and non-profit agencies.

### Quasi-Experimental Comparison

While pre/post comparisons revealed significant improvements in literacy scores for program participants over the course of the program, a quasi-experimental comparison provides a more rigorous test of program effectiveness. Ideally, Santa Cruz Reading Corps children would be compared to similar children who were in a similar program without the Reading Corps component. Since DRDP, Snapshot and IGDIs/FAST data were collected in SEEDS classrooms prior to the initiation of the Reading Corps program, data from these prior years were examined for the potential of a quasi experimental comparison. Investigation for comparability to a group with IGDIs/FAST and/or Snapshot data was attempted, but the comparison group did not qualify. They differed significantly in ethnicity and home language but the more critical challenge was insufficient post data collected to conduct a valid quasi-experimental comparison. (See Appendix 1 for additional description.)

### Descriptive Comparison of Readiness Scores

While the investigated comparison group did not meet the specifications for quasi-experimental comparison, the DRDP scores were available for 48% of the children in the SEEDS classrooms that did not participate in Reading Corps ( $n=149$ ). These school readiness scores were compared with scores available for 30% ( $n=318$ ) of the children who were enrolled in preschool classrooms with Reading Corps. Descriptive comparison revealed significantly higher scores on all outcomes for children who had participated in Reading Corps compared to children who experienced a similar SEEDS program without the Reading Corps component.

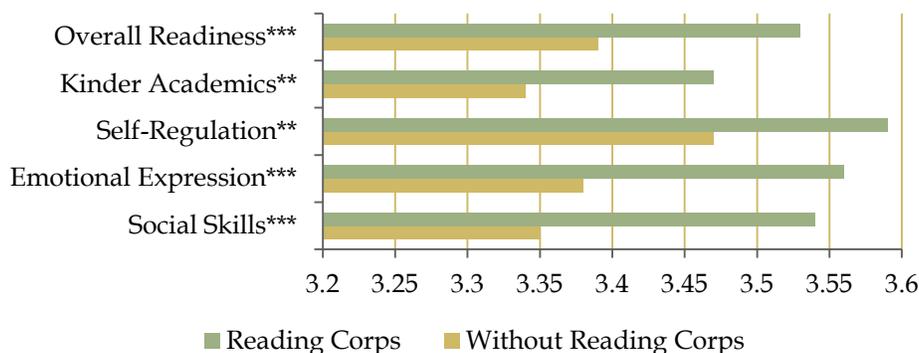


Figure 18: Comparison of DRDP Year-End Scores between SEEDS programs with and without Reading Corps. Means are significantly different \*\*  $p < .01$  \*\*\*  $p < .001$

### ***Reading Corps Tutors' Perceptions***

Six of the 12 Reading Corps Tutors responded to an online survey about their program experience. They reported extensive training. All 6 felt they consistently received the support they needed to be effective throughout their service period and that it met or exceeded their hopes and expectations. They felt the Reading Corps curriculum was engaging to children. Tutors were attracted to the program to build experience, to serve the community, to see how they like teaching, and to help children be ready for kindergarten. Most reported that the program exceeded their hopes and expectations.

### **Limitations**

The investigators were introduced to this project in the spring of the program year, and therefore reliant on existing data. The design assumed faithful implementation of three evidence-based programs (SEEDS, Reading Corps, and Raising a Reader) but did not assess fidelity. The design also assumes validity and reliability of assessment tools.

## Conclusions

There is evidence of significant positive change in literacy scores for children in early learning programs that include the addition of the Reading Corps component with SEEDS Early Literacy and Raising a Reader programs. Early literacy skills, especially in rhyming, alliteration, and letter sounds, predict preschool teacher's assessment of kindergarten readiness, especially in academic skills. Children who enter preschool with the lowest scores in early literacy, and participate in Reading Corps, see similar improvements as those who enter preschool more ready. The family's role in school readiness is also important. Families that report connectedness to community resources and engaging with their child through singing, drawing, puzzle-solving and family meals have children more likely to be ready for kindergarten. The coaching provided to Reading Corps Tutors throughout their 9 months of service helped them feel of service to children and the community, while building their own skills. An integrated approach of: teacher quality; supplemental skill-specific instruction within the preschool program; access to children's literature at home; with the possible addition of explicit parent education; will increase early literacy skills for children preparing to enter kindergarten.

## Considerations for Future Investigation

1. Measure fidelity to each of the three program component models.
2. Consider methods to collect appropriate data from a comparable group for the development of quasi-experimental design.
3. Validate inter-rater reliability of the assessments for comparison group classrooms.
4. Consider adding and evaluating a more rigorous parent education component on parent's role, both at home and in the classroom.
5. Work with program staff in advance to implement strategies for more complete data collection.
6. Consider collecting data about amount and type of Tier 2 and 3 interventions.
7. Collect attendance data to inform assessment of dosage effects.
8. Discuss, coordinate and plan in advance for how the data will be matched and cleaned.

## Appendix 1

### DATA ANALYSIS OVERVIEW

#### Santa Cruz Reading Corps 2012-14

##### SAMPLE

The sample included a total of 1054 students enrolled in the Santa Cruz Reading Corps program for two academic year cohorts (2012-13 and 2013-14). The sample was primarily Latino/a, with a mean age at entry of 4.25 years ( $SD = .46$ ). The sample included 530 children from '12-'13 program year and 528 from the '13-'14 program year. Other demographic characteristics are summarized in Table 1.

Table 1: Demographic Information for Total Sample (n=1054)

Categorical Variable			
<b>Ethnicity</b> (n=791)	6.7 %	White/Caucasian	<ul style="list-style-type: none"> <li>■ White</li> <li>■ Latino/a</li> <li>■ Other</li> </ul>
	91.3%	Latino/a	
2.0%	Other		
<b>Gender</b> (n=1028)	47.7%	Male	<ul style="list-style-type: none"> <li>■ Male</li> <li>■ Female</li> </ul>
	51.3%	Female	
<b>Primary Language</b> (n=812)	53.8%	Spanish	<ul style="list-style-type: none"> <li>■ Spanish</li> <li>■ English</li> <li>■ Bilingual/Other</li> </ul>
	30.2%	English	
	16.0%	Bilingual/Other	

##### MEASURES AND DATA COLLECTION

Two assessment tools were administered to collect data on early literacy

##### IGDIS/FAST

The program developed an assessment drawn from two tools, the Individual Growth & Development Indicators (IGDIs) and the Formative Assessment System for Teachers (FAST). The IGDIs (Individual Growth & Development Indicators) is an early childhood assessments for monitoring the growth and development of preschool-aged children prior to Kindergarten. The assessments provide a mechanism for “identifying children who are experiencing difficulties acquiring fundamental skills necessary for later academic achievement”<sup>10</sup> and can be used to target and adjust instruction for individual children. It is a useful tool for programs that utilize a

<sup>10</sup> <http://www.myIGDIs.com>

Response to Intervention (RtI) approach, as does the Santa Cruz Reading Corps, where the IGDIs scores are used to identify children eligible for the Tier 3 (intensive one-on-one) and Tier 2 (small group) interventions. The FAST is another “evidence-based assessment used to screen and monitor student progress.”<sup>11</sup> These combined IGDIs/FAST literacy assessments were conducted for all enrolled children three times during the program (Fall, Winter, Spring). Children in Tier 2 or Tier 3 were progress monitored in the specific area of literacy (using one of the five assessments in the IGDIs or FAST) in which they are receiving an intervention once every four weeks to track growth.

Five areas of literacy were assessed in the current sample:

1. Picture Naming
2. Rhyming
3. Alliteration
4. Letter Sounds
5. Letter Naming

### Child Snapshot

The Child Snapshot is a form completed by parents and the preschool teacher at the end of the preschool year. It includes parent reports of demographic information and home-based readiness activities, as well as teacher-rated readiness in social-emotional functioning and kindergarten academics.

**Table 2: Child Snapshot Parent-Reported Variables**

Variable	Readiness Activities
<b>READBOOKS/FREQBOOKS</b>	Share or read books/Frequency book reading
<b>SINGSONGS/FREQSONG</b>	Tell stories or sing songs/Frequency
<b>MEALS/FREQMEAL</b>	Sit down to meals together?/Frequency
<b>DRAWS/FREQ DRAW</b>	Draw, color, paint, play games/puzzle/Frequency
<b>LIBRARY/FREQLIB</b>	Visit the library?/How many times per week
<b>BEDTIME</b>	Child’s usual bed time on a week night?
<b>CHORES</b>	Does child help with chores around the house?
<b>REGINFO</b>	Information about how and when to register child for school?
<b>MEETINFO</b>	Information on how to meet child's kindergarten teacher?
<b>INVOLINFO</b>	Information about how to get involved with the school/classroom
<b>NEEDSINFO</b>	Information about child's strengths, needs, and interests
<b>BOOKBAG</b>	Participation in Raising a Reader (home book bag program)
<b>PARENTED</b>	Parent education classes (positive discipline, etc.)
<b>PARSUPP</b>	Parent support groups (Together in the Part, etc.)
<b>FAMHELP</b>	Help from extended family or neighbors and/or friends
<b>COMMHELP</b>	Community resources (health clinics, churches, nonprofit)

<sup>11</sup> <http://www.fastforteachers.info/>

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<b>LITACTIVE</b>	Attended school literacy activities or parent nights
<b>ALLERGY</b>	Does child have any food or other allergies?
<b>HEALTHPROB</b>	Does child have any health problems (such as asthma)?
<b>GLASSES</b>	Does child wear glasses?
<b>LANGPROB</b>	Do child have any language/speech concerns about your child?
<b>SPECNEED</b>	Does child have a diagnosed special need, disability or health concern?
<b>IEP</b>	Does child have an IEP or an IFSP?
<b>VISION</b>	Health assessments or screenings-Vision?
<b>HEARING</b>	Health assessments or screenings-Hearing?
<b>MEDICAL</b>	Health assessments or screenings- Medical? ?
<b>DENTAL</b>	Health assessments or screenings-Dental?
<b>DEVELOP</b>	Health assessments or screenings-developmental?
<b>DOCTOR/DENTIST</b>	Does your child have a regular doctor/pediatrician?/Dentist?

Additionally, preschool teachers reported on 2 sets of items.

Teachers reported on the child’s language development, presence of IEP and general attendance, including:

- progress in primary language;
- English comprehension skills;
- English speaking skills;
- IEP plan and referral; and
- absence rating.

### Desired Results Developmental Profile (DRDP)

Preschool teachers also rated readiness items using Desired Results Developmental Profile (DRDP) items in the following domains:

- self-care;
- social expression;
- self- regulation;
- kindergarten academics; and
- overall readiness.

These five items were scored similarly to the DRDP (1=Not Yet, 2=Beginning, 3=In Progress, 4=Proficient) and total scale scores represented a mean of scale items (thus, they also ranged from 1 to 4).

### ATTRITION AND MISSING DATA

IGDIs/FAST pre- and post-test data were evaluated for missing values and data attrition. There were a total of 1062 cases available for the combined ‘12-‘13 and ‘13-‘14 Reading Corps program

years. Eight students had IDs with no data attached and were dropped from the data set. The remaining 1054 cases were examined for (a) whether the pre-test score was missing (i.e., incomplete data) (b) whether the post-test score was missing (i.e., attrition) and (c) whether both scores were missing (i.e., the student was not assessed on that item). The results varied by outcome and are presented in Table 3. Attrition rates ranged from 9% to 17% and are all at acceptable levels for the WWC. Parent reports of home activities and demographics were available for 544 (52%) children, and early educator reports of readiness were available for 318 (30%) children.

**Table 3: Frequencies for Missing Literacy Data and Student Attrition**

<b>Outcome</b>	<b>COMPLETE DATA</b> <i>Used in analyses</i>	<b>INCOMPLETE PAIR</b> <i>Missing initial score</i>	<b>MISSING PAIR</b> <i>Missing pre and post scores</i>	<b>ATTRITION</b> <i>Missing final score</i>
<b>Picture Naming</b>	804	160	20	70 (9%)
<b>Rhyming</b>	673	263	49	69 (10%)
<b>Alliteration</b>	638	268	65	83 (13%)
<b>Letter Sounds</b>	428	239	328	59 (14%)
<b>Letter Names</b>	493	174	304	83 (17%)

Missing data within cases were handled in one of two ways. First, total scale scores were created by taking a mean of scale items, thereby averaging across any missing items within scales. Second, missing data were excluded per each analysis, rather than “listwise”, i.e., all available data for a given analysis was used, rather than excluding cases with *any* missing data for *all* analyses.

## PRE-POST COMPARISONS OF LITERACY OUTCOMES

### **OUTCOME 1: “As a result of program participation, increased early literacy skills as measured by the IGDIS/FAST in:**

Pre (Fall) and Post (Spring) scores were available for the following early literacy outcomes:

- Picture Naming (PNBM1 and PNBM3)
- Rhyming (RBM1 and RBM3)
- Alliteration (ALBM1 and ALBM3)
- Letter Naming (LNBM1 and LNBM3)
- Letter Sounds (LSBM1 and LSBM3)

A series of paired-sample were conducted to examine observed differences from fall to spring across both program years. There were significant ( $p < .001$ ) improvements in Pre- and Post-

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scores for all literacy measures such that children scored significantly higher on literacy at the end of the program, for both 2012-13 and 2013-14 program years (see Table 3).

**Table 4: Pre-post Comparisons for Literacy Outcomes**

Outcome Variable	n	Mean (std) <i>Time 1 (Fall)</i>	Mean (std) <i>Time 2 (Spring)</i>	Paired t*
Picture Naming	804	10.45 (8.99)	19.53 (8.53)	37.77
Letter Naming	516	5.41 (7.80)	16.35 (11.87)	26.53
Rhyming	673	2.92 (3.90)	7.90 (6.35)	23.30
Alliteration	638	1.88 (2.75)	5.16 (4.87)	18.52
Letter Sounds	428	2.78 (4.44)	9.83 (7.89)	22.06

\*Note: All ts are significant at  $p < .001$

### Comparing Tiers 2 & 3 with Tier 1 only Groups

The Reading Corps program design utilizes what is currently being called a Response to Intervention (RtI) model by the education field. The Reading Corps program provides additional small group and individualized support for children with the lowest initial IGDIs/FAST assessments. Theoretically, such intensive intervention should raise mean scores for the total group, as well as create individual improvements for the children receiving intervention. We examined differences in performance for intervention and non-intervention students.

A total of 229 (22%) children (89 in '12-'13 and 140 in '13-'14) received Tiers 2 or 3 intervention based on early IGDIs scores. As may be expected, children receiving the more intensive Tiers 2 or 3 interventions had significantly lower initial scores and final scores than children not receiving these supplemental interventions. However, children in the intervention group experienced similar significant gains in literacy as measured by change scores; their individual rates of change were similar to the non-intervention children. In one case (Picture Naming), children receiving the Tiers 2 or 3 interventions experienced significantly *greater* gains than non-intervention children (see Table 5).

**Table 5: Comparison of Standard Intervention and Tier 2 or 3 Intervention Groups on Literacy Outcomes**

	Tier 1 Only		Tiers 2 or 3		t
	n	Mean (SD)	n	Mean (SD)	
<b>Average Initial Scores (Fall)</b>					
Picture Naming	660	12.26 (9.08)	214	4.93 (6.13)	11.02***
Letter Naming	444	5.94 (8.29)	132	3.00 (4.71)	3.88***
Rhyming	562	3.21 (4.04)	180	1.99 (3.26)	3.67***
Alliteration	543	2.05 (2.86)	178	1.38 (2.28)	2.83**
Letter Sounds	381	2.97 (4.52)	106	1.65 (2.99)	2.84**
<b>Average Final Scores (Spring)</b>					
Picture Naming	742	19.39 (9.13)	222	16.77 (7.27)	3.92***
Letter Naming	533	15.72 (12.22)	177	12.12 (9.84)	3.56***
Rhyming	720	7.52 (6.22)	216	6.36 (5.61)	2.46**
Alliteration	695	5.14 (4.95)	211	4.18 (3.98)	2.55**
Letter Sounds	508	9.63 (8.01)	159	6.97 (6.04)	3.84***
<b>Averaged Individual Change Scores (Spring minus Fall)</b>					
Picture Naming	597	8.10 (6.65)	207	11.91 (6.49)	-7.146***
Letter Naming	390	11.03 (9.36)	126	10.69 (9.44)	.35 <i>ns</i>
Rhyming	501	5.12 (5.52)	172	4.60 (5.65)	1.05 <i>ns</i>
Alliteration	468	3.44 (4.66)	170	2.85 (3.94)	1.49 <i>ns</i>
Letter Sounds	328	7.48 (6.71)	100	5.63(6.08)	2.49*

\*p<.05 \*\*p<.01 \*\*\*p<.001

A change score, representing each individual child’s change over the duration of the program, was created by subtracting that child’s Fall Score (pre) from the Spring (post) score. T-tests were conducted to compare Tier 1-only students and the Tiers 2 or 3 intervention groups on Fall (pre) scores, Spring (post) scores, and change scores (Spring minus Fall).

As shown in Table 5, as a group, children with Tiers 2 or 3 interventions had significantly lower pretest and post-test scores than children in the Tier 1-only group for all literacy outcomes. This is to be expected because initial pretest scores were used to select children for the Tiers 2 or 3 interventions.

In the analysis of the change scores, however, children in the Tiers 2 or 3 group showed significantly *greater* change over the course of the program in picture naming (the area in which children received the most frequent progress monitoring assessments), and similar levels of change in alliteration, rhyming and letter naming. The only score in which Tiers 2 and 3 children showed lower change than the other children in the classroom was in letter sounds.

Because there was no comparable group of children identified as qualifying for Tiers 2 or 3 interventions who did not receive the intervention, there is no statistical way to know whether these similar levels of change represent a benefit of the more intensive interventions. This

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analysis does not constitute such a comparison. It merely shows that these initially low scoring children are not continuing to score poorly on the literacy measures, and are instead improving at similar or greater rates to children in non-intervention groups.

These results also suggest that a re-examination of the Tiers 2 or 3 intervention curriculum for letter sounds, where change rates are significantly lower for Tiers 2 or 3, may be helpful.

### KINDERGARTEN READINESS Benchmarks

**“OUTCOME 2: “As a result of program participation, there will be increased early socio-emotional and academic skills as measured by (cross-walked) DRDP”**

#### *DRDP Indication of Readiness*

Because there were no cross-walked DRDP pretest scores of kindergarten readiness, there was no way to measure changes in readiness over the course of program participation. Cross-walked DRDP items were available for 318 (30%) of the children. These subscales were scored on a 1-4 scale (1=not yet, 2=beginning, 3=in progress, 4=proficient). Table 6 shows means and medians for these subscales. While no conclusions can be drawn about program effectiveness from these data, they do show that a majority of children are considered “in-progress” (3) or “proficient” (4) in these domains at the end of the program.

**Table 6: Means and Standard Deviations for Readiness Scores at End of Program (n=318)**

Readiness Scores	Mean (SD)	Median
Social Skills	3.54 (.43)	3.60
Emotion Expression	3.56 (.42)	3.67
Self-Regulation	3.59 (.38)	3.67
Academics	3.47 (.40)	3.43
<b>Total Readiness</b>	<b>3.53 (.36)</b>	<b>3.63</b>

#### *Correlations between Literacy Scores and Readiness*

Parent and early educator reports of socio-emotional and academic readiness were also examined relative to program participation. Descriptive analyses were conducted, and links between (a) change scores in literacy assessments, (b) parent activities, and the cross-walked DRDP indicators of kindergarten readiness were examined, revealing significant associations between these variables.

Pearson Correlations revealed significant associations between IGDIs/FAST literacy change scores and kindergarten readiness (see Table 7). There were also significant correlations between literacy change scores and teachers’ ratings of readiness, particularly with the academic readiness subscale. Thus, changes in literacy occurring in the program (especially in rhyming, alliteration, letter sounds) predicted kindergarten readiness scores (especially in the

academic skills domain). This provides some support for the idea that literacy intervention provided in the program indexed skills needed in kindergarten.

**Table 7: Pearson Correlations between Literacy Change Scores and Kindergarten Readiness Scores**

Kindergarten Readiness	Picture Naming Change	Rhyming change	Alliteration Change	Letter Sound Change	Letter Name Change
Social Skills	-.02	.11	.10	.18	.02
Emotional Expression	-.07	.10	.13	.17	.04
Academic Skills	-.03	<b>.25***</b>	<b>.30***</b>	<b>.30***</b>	<b>.25***</b>
Self Regulation	-.04	<b>.18*</b>	<b>.16*</b>	<b>.20*</b>	.13
<b>Overall Readiness</b>	<b>-.04</b>	<b>.19**</b>	<b>.21**</b>	<b>.24**</b>	<b>.12</b>

\*p<.05    \*\*p<.01    \*\*\*p<.001

*Home Readiness Activities and Children’s Readiness*

The Child Snapshot parent data offered an opportunity to examine associations between reported parental behavior and children’s literacy and kindergarten readiness. As shown in Table 8, there were several small but significant correlations between parent-reported behaviors and readiness. Specifically, higher frequency of singing songs, drawing and solving puzzles, and eating meals together was linked to kindergarten readiness outcomes.

Similarly, several reported parenting preparation activities were significantly linked to one or more literacy change score measures seeking out registration information, seeking out information on becoming involved in school, participation in “Raising a Reader” book program, help from family of neighbors, and help from community resources.

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Table 8: Pearson Correlations between Parents' Readiness Behaviors and Readiness

Outcome	PARENT READINESS BEHAVIORS			
	Read Books	Sing Songs	Draw/ Puzzles	Eat Meals Together
Picture Naming	-.03	-.09	-.07	-.03
Rhyming	.02	.02	.01	.00
Alliteration	.07	<b>.13*</b>	.00	.05
Letter Sounds	.04	.04	.02	.06
Letter Names	.02	-.09	<b>-.13*</b>	<b>-.13*</b>
Social Skills	.08	<b>.15**</b>	<b>.12*</b>	<b>.12*</b>
Emotional Expression	.09	<b>.19**</b>	<b>.13*</b>	.11
Kinder Academics	.10	<b>.23***</b>	<b>.15**</b>	<b>.15*</b>
Self Regulation	.06	<b>.14*</b>	.11	.07
Overall Readiness	.09	<b>.19**</b>	<b>.14*</b>	<b>.12*</b>

\*p<.05    \*\*p<.01    \*\*\*p<.001

### *Dosage Effects*

No attendance data were available in the current sample. The Child Snapshot data contained one question asking the teacher to rate frequency of absences from the program (1=never to 5=frequently). There were no significant correlations between this rating and any of the literacy or readiness variables.

### QUASI-EXPERIMENTAL COMPARISON

While pre/post comparisons revealed significant improvements in literacy scores for program participants over the course of the program, a quasi-experimental comparison provides a more rigorous test of program effectiveness. Ideally, Santa Cruz Reading Corps children would be compared to similar children who were in a similar program without the Reading Corps component.

In this case, the same literacy measures were collected over previous program years in Santa Cruz County state preschool programs that did not have the Reading Corps component. While not ideal for many reasons (e.g., teachers gain in experience over time, characteristics of participants change over time and from year to year, etc.), the most recent cohorts (2012-13 and 2013-14) represent children who experienced the Reading Corps component, compared to previous cohorts. Thus, we investigated whether data from these earlier cohorts provided an acceptable comparable comparison group for use in evaluating program effectiveness.

A comparison group was identified representing a subsample of program sites from the '11-'12 program year where teachers were trained on IGDIs assessment protocols. This comparison group included 211 children over 10 sites whose IGDIs assessments were administered Fall, Winter, and Spring in picture-naming, alliteration, and rhyming.

#### *Comparability of Comparison Groups*

The first task in such a quasi-experimental comparison is to establish, to whatever extent possible, that the groups are comparable. Child ethnicity, language and gender were available for nearly all of the children in the sample. However, family demographic data (e.g., family income, parent education) were not available for program participants, limiting any examination of comparability between the two groups. However, there is reason to believe that the participants in different years are similar in that all students were eligible for state preschool.

**Table 9: Demographic Characteristics of Comparison Groups**

Categorical Variable	2011 12	2012 13 and 2013 14
<b>Ethnicity</b>	17.7 % White 74.7% Latino/a .079% Other	6.7 % White/Caucasian 91.3% Latino/a 2.0% Other
<b>Gender</b>	50.3% Male 49.7% Female	47.7% Male 52.3% Female
<b>Primary language</b>	60.8% Spanish 24.8% English .14% Bilingual/Other	53.8% Spanish 30.2% English 16.0% Bilingual/Other
<b>Mean (Std) Age in years at program entry</b>	4.35 (.40)	4.25 (.46)

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Language, gender, age and ethnicity were compared between the two groups. A summary of characteristics of the two comparison groups are shown below in Table 7. Analyses revealed significant differences between the comparison groups in **ethnicity** ( $\chi^2= 98.78, p<.001$ ) and **primary language** ( $\chi^2= 13.44, p<.01$ ), such that there were proportionally more Latinos and proportionally fewer Spanish speakers in the 2012-14 group than the 2011 group. Therefore, these two variables would need to be accounted for in subsequent analyses. There were no significant differences between the two groups in gender composition or age.

### *Attrition/Differential Attrition Rates*

Attrition refers to missing post scores in a pre-post design. High rates of attrition can create a situation in which the post-score group is substantially different from the pre-score group. For example, children who drop out or who are not assessed at time 2 are also more likely to score lower on an initial assessment (low scorers are more likely to drop out). This can create a situation in which low scorers are dropped from change scores, thus inflating change scores. An additional problem occurs when the comparison groups have vastly different attrition rates, as this calls the groups' comparability into question (one group may contain more low scorers than the other).

Any quasi-experimental design must be evaluated for both overall attrition and differences in attrition rates across the comparison groups. What Works Clearinghouse (WWC) attrition rate standards specify with lower overall attrition rates, higher differential attrition rates are tolerated and vice versa. In the current comparison then, we needed to evaluate whether the attrition rates for literacy outcomes (picture naming, alliteration, rhyming) met these standards.

While overall attrition rates for the 2012-13 group were acceptable at 9-13% (see Table 2), attrition rates for the 2011-12 comparison group (ranging from 40-48%) were significantly higher, leading to a large *difference* (30% or more) in the attrition rate between the groups. This level of differential attrition exceeds WWC standards and indicates that a comparison between these two groups using literacy change scores is not likely to be valid.

### *Descriptive Comparison of Readiness Scores*

While it was not possible to conduct a valid quasi-experimental comparison of program effectiveness because of high differential attrition rates, early educator rated readiness, in the form of DRDP scores were available for 149 children (48%) in the 2011-12 comparison group (without Reading Corps) and 318 children (30%) in the 2012-14 sample (with Reading Corps).

As shown in Table 10, a comparison of readiness scores revealed significantly higher scores on all outcomes for children who had participated in Reading Corps after the change compared to children who experienced a similar program without the Reading Corps component.

**Table 10: Mean DRDP Readiness Scores by Comparison Groups: Without Reading Corps (2011-12) vs. With Reading Corps (2012-14)**

Outcome		n	Mean(SD)
Social Skills***	Before program change	149	3.35 (.38)
	After program change	318	3.54 (.43)
Emotional Expression***	Before program change	149	3.38 (.41)
	After program change	318	3.56 (.42)
Self-Regulation**	Before program change	149	3.47 (.32)
	After program change	318	3.59 (.38)
Kinder Academics**	Before program change	149	3.34 (.37)
	After program change	318	3.47 (.40)
Overall Readiness***	Before program change	149	3.39 (.30)
	After program change	318	3.53 (.36)

**Note:** Means are significantly different \*\*  $p < .01$  \*\*\*  $p < .001$

## Appendix IV Santa Cruz Reading Corps Logic Model

Resources	Activities	Outputs	Outcomes
<p><b>First 5 Staff</b></p> <ul style="list-style-type: none"> <li>▪ \$285,000 total contribution (F5SC and District staff, 12 members living allowance, all trainings &amp; materials, Minnesota Reading Corps fee of \$27K.</li> <li>▪ .75 First 5 Santa Cruz Reading Corps Coordinator (Christine Sieburg)</li> <li>▪ .20 FTE SEEDS Master Coach (Irene Freiberg)</li> </ul> <p><b>AmeriCorps</b> 12 AmeriCorps Reading Corps Tutors (30 hours/week)</p> <p><b>2 School District Partners</b></p> <ul style="list-style-type: none"> <li>• Pajaro Valley Unified School District, 14 classrooms, ~300 students</li> <li>• Live Oak School District, 9 classrooms, ~200 students</li> <li>• SEEDS -trained PreK/TK teachers, all with Site Supervision Permit.</li> </ul> <p><b>Evidence-Based Programs</b></p> <ul style="list-style-type: none"> <li>• <b>SEEDS of Early Literacy</b> (&amp; training by founder, Kate Horst) <ul style="list-style-type: none"> <li>○ Big 5 Early Literacy skills (<i>conversation &amp; oral language, alphabet knowledge, book &amp; print skills, phonological awareness, vocabulary &amp; background knowledge.</i>)</li> <li>○ Relationship-based (<i>sensitive, encouraging, educational, doing, self-esteem</i>)</li> </ul> </li> <li>• <b>Minnesota Reading Corps</b> pre-k coaching &amp; assessment model</li> <li>• <b>Raising a Reader book bag</b> program</li> </ul>	<p><b>F5SC:</b> AmeriCorps member recruitment, screening, hiring.</p> <p><b>211 hours of Preschool Literacy Tutor Training</b> from various providers:</p> <ul style="list-style-type: none"> <li>- 5-day AmeriCorps Summer Institute (Sept) &amp; Active Citizenship Training (March)</li> <li>- 12 hours online AmeriCorps literacy and social emotional training</li> <li>- 3-day Santa Cruz Reading Corps Institute &amp; supplemental trainings (Sept)</li> <li>- 8 hours PCA Leadership training</li> <li>- 4 hour “Challenging Behaviors” training by First 5</li> <li>- 79 hr. SEEDS of Early Literacy training (Sept-Nov.)</li> <li>- 2.5 hr. RAR Orientation (Sept)</li> <li>- 8 hr. Response to Intervention by SEEDS founder, Kate Horst</li> <li>- 16 hours Progress Monitoring (IGDIs) (Sept, Nov, Feb)</li> <li>- 2 hour/month “Monthly Meetups” with Reading Corps members (Oct-May)</li> </ul> <p><b># Host Teachers-</b> participate in orientation and ongoing coordination of Literacy Schedule with Tutors. Review and address Early Language and Literacy Classroom Observation Tool (ELLCO) standards.</p> <p><b>2 Internal District Coaches</b></p> <ul style="list-style-type: none"> <li>▪ Participate in training, meet-ups, and data review</li> <li>▪ Observe assigned classrooms 2x/mo.</li> <li>▪ Provide tutor coaching 2x/mo</li> </ul> <p><b>Master Coach</b></p> <ul style="list-style-type: none"> <li>▪ Provides SEEDS training</li> <li>▪ Facilitates data review with district coaches and tutors 3x/year for instructional decisions.</li> <li>▪ Observes and coaches district coaches and tutors</li> </ul> <p><b>Tutors assess students</b> using IGDIs and FAST 3x/yr. Analyze data &amp; progress monitor students identified for Tier 2 or 3 monthly. Enters progress into online data management tool (edSpring)</p> <p><b>Tutors provide daily</b> SEEDS of Early Literacy activities for ~500 children in coordination with host teacher for:</p> <ul style="list-style-type: none"> <li>▪ Whole classroom (Tier 1)</li> <li>▪ Small groups (Tier 2) 5-10 minutes daily</li> <li>▪ One-on-one tutoring (Tier 3) 3-5 minutes daily</li> </ul> <p>Children receive Raising a Reader books to take home weekly.</p> <p>Reading Corps embedded in preschool programs which are 3-8 hours per day, 5 days per week.</p>	<p><b>12 trained AmeriCorps members</b> each engaged in ~900 hours of reading tutor activities (Sept-May)</p> <p><b># preschool programs</b> with enriched literacy environments and activities demonstrated by ELLCO ratings on 19 measures</p> <p><b>~500 children</b> per year receive high quality preschool</p> <ul style="list-style-type: none"> <li>▪ attending at least 3 hours in literacy enriched program and engaged in Tier 1+2 instruction</li> <li>▪ assessed with Individual Growth &amp; Development Indicators(IGDIs) assessments 3x/year</li> <li>▪ At least 5 children per class receive Tier 2&amp;3 instruction daily (<i>Note: hours of State Preschool programming varies from 4 to 9 hours per day</i>)</li> </ul>	<p><b>Increased early literacy skills</b> as measured by the IGDIs/FAST in:</p> <ul style="list-style-type: none"> <li>▪ Picture Naming</li> <li>▪ Rhyming</li> <li>▪ Alliteration</li> <li>▪ Letter Naming</li> <li>▪ Letter Sounds</li> </ul>

Santa Cruz Reading Corps Evaluation Plan

Outcome	Indicators	Data Collection Methods & Tools	Frequency/Schedule of Data Collection	Sample Size	Analytical Methods
Increased Early Literacy	6. Picture naming 7. Rhyming 8. Alliteration	IGDIs	All children 3x/year; Tiers 2 or 3 children every 4 weeks. First assessment last week in Sept. or first week in Oct.	~500 (100% service population)	Paired t-test (pre/post)
	9. Letter naming 10. Letter sounds	FAST			Compare with Pre-Reading Corps scores (FYs 10/11 and 11/12)
			Child Snapshot Linked to DRDP		100%
AmeriCorps members contribute to community and strengthen their career path	<ul style="list-style-type: none"> <li>Self report of perceived contribution to community from not at all to great; narrative explanation</li> <li>Self-report of perceived benefit for career path from not at all to great. Narrative explanation.</li> </ul>	AmeriCorps Survey	1x, in last month of service.	All AmeriCorps serving TT Pre-K program	Qualitative narrative, simple response rates.

## Appendix IV

### AmeriCorps Member Perceptions

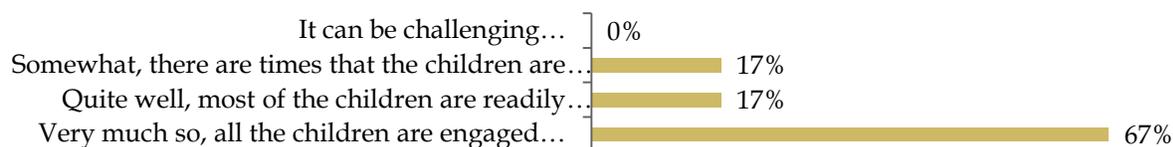
All 12 Reading Corps Tutors were invited to participate in an anonymous online survey. Six responded. The six that did not respond received two subsequent requests.

Four of the six (67%) reported that they were very well trained and two (33%) reported that they were pretty well trained to have a meaningful role implementing Reading Corps. Comments included “college-like training” in general and specifically, the excellent training by Kate Horst. One commented “I learn best by doing, so by the time it got towards the end, I think I could have used some refreshers on how to use different interventions. I became confused when I started to get check-ins with my internal coach on Visual Discrimination in Letter Naming, but my students were still not out of the red in Picture Naming. I had not realized that I could have been working on letter names earlier/ congruently, because I thought I needed to go in order and focus on picture naming first. And by the time I was using other interventions, it was 7 or 8 months since our initial training on them.”

All 6 (100%) felt they consistently received the support they needed to be effective throughout their service period. The only comment suggesting room for improvement was “*I was consistently supported by the AmeriCorps and Santa Cruz Reading Corps staff. However, I was not so supported by my site staff.*”

Most Tutors reported that Reading Corps curriculum was engaging.

#### How well does Reading Corps engage the children?



The Tutors reported various personal goals for signing up with Santa Cruz Reading Corps, 88.3% reporting that the program exceeded their hopes and expectations.

- *My main goal was to spend time with children while getting scholarship money.*
- *To aid in closing the achievement gap. To expand my job opportunities out of university.*
- *I saw this program as a great "crash-course" in teaching, to see if I want to pursue it in the future.*
- *To become a more involved member of my community.*
- *To help children become kinder-ready*
- *To give back to my community and help shape students' lives with meaningful education.*

## Appendix IV

Five of the six responding tutors reported that the program exceeded their hopes and expectations, with the remaining tutor reporting that it met her hopes and expectations.

- *I came out with MANY more benefits than what I ever could have imagined.*
- *I witnessed incredible English language growths both years I was involved in the program. It was amazing.*
- *I definitely got an insight into what is involved in teaching and what my strengths are, as well as where my interests lie.*

When given the opportunity to report anything else about the program, the enthusiasm continued.

- *It is an amazing program. I believe that children coming out of the Reading Corps classrooms will have great advantages over other children. Not only academic advantages, but self esteem, perseverance and the knowledge that they can succeed.*
- *I hope it is around for many, many years to come and I feel so lucky to have been a part of such an amazing team.*
- *I had an overall great experience. I learned a lot about myself, teaching, working with others, and in my community.*
- *It is one of the most, if not, the most amazing early education programs out there. Their goal is important and they know what teaching methods work with kids and their families. I am proud to have been part of this program.*