

An Evaluation of Jumpstart: Effects on Preschool-age Children in California

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An Evaluation of Jumpstart

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Key Findings



The composition of Jumpstart and comparison groups was similar regarding gender, language, and pretest scores.



There were statistically significant differences in the composition of Jumpstart and comparison groups regarding ethnicity and age, as well as by the type of center from which children were drawn.



The average JSSC gain of children who participated in Jumpstart was statistically significant and substantively important based on the What Works Clearinghouse (WWC) threshold of 0.25.



The average JSSC gain of children who participated in Jumpstart were statistically significantly greater than the gains of children who did not participate in the program, and the effect size for this impact was substantively important based on the WWC threshold.

Executive Summary

Jumpstart is a national early education organization that provides preparation for kindergarten for preschool children who are between 36 and 59 months of age and who are living in some of the most under resourced neighborhoods across the country. Jumpstart recognizes the importance of gathering scientific research evidence to support decision-making about instructional programs. As such, Jumpstart contracted with Magnolia Consulting, LLC, an independent evaluation consulting firm, to conduct data analyses of student assessment data collected during the 2014–2015 school year to support its evaluation

needs for the Corporation for National and Community Service (CNCS) under Grant No. 12ACHCA0010009.

Study Design & Methods

The purpose of this study is to examine the impact of Jumpstart on improving participants' oral language and early literacy skills. This report focuses on answering the following primary evaluation questions:



What were the demographic characteristics of Jumpstart and comparison groups? Did these groups differ significantly based on their demographic characteristics?



Did Jumpstart and comparison groups differ significantly based on their pretest scores?



Did Jumpstart children demonstrate statistically significant gains on JSSC scores?



Did Jumpstart children demonstrate statistically significant gains that were greater than the gains of comparison-group children?

To answer these evaluation questions, Jumpstart conducted a quasi-experimental study. The treatment group was comprised of children who participated in the Jumpstart program. A comparison group, comprised of children who did not use the Jumpstart program, was identified by site staff with guidance and support from Jumpstart's National Research & Evaluation team.

The final analysis sample included 1,716 Jumpstart children and 562 comparison-group children in 162 classrooms across 78 childhood centers in California.

Approximately half of the children included in the final sample were male (50.95%) and half were female (49.05%). Of these children, 56.80% were non-English speakers and nearly three-quarters of children were classified as Hispanic (71.41%).

The Jumpstart School Success Checklist (JSSC) was the primary measure to gauge the impact of the Jumpstart program. Administered at the start and at the completion of the school year, the JSSC measures children’s oral language and early literacy skills, with a possible score of one (lowest) through five (highest) on a variety of measures, and these scores were averaged to calculate a total scale score.

Group Equivalence

KEY FINDING:

There were no statistically significant differences between Jumpstart and comparison groups in regards to gender and language. There were statistically significant group differences for ethnicity and age.

Evaluators examined group equivalence between the Jumpstart and comparison groups by conducting chi-square analyses and an independent samples t-test on demographic characteristics and by running multilevel modeling analyses on pretest scores.

Chi-square analyses showed no statistically significant differences between groups in regard to gender and language. There was a statistically significant difference for ethnicity, with the comparison group having a greater percentage of Hispanic children (77.15%) than the Jumpstart group (69.57%). Evaluators used an independent samples t-test to determine if there was a difference between groups in regard to age.

Results were statistically significant and showed that, on average, the Jumpstart group was slightly older (1.55 months) than the comparison group.

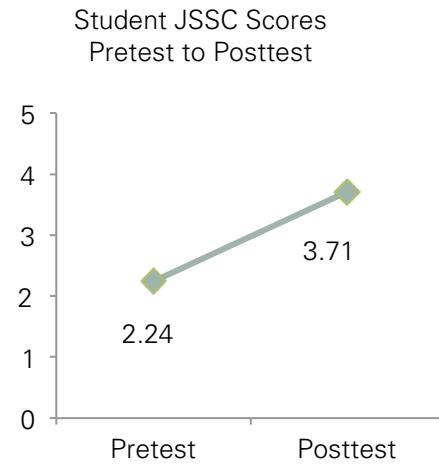


Figure 1. Unadjusted pretest and posttest JSSC scores for Jumpstart participants.

KEY FINDING:

Multilevel modeling analyses revealed no statistically significant differences between groups on mean pretest JSSC scores.

Lastly, evaluators ran multilevel modeling to determine if there were statistically significant differences between groups with regard to pretest scores. Multilevel modeling analyses revealed no statistically significant differences between groups on mean JSSC pretest scores.

Learning Results

KEY FINDING:

On average, Jumpstart children gained 1.47 points from pretest to posttest on the JSSC. This gain is statistically significant and corresponds to a substantively important effect size.

To address key evaluation questions regarding child learning on the JSSC, evaluators conducted a variety of analyses, including descriptive and inferential statistics as well as the calculation of effect sizes.

Results show that, on average, JSSC scores for Jumpstart children increased from pretest to posttest by 1.47 points (see Figure 1). This average gain was statistically significant ($p = <.01$) and corresponded to a substantively important effect size (1.87).

KEY FINDING:

The gains of students who participated in Jumpstart were statistically significantly greater than gains of students who did not participate in the program, and the effect size for this impact was substantively important based on the WWC threshold.

Evaluators conducted descriptive analyses and multilevel modeling analyses to compare JSSC scores among children who participated in Jumpstart and comparison-group children who did not participate in Jumpstart. On average, the Jumpstart program had a statistically significant impact on participants' JSSC scores. More specifically, at the end of the study period, children who participated in Jumpstart program scored an average of 0.45 points higher on the JSSC than comparison children (see Figure 2). The effect size for this impact was 0.62, which exceeds the WWC threshold of 0.25 for determining whether effect sizes are substantively important. The WWC improvement index corresponded to 23 percentile points.

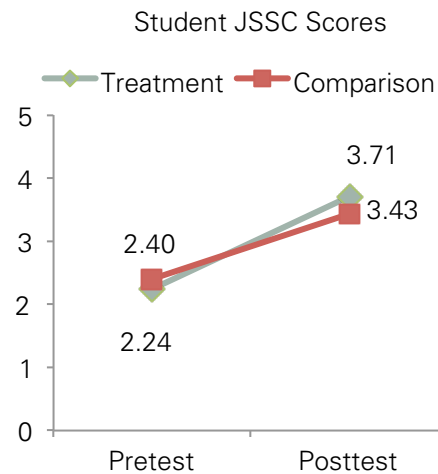


Figure 2. Jumpstart and comparison-group children's JSSC unadjusted pretest and posttest scores.

Summary

Overall, group equivalence analyses revealed that Jumpstart and comparison groups were similar for gender, language, and pretest scores. The groups were statistically significantly different for ethnicity, age, and the type of center from which children were drawn.

Analyses of JSSC scores revealed that on average, Jumpstart children demonstrated statistically significant increases in their scores from pretest to posttest, and results corresponded to a substantively important effect size. Findings from analyses comparing the performance of Jumpstart and comparison-group children indicated that Jumpstart had a statistically significant impact on JSSC gain scores when compared to comparison-group children who did not participate in the Jumpstart program.

Recommendations for future studies are a) to include subgroup analyses to examine the program's impact for different demographics of children, b) to collect program implementation and perception data using teacher logs and surveys, interviews, and focus groups, permitting a

deeper understanding of the program, c) to collect and analyze student learning from multiple measures, and d) to conduct a randomized control trial study.

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Introduction

U.S. and global educational policy continues to push literacy as a key priority because children's early language and literacy skills are a strong predictor of positive student achievement and progress through school. These skills are also essential for individuals to engage and contribute fully to society (Mackenzie & Hemmings, 2014; Rasinski et al., 2005; Wilson, Dickson, & Rowe, 2013). Adults with low literacy skills are more likely to have lower incomes and struggle for employment; they are less likely to vote and are more likely to have legal trouble (National Institute for Literacy, 2008). Thus, low literacy skills can have a significant impact on students' educational careers and widespread implications for their economic livelihood and social and civic success (Lesnick, George, Smithgill, & Gwynn, 2010; NELPR, 2008).

Children who start school academically behind their peers are more likely to stay behind, with this gap only widening over time. Poverty is a risk factor for poor emergent literacy and language skills, (Snow, Burns, & Griffin, 1998) and children from low-income neighborhoods start kindergarten 60% behind their more affluent peers (Jumpstart, 2015). Furthermore, students who don't read proficiently by third grade are four times more likely to leave school without a diploma than proficient readers (Hernandez, 2011).

Jumpstart recognizes the early years of children's lives as a critical time for language and literacy development and has developed a comprehensive supplemental curriculum and support program for low-income preschool children. Jumpstart strongly believes in providing the highest quality programs for language and literacy development. As such, it contracted with Magnolia Consulting, LLC, an external, independent consulting firm specializing in research and evaluation, to examine the impact of Jumpstart on improving participants' oral language and early literacy skills by conducting data analyses of student assessment data collected by Jumpstart during the 2014 – 15 school year.

Jumpstart Program Description

Jumpstart is a national early education organization that provides preparation for kindergarten to preschool children who are between 36 and 59 months of age and who are living in some of the most under resourced neighborhoods across the country. The Jumpstart program's mission is to ensure that every child in America enters kindergarten prepared to succeed. This encompasses improving academic gains and kindergarten readiness for young children, involving families, and fostering a pipeline of early childhood educators and champions of early childhood education.

To reach preschool classrooms, Jumpstart engages with Jumpstart Corps members and college and university partners on a national level. Jumpstart seeks to partner with classrooms in which at least 75% of children qualify as low income by federal requirements for reduced cost meals.

Jumpstart's core program components include:

- Family Involvement
- Pipeline of Champions: Jumpstart Corps Members
- Jumpstart Sessions
- Child Centered Time
- Volunteer Engagement

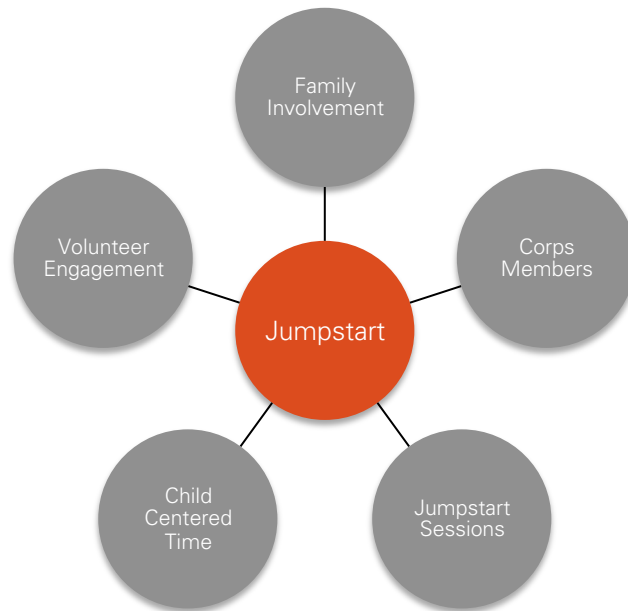


Figure 3. Jumpstart core program components.

Family Involvement

Jumpstart recognizes that families are children's first and most important teachers.

Jumpstart's family involvement approach is based on two key components: ongoing, consistent communication and the Jumpstart-home learning connection.

Jumpstart uses ongoing, consistent communication to build families' knowledge of Jumpstart and to inform them of their children's interests and accomplishments in Jumpstart sessions. This process of involving, informing, and educating families may happen face-to-face, if families are available, but it also includes monthly communication sent home to families. Jumpstart also strives to build connections between its sessions and children's home learning by providing families with resources and ideas to support their ongoing engagement in their children's language and literacy development. Jumpstart's family calendar and unit newsletters include take-home activities that support the Jumpstart-home learning connection. When families are available and interested, Corps members welcome their participation in Jumpstart sessions and encourage conversations about children's interests and activities at home.

Pipeline of Champions: Jumpstart Corps Members

Jumpstart engages dedicated, trained adults who are interested in providing language and literacy support to small groups of preschool children through yearlong relationships and through consistent delivery of Jumpstart sessions in program partner classrooms. The majority



of Jumpstart Corp members nationwide are students at Jumpstart's higher education partner campuses. Others are community members from a variety of sectors who participate in Jumpstart through city-based Community Corps programs. Jumpstart Corps members serve for a minimum of one academic year during which they gain experience in classrooms and communities, which increases their early childhood knowledge and builds their awareness of social issues that affect young children.

This program thus fosters a pipeline of future educators and champions of early childhood education.

Jumpstart Corps members participate in approximately 30 hours of training before they enter the classroom. During this training, Corps members complete hands-on activities that deepen their understanding of developmentally appropriate practice, children’s language and literacy development, active learning, classroom management, and family involvement. Corps members learn how to deliver Jumpstart’s curriculum during trainings that focus on comprehending its target domains and skills, implementing its routines, and understanding and using its reading strategies. Corps members build upon and strengthen their skills through application and practical learning during in-service trainings held throughout the year.

Each Jumpstart team is coordinated by a peer team leader. Team leaders participate in additional training related to leadership, classroom management, and best practices for implementing the portions of Jumpstart sessions that they lead. Team leaders also play a greater role in relationship building and communication with program partners, teachers, and staff, as directed by site managers.

Team leaders receive support from Jumpstart site managers during weekly team leader meetings. These meetings include detailed review and practice of Jumpstart session plans, troubleshooting common challenges occurring across teams, and mini-trainings to support team leaders in overall management of their teams. Team leaders transfer this information to Corps members during team planning meetings, generally held just before or immediately after each team’s scheduled Jumpstart sessions. Throughout the year, Corps members practice upcoming session activities and discuss children’s interests and accomplishments in previous sessions in a consistent effort to improve session quality and increase children’s kindergarten readiness.

Jumpstart Sessions

Twice a week during the school year, teams of Jumpstart Corps members engage a classroom of preschool children in a two-hour Jumpstart session. During Jumpstart sessions, teams deliver a curriculum based on Jumpstart’s three language and literacy domains: oral language, books and print knowledge, and phonological awareness. Each Corps member is paired with approximately three children and supports these partner children directly during select session elements while sharing responsibility for supporting the entire classroom of children during other parts of the session.

Classroom teachers are asked to participate in Jumpstart sessions by following the session plan and supporting children in specific activities. This involvement varies based on the total number of children in the classroom, the size of the Jumpstart team serving the class, and



the specific needs of the children enrolled. Jumpstart site managers and team leaders are asked to work with teachers to ensure they are familiar with session plans and are treated as members of a collaborative team delivering Jumpstart's curriculum to children.

Child Centered Time (CCT)

In addition to the Jumpstart session, each Corps member provides 2-4 hours per week of additional service to children through Child Centered Time (CCT). This allows Corps members sufficient time to focus on assisting individual children in strengthening language and literacy skills specific to that child

Volunteer Engagement

Jumpstart sites and regional offices also coordinate volunteer engagement activities. Through volunteer engagement, Jumpstart seeks to involve additional campus and community members in services to benefit the Jumpstart program, its program partners, and the children and families it serves. Jumpstart staff or Strengthening Communities Coordinators work with site managers and program partners to determine volunteer engagement projects that meet a specific program, center, or family need. Jumpstart staff or Strengthening Communities Coordinators often organize volunteers to:

- Create the resources needed for upcoming Jumpstart sessions, leaving teams to concentrate on practicing session elements and engaging children;
- Refresh or revitalize indoor and outdoor areas of program partner facilities to allow children and families to use rooms or playgrounds they may not have had access to before; and
- Make packets of take-home learning resources for families in order to continue and increase children's learning.

Evaluation Plan

The purpose of this study was to a) examine the impact of Jumpstart on improving participants' oral language and early literacy skills, and b) determine if Jumpstart children demonstrated statistically significant gains that were greater than the gains of comparison-group children who did not use Jumpstart. In addition, evaluators examined group equivalence between Jumpstart and comparison groups for demographic variables and pretest scores. This section of the report details information about the study's methodology, including a discussion of the data sources and variables of interest, as well as provides a discussion of the methods evaluators used to clean and explore the data in preparation for the primary data analyses. This section also contains an overview of the study's samples for analysis.

Evaluation Questions

This report focuses on answering the following primary evaluation questions:

1. What were the demographic characteristics of Jumpstart and comparison groups? Did these groups differ significantly based on their demographic characteristics?
2. Did Jumpstart and comparison groups differ significantly based on their pretest scores?
3. Did Jumpstart children demonstrate statistically significant gains on JSSC scores?
4. Did Jumpstart children demonstrate statistically significant gains that are greater than the gains of comparison-group children?

Methods

Per AmeriCorps' regulations for grants over \$500,000, this evaluation of the Jumpstart program used a quasi-experimental study design. The treatment group was comprised of children who participated in the Jumpstart program. The AmeriCorps' National Research & Evaluation team helped Jumpstart regional and site staff identify and secure assessment data for a comparison group of children. Essential attributes of comparison centers included the following:

- served a low-income population;
- enrolled children who were 36 to 59 months of age at the beginning of the school year;
- were located in the same (or geographically comparable) neighborhoods as Jumpstart program partners;
- enrolled children who were demographically comparable (age, language(s) spoken, gender, and race) to the children Jumpstart serves;
- included classrooms where children do not receive early literacy interventions such as volunteer reading, mentoring, or tutoring services; and
- were registered as 501(c)(3) non-profit organizations.

Measures

The primary measure for this evaluation was the Jumpstart School Success Checklist (JSSC).

Jumpstart School Success Checklist (JSSC)

The JSSC is a central part of Jumpstart's assessment strategy as its use allows Jumpstart to measure the impact of its program on participating children. The JSSC is derived from the High Scope Educational Research Foundation's Preschool Child Observation Record (COR) (2012), a standardized teacher observation tool independently created and vetted by High Scope. Jumpstart chose the COR because it has been shown to have good test properties for a diverse group of children and to be helpful for engaging early childhood educators in program improvement.

The JSSC uses 15 items from the COR that are directly related to Jumpstart's priority of promoting oral language and early literacy skills. The JSSC includes eight items from the COR's Language and Literacy scale, four items from its Social Relations scale, and three items from its Initiative scale. Each child is rated based on his or her demonstrated level of ability for that skill, with a possible score of one (lowest) through five (highest), and these scores were averaged to calculate a total scale score. Based on recommendations from previous research studies using the JSSC, this evaluation used the total scale scores to measure preschool students' literacy skills instead of distinct subscale scores (Immekus, 2011). External studies of the internal consistency and external validity of the JSSC indicated that its internal consistency is high (Cronbach's Alpha of .95 and higher) (Immekus, 2011) and that it is moderately to strongly correlated with other prominent measures of language and literacy such as the Test of Early Reading Ability (Pearson Coefficients ranged from .47-.63 for subtest) (Meyers, et al., 2011), and the Get Ready to Read (Pearson Coefficient of .63) (Meyers, et al., 2011).

After receiving a standardized orientation and training led by Jumpstart, teachers completed a JSSC for all children with signed parental consents in their classrooms in the fall. These baseline assessments were also completed for children who enrolled late and were likely to attend for at least 120 calendar days. In the spring, teachers completed a JSSC for all children who had baseline JSSC data. The ideal timeframe for teachers to complete the JSSC is two or three weeks before Jumpstart sessions start in the fall and two or three weeks after Jumpstart sessions end in the spring. Administrators and teachers who were willing to participate in the JSSC assessment process also tested comparison-group students in the fall and spring.

Data Collection

For this evaluation, the Jumpstart team was responsible for collecting and handling initial JSSC data preparation. In the summer of 2015, Jumpstart provided Magnolia Consulting evaluators with a clean database, which included JSSC pretest and posttest data, demographic data, and evaluation criteria information for Jumpstart and comparison-group children. Evaluators reviewed the data in depth and collaborated with the Jumpstart team to ensure its accuracy and minimize errors. Following this process, Magnolia Consulting evaluators completed final data preparation procedures for its analyses.

Settings

The analysis sample for this study included children from 78 childhood centers distributed across three market areas in the West Pacific region of the United States. San Francisco and Fresno were similar in size, while Los Angeles was considerably larger. Nearly a quarter of San Francisco students and over half of the student populations in both Los Angeles and Fresno were Hispanic or Latino. The three market areas were similar in regard to race except that nearly a third of students in San Francisco were Asian and an estimated third of students in both Los Angeles and Fresno were classified as some other race. Across all three market areas, about a quarter of students were classified as ELL and approximately 10% of students had IEPs.

Table 1. Site Characteristics

	Los Angeles	San Francisco	Fresno
Geographic location and city description*	West Pacific City: Large	West Pacific City: Large	West Pacific City: Large
Total Schools	1,008	127	108
Total Students	655,455	56,970	73,689
Student/Teacher ratio	23.55	19.83	24.32
Ethnicity			
<i>Hispanic or Latino</i>	65.13%	21.97%	52.60%
<i>Non-Hispanic or Latino</i>	34.87%	78.03%	47.40%
Race			
<i>White</i>	38.29%	30.92%	34.97%
<i>Black or African American</i>	11.53%	11.82%	9.67%
<i>American Indian or Alaska Native</i>	0.98%	0.44%	1.93%
<i>Asian</i>	6.23%	36.70%	14.49%
<i>Hawaiian or other Pacific Islander</i>	0.24%	1.07%	0.16%
<i>Some other race</i>	36.48%	10.91%	31.53%
<i>Two or more races</i>	6.25%	8.15%	7.26%
ELL Students	28.47%	24.92%	23.87%
Students with IEPs	12.57%	11.96%	9.83%

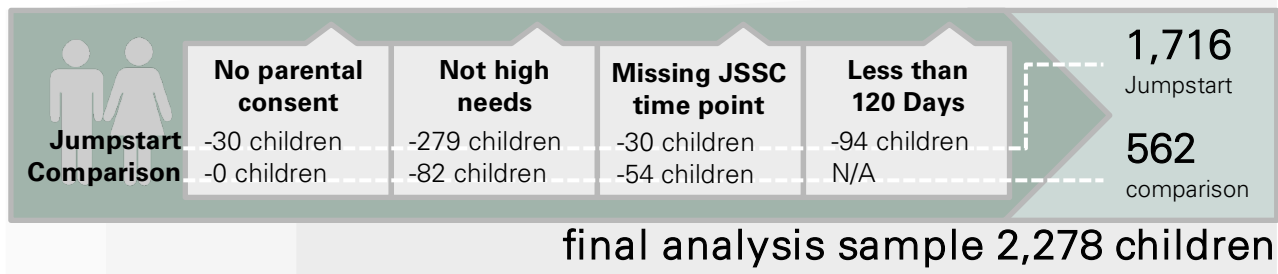
Participants

The final analysis sample included 1,716 Jumpstart children and 562 comparison-group children in 162 classrooms across 78 childhood centers in California.

Child Analysis Sample

To be included in the final analysis sample, children needed to meet a specific set of criteria. Children were removed from the evaluation sample if they did not have parental

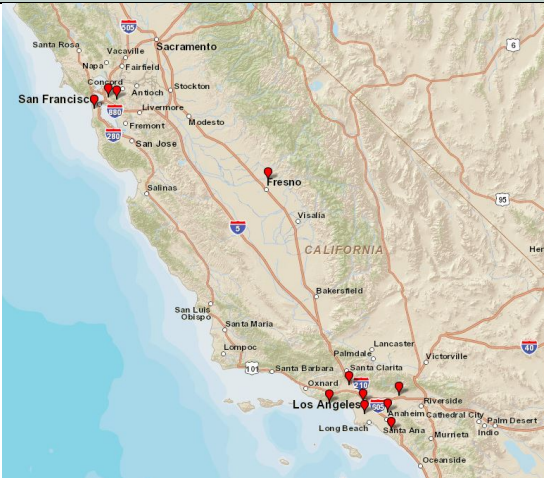
consent (30 Jumpstart children), were not considered a high-need beneficiary at pretest (279 Jumpstart and 82 comparison-group children), or did not have both fall and spring JSSC data (30 Jumpstart and 54 comparison-group children). Additionally, Jumpstart children were removed from the sample if they were not enrolled in the Jumpstart program for more than 120 days (94 Jumpstart children). Jumpstart’s National Research & Evaluation team uses 120 days as a standard cut-off for required dosage; the intervention literature suggests that an intervention program be at least 16, but preferably 20 weeks, to demonstrate programmatic impact (Deshler, Hock, Ihle, & Mark, 2011). Comparison-group children had no dosage requirement. Given these criteria, a total of 569 children (433 Jumpstart and 136 comparison-group children) were removed from the sample, yielding a final analysis sample of 2,278 children (1,716 Jumpstart and 562 comparison-group children).



Childhood Centers

A classroom or childhood center was included in the analysis sample if it had at least one child enrolled who met the sample criteria and was included in the final analysis sample. The 78 childhood centers included in the final analysis sample were affiliated with 12 universities (see Table 2) in three market areas, more than half of which were in Los Angeles (60.26%), a third in San Francisco (33.33%), and 6.41% in Fresno. Additionally, 43.59% of these childhood centers were classified as Head Start centers, about a third as community-based centers (30.77%), nearly a quarter as public centers (24.36%), and the remaining 1.28% as private centers.

Table 2. Percentage of Childhood Centers Affiliated with each University (n=78)

	%	
	San Francisco State University	20.51%
	Pepperdine University	14.10%
	Comparison University (not identified)	10.26%
	California State University, Northridge	8.97%
	California State University, Fullerton	8.97%
	University of California, Irvine	7.69%
	California State University, Fresno	6.41%
	Saint Mary's College of California	6.41%
	University of California, Berkeley	6.41%
	University of Southern California	3.85%
	California State University, Dominguez Hills	3.85%
	Pitzer College	2.56%

Group Equivalence

In this section evaluators present findings from group equivalence analyses between the Jumpstart and comparison groups by conducting chi-square analyses and independent samples t-test on demographic characteristics and running multilevel modeling analyses on pretest scores.

Demographic Characteristics



What were the demographic characteristics of Jumpstart and comparison groups? Did Jumpstart and comparison groups differ significantly based on their demographic characteristics?

KEY FINDING:

There were no statistically significant differences between Jumpstart and comparison groups in regard to gender and language. There were statistically significant group differences for ethnicity and age.

Evaluators examined several demographic characteristics of children in the analysis sample including gender, language, ethnicity, and age (Table 3). Approximately half of the children included in the final sample were male (50.95%) and half were female (49.05%). Of these children, 56.80% were non-English speakers and nearly three-quarters of children were classified as Hispanic (71.41%). Jumpstart children were an average of 48.83 months of age and comparison-group children had a mean age of 47.28 months.

Table 3. Children Demographics by Group

Characteristics	Jumpstart Children (n=1,716)		Comparison-Group Children (n=562)		Total (n=2,278)		Chi-square Results	
	Percent	N	Percent	N	Percent	N	X ² Value	Sig. (alpha =.05)
Gender								
Male	50.41%	862	52.59%	294	50.95%	1,156	0.72	.40
Female	49.59%	848	47.41%	265	49.05%	1,113		
Language								
English	44.08%	730	40.42%	211	43.20%	941	2.02	.16
Non-English	55.92%	926	59.58%	311	56.80%	1,237		
Ethnicity								
Hispanic	69.57%	1,184	77.15%	422	71.41%	1,606	11.29	<.01
Non-Hispanic	30.43%	518	22.85%	125	28.59%	643		

Evaluators conducted analyses to determine if these demographic characteristics differed significantly by group. Chi-square analyses showed no statistically significant differences between groups in regard to gender and language. There was a statistically significant difference for ethnicity. More specifically, the comparison group had a greater percentage of Hispanic children (77.15%) than the Jumpstart group (69.57%) as seen in Figure 4. Additionally, evaluators used an independent samples t-test to determine if there was a difference between groups in regards to age. Results showed that there was a statistically significant difference, $t(2262) = -4.80$, $p = <.01$, as the Jumpstart group was slightly older (1.55 months) than the comparison group (see Figure 5).

□ Jumpstart (n=1,702) ■ Comparison (n=547)

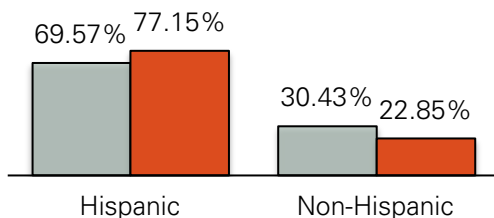


Figure 4. Children's ethnicity by condition.

□ Jumpstart (n=1,709) ■ Comparison (n=555)

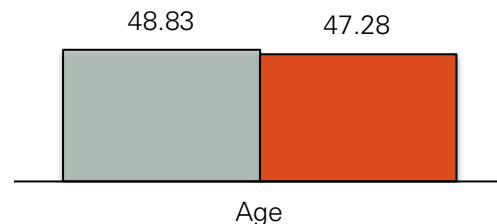


Figure 5. Children's average age (in months) by condition.

KEY FINDING:

There were statistically significant differences by group regarding the type of centers from which the Jumpstart and comparison group samples were drawn.

In addition to these demographics, evaluators also reviewed the type of centers where the children in the final analysis sample were enrolled (see Table 4). Nearly half of the children in the analysis sample were enrolled in Head Start centers (47.28%), a quarter of the children were in community-based centers (26.60%), another quarter of the children were enrolled in public centers (25.55%) and very few children were enrolled in private centers (0.57%).

Table 4. Demographics of Affiliated Childhood Centers

Characteristics	Jumpstart Children (n=1,716)		Comparison-Group Children (n=562)		Total (n=2,278)		Chi-square Results	
	Percent	N	Percent	N	Percent	N	X ² Value	Sig. (alpha =.05)
Community-based	29.84%	512	16.73%	94	26.60%	606		
Head Start	36.83%	632	79.18%	445	47.28%	1077	321.14 ¹	<.01
Private	0.76%	13	0.00%	0	0.57%	13		
Public	32.58%	559	4.09%	23	25.55%	582		

¹ Due to a small sample enrolled in private centers, the chi-square analysis only included community-based, Head Start, and public centers.

Results of chi-square tests showed statistically significant differences by group regarding the type of centers from which the Jumpstart and comparison group samples were drawn. In regard to the type of the childhood center, the majority of comparison-group children were enrolled in Head Start centers (79.18%). Alternatively, Jumpstart children were evenly enrolled across Head Start (36.83%), public (32.58%), and community-based centers (29.84%) (see Figure 6). Private centers were not included in this analysis due to a very small sample size.

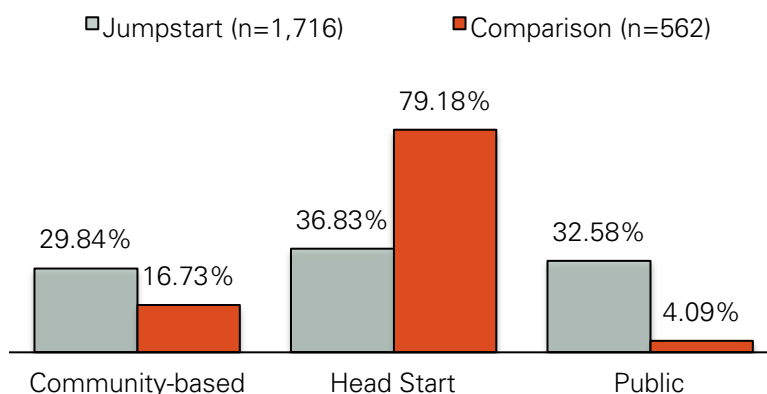


Figure 6. Percentage of children enrolled in each childhood center type.

Pretest Scores



Did Jumpstart and comparison groups differ significantly based on their pretest JSSC scores?

KEY FINDING:

Multilevel modeling analyses revealed no statistically significant differences between Jumpstart and comparison groups on mean pretest JSSC scores.

After examining potential group differences by demographic characteristics, evaluators ran multilevel modeling analyses to determine if there were statistically significant differences between groups with regard to pretest scores. These analyses revealed no statistically significant differences between groups on mean pretest scores, suggesting that Jumpstart and comparison-group children were similar regarding the areas assessed by the JSSC at the beginning of the study.

Table 5. Group Equivalence Analysis for Pretest Scores

Outcome Variable	Coefficient	Standard Error	t-value	Approx. df	p-value
Pretest Score	-0.16	0.10	-1.60	83	.11

* Statistically significant at the 0.05 level.

Summary

Overall, Jumpstart and comparison groups were similar regarding gender, language, and pretest scores. There were statistically significant group differences by ethnicity and age, as well as by the type of center from which children were drawn.

Performance Results

To address key evaluation questions concerning child learning on the JSSC during the 2014–2015 school year, evaluators conducted a variety of analyses, including descriptive and inferential statistics as well as the calculation of effect sizes. In this study, children were nested in teachers' classrooms, making multilevel modeling the most appropriate analytic technique for conducting inferential analyses with child outcome data. Evaluators also compared JSSC gain scores among Jumpstart children and comparison-group children who did not use the Jumpstart program.

Evaluators considered findings statistically significant using an alpha level of 0.05. When interpreting effect sizes, evaluators followed the What Works Clearinghouse (WWC) guidelines that consider effect sizes substantively important when they are greater than or equal to 0.25 (2014).

Descriptive Examination of Jumpstart Participants' JSSC Scores



Did Jumpstart children demonstrate statistically significant gains on JSSC scores?

Before running multilevel modeling analyses to evaluate Jumpstart children's JSSC gains, evaluators calculated changes in JSSC scores from pretest to posttest (see Figure 8). The unadjusted means were calculated for descriptive purposes to show trends and were not intended to determine if differences were statistically significant. These scores are considered "unadjusted" or original scores because they do not take into account the variance associated with child- and teacher-level factors.

For Jumpstart children in this study, descriptive statistics suggest that overall, JSSC scores increased over the school year (pretest to posttest). Figure 7 presents the pretest-to-posttest unadjusted scores for Jumpstart participants.

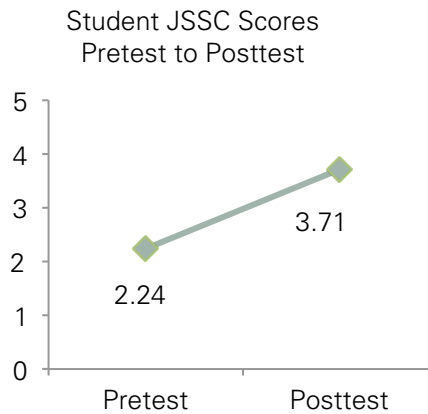
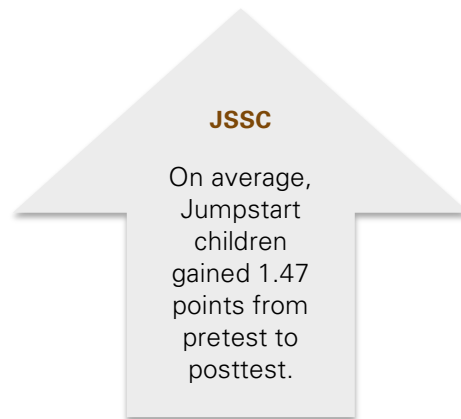


Figure 7. Unadjusted pretest and posttest JSSC scores for Jumpstart participants

Multilevel Modeling Analyses Examining Jumpstart Children’s Score Gains

To determine whether Jumpstart children’s JSSC gains were statistically significant, evaluators ran a three-level multilevel modeling analysis. This model accounted for the nesting of children in teachers’ classrooms as well as for the nesting of teachers in different centers. The outcome of interest in this analysis was the pretest-to-posttest gain score. To determine the magnitude of the average gain, evaluators calculated a standardized effect size by dividing the adjusted pretest-to-posttest difference by the pretest standard deviation. As previously mentioned, effect sizes greater than +/- 0.25 were considered *substantively important*.²



Results show that on average, JSSC scores increased from pretest to posttest by 1.47 points. This average gain was statistically significant ($p = <.01$) and corresponded to a substantively important effect size (1.87).

Table 6. Jumpstart Participants Mean Pretest to Posttest JSSC Gains.

Outcome Variable	Coefficient	Standard Error	t-value	Approx. df	p-value	Effect Size
Pretest to Posttest Gain	1.47	0.07	22.73	68	<0.001*	1.87**

* Statistically significant at the 0.05 level.

**Substantively important based on the WWC Standards.

² What Works Clearinghouse guidelines: http://ies.ed.gov/ncee/wwc/pdf/reference_resources/wwc_procedures_v2_1_standards_handbook.pdf

Analyses of Participants' JSSC Scores by Treatment and Comparison Groups



Did the Jumpstart children demonstrate statistically significant gains that are greater than the gains of comparison-group children?

KEY FINDINGS:

The average JSSC gain of children who participated in Jumpstart was statistically significantly greater than the average gain of children who did not participate in the program, and the effect size for this impact was substantively important based on the WWC threshold.

First, evaluators conducted descriptive analyses to compare JSSC scores between children who participated in Jumpstart and comparison-group children who did not participate in Jumpstart. Next, evaluators ran multilevel modeling analyses to examine the impact of Jumpstart on JSSC gains. Evaluators calculated an effect size and WWC improvement index (2014) to help readers interpret the magnitude of the program impact.

Descriptive Findings Comparing JSSC Scores by Study Condition

Before running multilevel modeling analyses, evaluators calculated means corresponding to pretest and posttest JSSC scores by study condition. Examining the means visually (see Figure 8) revealed that, on average, Jumpstart children gained .44 points more than children in the comparison group. Readers should note that evaluators calculated these means for descriptive purposes rather than to determine if differences in JSSC scores by study condition were statistically significant.

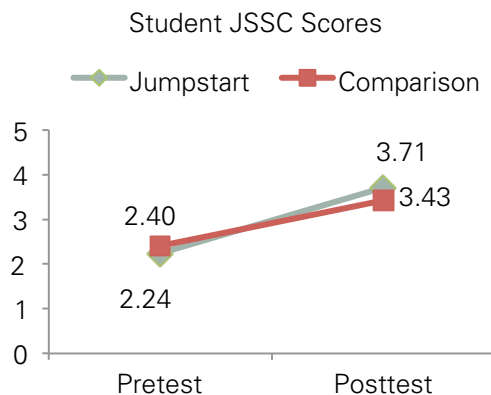
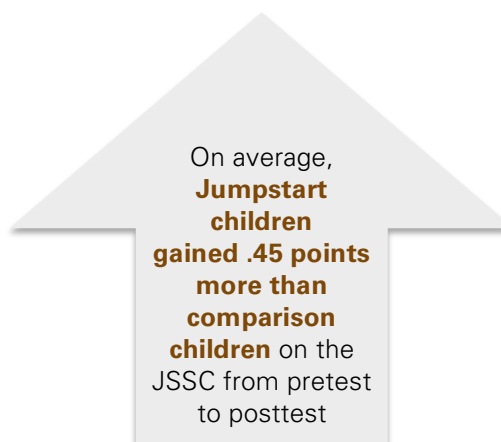


Figure 8. Unadjusted pretest and posttest JSSC scores for Jumpstart and comparison-group participants

Multilevel Modeling Analyses Comparing JSSC Scores by Study Condition

After visually examining descriptive statistics, evaluators used multilevel modeling to establish whether the Jumpstart program had a statistically significant impact on JSSC scores when compared to the comparison group program(s). For this analysis, the pretest-to-posttest gain score served as the outcome variable. The three-level model accounted for the nesting of children in teachers' classrooms and the nesting of teachers in centers. The model included a study condition variable at the teacher level to enable evaluators to estimate the impact of Jumpstart on JSSC gains. Additionally, the model included child-level covariates for ethnicity and age to account for group differences identified in the group equivalence analyses. After running the model, evaluators calculated the standardized effect size³ to examine the magnitude of the program impact. After calculating the effect size, evaluators calculated a WWC improvement index, which reflected the change in an average comparison-group child's percentile rank that would be expected if that child had participated in the Jumpstart program (2014).⁴

Findings from the multilevel modeling analyses are displayed in Table 3 and show that the Jumpstart program had a statistically significant positive impact on children's JSSC scores. More specifically, at the end of the study period, children who participated in Jumpstart scored an average of 0.45 points higher on the JSSC compared to children who did not participate in the program. Furthermore, the corresponding effect size of 0.62 was substantively important based on the WWC guidelines. Finally, the WWC improvement index suggests that if comparison-group children had participated in Jumpstart, the percentile rank for their pretest-to-posttest gains would likely have increased by 23 percentile points (2014).



³ Effect sizes were calculated by dividing the adjusted difference between treatment and comparison groups by the standard deviation of the comparison group

⁴ According to the WWC (2014), an improvement index of 10 percentile points (corresponding to an effect size of 0.25), would suggest that an intervention would likely yield a 10% increase in percentile rank if a typical comparison-group student were to participate in the program. Additionally, it would suggest that 60% of the treatment-group students scored higher than the mean for the comparison-group students.

Table 7. Impact of Jumpstart on Participants' Pretest-to-Posttest Gains

Outcome Variable	Coefficient	Standard Error	t-value	Approx. df	p-value	Effect Size	Improvement Index
Difference in Pretest-to-Posttest Gain by Study Condition	0.45	0.11	3.95	83	<0.001*	0.62**	0.23

* Statistically significant at the 0.05 level.

**Substantively important based on the WWC Standards.

Summary

Overall, results show that, on average, Jumpstart children demonstrated statistically significant and substantively important gains in their JSSC scores from pretest to posttest. Moreover, findings indicated that Jumpstart had a statistically significant positive impact on JSSC gain scores when compared to the comparison group program(s). The effect size corresponding to this impact was substantively important based on the WWC guidelines.

Summary and Discussion

The purposes of this quasi-experimental study was to a) examine the impact of Jumpstart on improving participants' oral language and early literacy skills, and b) determine if Jumpstart children demonstrated statistically significant gains that were greater than the gains of comparison-group children who did not use Jumpstart. In addition, evaluators examined group equivalence between Jumpstart and comparison groups for demographic variables and pretest scores.

The primary measure for this evaluation was the Jumpstart School Success Checklist (JSSC), an oral language and early literacy skills assessment. Jumpstart's team was responsible for collecting and handling initial JSSC data preparation. In the summer of 2015, Jumpstart provided Magnolia Consulting evaluators with a clean database, which included JSSC pretest and posttest data, demographic data, and evaluation criteria information for Jumpstart and comparison-group children. Magnolia completed final data preparation procedures for its analyses. The final analysis sample included 1,716 Jumpstart children and 562 comparison-group children in 162 classrooms across 78 childhood centers in California.

Evaluators examined group equivalence between the Jumpstart and comparison groups by conducting chi-square analyses and an independent samples t-test on demographic characteristics and running multilevel modeling analyses on pretest scores. Key findings concerning group equivalence are:



The composition of Jumpstart and comparison groups was similar regarding gender, language, and pretest scores.



There were statistically significant differences in the composition of Jumpstart and comparison groups regarding ethnicity and age, as well as by the type of center from which children were drawn.

To address key evaluation questions regarding participant language and early literacy gains as assessed by the JSSC, evaluators conducted a variety of analyses, including descriptive statistics, multilevel modeling, and the calculation of effect sizes. Key findings concerning child learning and program impact include:



The average JSSC gain of children who participated in Jumpstart was statistically significant and substantively important based on the What Works Clearinghouse (WWC) threshold of 0.25.



The average JSSC gain of children who participated in Jumpstart was statistically significantly greater than the gains of children who did not participate in the program, and the effect size for this impact was substantively important based on the WWC threshold.

This evaluation yielded important, positive findings regarding the impact of the Jumpstart program. Additional topics are worth examining that were beyond the scope of this study, and evaluators recommend the following future evaluation activities:

- conduct subgroup analyses to help determine the program's impact for different types of children;
- collect implementation data collection, interviews, and focus groups to permit a deeper understanding of implementation and perceptions of the program;
- use multiple measures of student outcomes to increase the validity of findings; and
- consider using a randomized control trial (RCT) design in future evaluations.

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Appendix A: Unadjusted Pretest and Posttest Means by Study Condition

This table shows the unadjusted means for the JSSC assessment by variable, time point, and condition.

		Jumpstart Child (n=1,716)			Comparison-Group Child (n=562)			Total (n=2,278)		
		N	Mean	SD	N	Mean	SD	N	Mean	SD
Listening to and understanding speech										
	Fall	1,716	2.20	1.16	562	2.38	1.11	2,278	2.24	1.15
	Spring	1,716	3.77	1.15	562	3.49	1.20	2,278	3.70	1.17
Using vocabulary										
	Fall	1,716	2.37	1.07	562	2.48	1.07	2,278	2.40	1.07
	Spring	1,716	3.80	0.99	562	3.54	1.12	2,278	3.74	1.03
Using complex patterns of speech										
	Fall	1,716	2.41	1.08	562	2.49	1.11	2,278	2.43	1.09
	Spring	1,716	3.81	1.04	562	3.53	1.15	2,278	3.74	1.07
Showing awareness of sounds in words										
	Fall	1,716	1.85	0.82	561	2.09	0.89	2,277	1.91	0.84
	Spring	1,716	3.26	1.14	562	3.01	1.09	2,278	3.20	1.13
Demonstrating knowledge about books										
	Fall	1,716	2.42	0.97	562	2.54	0.94	2,278	2.45	0.97
	Spring	1,716	3.73	0.91	562	3.56	0.96	2,278	3.69	0.92
Using letter names and sounds										
	Fall	1,716	1.83	0.98	562	2.03	0.99	2,278	1.88	0.99
	Spring	1,716	3.50	1.20	562	3.23	1.20	2,278	3.43	1.20
Reading										
	Fall	1,716	2.10	0.82	562	2.20	0.87	2,278	2.13	0.83
	Spring	1,716	3.44	0.93	562	3.10	0.96	2,278	3.36	0.95
Writing										
	Fall	1,716	1.89	0.97	562	2.06	1.02	2,278	1.93	0.99
	Spring	1,716	3.43	1.08	562	3.12	1.04	2,278	3.35	1.08
Making choices and plans										
	Fall	1,716	2.48	0.93	562	2.56	1.00	2,278	2.50	0.95
	Spring	1,716	3.85	0.95	562	3.49	1.03	2,278	3.76	0.98
Solving problems with materials										
	Fall	1,716	2.20	0.88	562	2.29	0.91	2,278	2.22	0.89
	Spring	1,716	3.65	1.03	562	3.36	1.03	2,278	3.58	1.03
Initiating play										

		Jumpstart Child (n=1,716)			Comparison-Group Child (n=562)			Total (n=2,278)		
		N	Mean	SD	N	Mean	SD	N	Mean	SD
	Fall	1,716	2.59	1.01	561	2.81	1.05	2,277	2.64	1.02
	Spring	1,716	4.01	0.94	562	3.70	1.02	2,278	3.94	0.97
Resolving interpersonal conflict										
	Fall	1,714	2.12	0.86	562	2.30	0.90	2,276	2.16	0.87
	Spring	1,716	3.51	1.12	562	3.27	1.06	2,278	3.45	1.11
Understanding and expressing feelings										
	Fall	1,716	2.17	1.06	562	2.40	1.06	2,278	2.23	1.06
	Spring	1,716	3.76	1.16	562	3.47	1.15	2,278	3.69	1.16
Relating to adults										
	Fall	1,716	2.42	1.16	562	2.66	1.13	2,278	2.48	1.15
	Spring	1,716	3.95	1.08	562	3.71	1.12	2,278	3.89	1.09
Relating to other children										
	Fall	1,716	2.55	1.13	562	2.73	1.09	2,278	2.59	1.12
	Spring	1,716	4.11	1.01	562	3.81	1.07	2,278	4.03	1.03
Total scale										
	Fall	1,716	2.24	0.78	562	2.40	0.83	2,278	2.28	0.80
	Spring	1,716	3.71	0.86	562	3.43	0.90	2,278	3.64	0.88