Major Findings for Children Participating in Jumpstart's Traditional Programming:

2016–2017 Program Year
INTRODUCTION

In Jumpstart’s traditional program model, learning activities occur in sessions scheduled twice a week throughout the school year (approximately 20 weeks) during or after the regular preschool or child care program day. Jumpstart members also spend up to six additional hours a week assisting teachers and working with children in classrooms, as well as engaging in other community service activities throughout the year. During the 2016-2017 program year, 10,115 children participated in traditional programming. To evaluate Jumpstart’s progress in supporting the development of their language and literacy skill development, the Research and Evaluation team analyzed demographic and outcome data collected from children.

RESEARCH QUESTIONS

1. Did Jumpstart participants demonstrate gains in language and literacy skill development over the course of the program year?
2. What percentage of Jumpstart participants made substantive gains over the course of the program year?
METHODS

Participants

Evaluation Samples

Of the 10,115 children served through traditional programming, 5,513 children were included in the Jumpstart School Success Checklist (JSSC) evaluation sample for this report, and 359 children were included in the Test of Preschool Early Literacy (TOPEL) sample. Children in the samples had parental permission for participation in evaluation activities, completed the Jumpstart program (120 days enrolled), and had pre- and post-intervention assessment data. The TOPEL sample included (a) a group of children served by 11 sites funded by the Corporation for National and Community Service’s National Direct commission whose preschools were selected – via a sampling plan – to participate in the assessment and (b) a group of children from 7 additional sites that elected to administer the assessment because it was a better fit for the population they were serving/setting in which they were serving.

Demographics

Families share their children’s demographic information with Jumpstart, and can give consent for this information to be used in reports. Demographics for children in the JSSC evaluation sample are summarized below, and presented in full in Appendix A.

In terms of gender breakdown, 50% of children are male, and 50% are female. The most commonly reported race/ethnicity is Latinx (40%), followed by Black (34%) (see Figure 1). In terms of language, 70% of children come from homes in which English is the most spoken language, 22% come from homes in which Spanish is the most spoken, and 4% come from homes in which Chinese is the most spoken language (see Figure 2). Although most children come from homes in which English is the most spoken language, many of these children are also acquiring other languages while they are acquiring English. Young children who are acquiring two or more languages at the same time are referred to as Dual Language Learners (DLLs), and comprise 53% of the children participating in traditional programming during 2016-2017 (see Figure 3). The average age of participating children was 49.12 months (4 years, 1 month).

Figure 1. Reported race and ethnicity for children participating in traditional programming. Note: 95% of children had race/ethnicity reported for them.

Figure 2. Language most spoken in the homes of children participating in traditional programming. Note: 94% of children had language information reported for them.

Figure 3. Language status of children participating in traditional programming.
Assessments

Jumpstart School Success Checklist (JSSC)

Children were assessed on the Jumpstart School Success Checklist (JSSC). The JSSC is comprised of 15 items from the HighScope Educational Research Foundation’s Preschool Child Observation Record (COR), 2nd Edition (HighScope, 2003), a standardized teacher observational tool. The 15 items focus on language and literacy skills as well as social-emotional competencies that have a language component (e.g., relating to adults through conversation, and making choices and plans by verbally expressing them). On each item, a child is given a score of 1, 2, 3, 4, or 5, where each score corresponds to a specific skill/behavior, and higher scores represent a more developmentally advanced skill. For example, on Item 7 (Reading), a child who receives a 4 recognizes a written word, while a child who receives a 5 can read aloud a simple phrase or sentence.

Preschool teachers complete the JSSC at pre-intervention (before children attend sessions) and at post-intervention (after program completion). In select sites, teachers also complete the JSSC at mid-intervention; those mid-year results are not included in this report. Unless otherwise noted, JSSC scores are reported as total scale scores (an average of the scores for the 15 items), rather than as subscales that measure distinct areas.

Test of Preschool Early Literacy (TOPEL)

The Test of Preschool Early Literacy (TOPEL) is a direct assessment tool for 3- to 5-year-old children widely used in intervention research. The TOPEL has three subtests: Phonological Awareness, Definitional Vocabulary, and Print Knowledge. Children score one point for each item answered correctly (e.g., on the Phonological Awareness subtest, correctly pointing to the picture of a lamb when prompted with “now point to lamp without /p/”). The total number of points on each subtest is the raw score for that subtest. A child’s raw scores are converted to standard scores that are norm-referenced and based on their chronological age. Their standard scores on the three subtests are combined to produce the Early Literacy Index (ELI), a composite score that provides a picture of their overall literacy skills. For the purposes of this report, only standard scores are analyzed.

As with the JSSC, higher standard scores on the TOPEL represent more advanced skills. The average score for the three subtests and the ELI is 100. The closer a child’s standard score is to 100, the closer their performance is to the expected average for their age. Scores above 110 suggest that children are proficient in the emergent literacy skills that predict reading and school success. Trained assessors administer the TOPEL at pre- and post-intervention.
Distribution of Scores

At pre-intervention, Jumpstart children were more likely to have average total scale scores clustering at the low end of the scale, indicating lower language and literacy skills. In fact, 63% of children had scores between 1 and 2.99 (see two left-most bars in Figure 4). By post-intervention, the pattern had reversed; scores clustered around 3 and 4, with most children (77%) scoring between 3 and 5 (see three right-most bars in Figure 4). Figure 6 displays the percentage of children scoring at each level (1-5) on the JSSC at pre- and post-intervention. This change in the distribution of scores suggests that Jumpstart children, as a group, were improving in their language and literacy skills over the course of the year.

**Figure 4.** Distribution of children's pre- and post-intervention JSSC total scale scores. Percentages may not total 100% due to rounding.

Percentage of Children Making Gains

In addition to looking at the distribution of scores at pre- and post-intervention, each child’s individual gain from pre- to post-intervention was calculated. Among the 5,513 children in the JSSC evaluation sample, 90% (4,958) made gains; that is, they improved at least some amount in their language and literacy skills during the program year. The percentage of children making gains during the 2016-2017 program year is comparable to previous years; during 2015-2016, 91% of children in the evaluation sample made gains, and 90% did so during 2014-2015.

Children making gains of one point or more on the five-point scale of the JSSC are considered to have made gains that are substantive. Of those making gains, there were more children (57%) making substantive gains than non-substantive gains (43%). See Figure 5. Children making substantive gains comprised 52% of the overall JSSC evaluation sample.

**Figure 5.** Percentage of children making gains.
Average Point Gains

Jumpstart children in the evaluation sample began the year with an average pre-intervention score of 2.65 on the total scale of the JSSC, and concluded the program year with an average post-intervention score of 3.68. An average post-intervention score of 3.68 indicates that children are likely displaying language and literacy skills that are potentially important for kindergarten success: contributing to an ongoing conversation, making appropriate letter sounds, recognizing a written word, and recognizing print. Over the course of the program year, children made an average gain of 1.03 on the 5-point scale of the JSSC. See figure 6.

Children Making the Greatest Progress

While Jumpstart works to ensure that all participating children are supported in developing the critical skills they need to succeed, there is a particular interest in understanding how we serve those who, at the beginning of their participation, display lower language and literacy skills. To examine the progress made by children who began the program year with lower skills relative to those who began the year with higher skills, children were grouped according to their pre-intervention JSSC average scores. During the 2016-2017 program year, the average score was 2.65. As seen in Figure 8, children beginning the program year with below-average scores made larger gains than their peers beginning with above-average scores, and this difference was statistically significant, \( t(5,509) = 32.7, p < .001 \). Children beginning the year with below-average pre-intervention scores also finished the year with an average post-intervention score (3.24) that approached that of the overall sample (3.68).

Children who are Dual Language Learners made greater gains than their monolingual peers; those results are presented in a separate report.

Figure 6. Pre-to post-intervention gains on the JSSC.

Figure 7. Average JSSC score gains by skill group. Children who had above-average pre-intervention scores (2.65 or above) were compared with children that had below-average pre-intervention scores.
**TOPEL Gains and Scores Versus JSSC Gains and Scores**

To better interpret TOPEL results, it is important to highlight two major differences between the scores and gains that we report for the JSSC and those that we report for the TOPEL. While the TOPEL and JSSC both measure language and literacy, these assessments are different in several ways. First, the JSSC is a subjective, indirect teacher observation tool, while the TOPEL is an objective direct assessment of children’s abilities. On the JSSC, for example, teachers report whether or not they have ever observed a child saying the beginning letter or letter sound of any word (item 6, level 5). On the TOPEL, on the other hand, assessors point to a specific letter that is printed in the Picture Book, and, in the moment, children must correctly say what sound the letter makes to receive a point for that item.

Second, raw scores on the TOPEL subtests are converted to standard scores by taking chronological age into account, and as a result, gains on raw scores do not always translate into gains on standard scores. For example, a child who is 3.2 (3 years and 2 months old) may receive a raw score of 14 on Print Knowledge at pre-intervention, which converts to a standard score of 117. If, six months later, the child receives a raw score of 18, four points higher than their previous raw score, this would again convert to a standard score of 117. While it may appear that the child made a gain, based on the four-point difference between the raw scores at pre- and post-intervention, their standard score of 117 remained the same from pre- to post-intervention, and they made a standard score gain of 0. As a 3.8-year-old, the child would have needed to receive a raw score of 19 to see an increase in their standard score. Thus, any gains on the TOPEL indicate progress beyond what would be expected for children as a result of typical development. Due to these differences, the percentage of children making gains on the TOPEL cannot be directly compared to the percentage making gains on the JSSC.

**Distribution of Scores**

As with the JSSC, higher scores were more common on the TOPEL at post-intervention than pre-intervention. Figure 9 displays the percentage of children scoring at each level (Very Poor through Very Superior) at pre- and post-intervention on the Early Literacy Index (ELI), a composite score that provides a picture of a child’s overall literacy skills. Scores in the Average range or above suggest that children have gained language and literacy skills that are potentially important for kindergarten success. At pre-intervention, a combined 57% of children scored in the Average range or above, and at post-intervention, a combined 79% did so (see four right-most bars for each graph in Figure 8).

![Figure 8. Distribution of children’s pre- and post-intervention TOPEL standard scores on the ELI. Note: Percentages may not total 100% due to rounding.](image-url)
Children Making Gains

Of the 359 children included in the TOPEL evaluation sample, 76% (281) made pre- to post-intervention gains on the Early Literacy Index (ELI), a composite, standard score obtained by combining the scores of all three subtests. The percentage of children making gains on each of the three subtests was roughly even; 66% of children in the sample made gains on the Phonological Awareness subtest, which measures elision (omission of one or more sounds in a word to form a new word) and blending abilities, 65% made gains on the Print Knowledge subtest, which measures alphabet knowledge, and 64% made gains on Definitional Vocabulary, which measures single-word oral and definitional vocabulary. See Figure 9.

![Figure 9. Percentage of children making gains on each of the subtests and the ELI.](image)

Average and Above Average Scores

The standard scores for all three subtests and the ELI have a mean of 100; most (50% of) children in the normative sample received a score between 90 and 110, resulting in scores in this range being average scores. Therefore, subsequent test-takers, like Jumpstart children, who receive average TOPEL standard scores (i.e., standard scores between 90 and 110), perform like most children their age. Their skills related to early literacy are what would be expected. Children who receive above average standard scores (i.e., standard scores above 110) are likely to be competent at a wide range of activities that require skills associated with early literacy.

For all three subtests and the ELI, more Jumpstart children received at least an average score (i.e., a score greater than or equal to 90) at post-intervention than at pre-intervention, and these differences were statistically significant (see Table 1).

Table 1

<table>
<thead>
<tr>
<th>Subtest</th>
<th>Percentage of Children Receiving at Least an Average Standard Score at Pre-intervention</th>
<th>Percentage of Children Receiving at Least an Average Standard Score at Post-intervention</th>
<th>Change in the Percentage of Children Receiving at Least an Average Standard Score from Pre- to Post-intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print Knowledge</td>
<td>70%</td>
<td>83%</td>
<td>+ 13% *</td>
</tr>
<tr>
<td>Definitional Vocabulary</td>
<td>67%</td>
<td>86%</td>
<td>+ 9% *</td>
</tr>
<tr>
<td>Phonological Awareness</td>
<td>45%</td>
<td>69%</td>
<td>+ 14% *</td>
</tr>
<tr>
<td>Early Literacy Index</td>
<td>57%</td>
<td>79%</td>
<td>+ 22% *</td>
</tr>
</tbody>
</table>

*Note: An exact McNemar’s test determined that there was a statistically significant difference in the proportion of children receiving at least an average score at pre- and at post-intervention (p < .001).
Average Gains

Not only did a large percentage of children make gains individually, but as a group, Jumpstart children demonstrated gains on all three subtests and the ELI. Average pre- and post-intervention scores and the differences between them are depicted in Figure 10. Results of paired sample t-tests indicate statistically significant increases for Print Knowledge, Phonological Awareness, and the ELI.

Children Who “Closed the Gap”

Jumpstart is particularly interested in understanding how we support the development of children who display relatively low language and literacy skills before participating in the program. Children who began the year with a below-average TOPEL standard score (i.e., a score below 90) are considered to have “closed the gap” if they received an average or above average TOPEL standard score (90 or above) at the end of the program year.

On the Print Knowledge subtest, 30% (108) of children in the TOPEL sample received a below-average score at the start of the program year. Of those, 56% (61) closed the gap and received at least an average score by the end of the program year. On the Definitional Vocabulary subtest, 33% of children (120) received a below average score at the start of the program year. Of those, 65% (78) closed the gap by the end of the program year. On the Phonological Awareness subtest, 55% of children (197) received a below average score at the start of the program year. Of those, 54% (107) closed the gap by the end of the program year. On the ELI, 43% of children (154) received a below-average score at the start of the program year. Of those, 56% (86) closed the gap and received at least an average score by the end of the program year. See Figure 12. Taken together, these results indicate that a majority of children who began the year with below-average scores were able to close the gap by the end of the year.
Among children \textit{beginning the year with below-average scores, more than half closed the gap by the end of the year.}

<table>
<thead>
<tr>
<th>Metric</th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Literacy Index</td>
<td>86</td>
<td>153</td>
</tr>
<tr>
<td>Phonological Awareness</td>
<td>107</td>
<td>196</td>
</tr>
<tr>
<td>Definitional Vocabulary</td>
<td>78</td>
<td>120</td>
</tr>
<tr>
<td>Print Knowledge</td>
<td>61</td>
<td>108</td>
</tr>
</tbody>
</table>

- Total number of children with a \textit{pre-intervention score in the below-average range.}
- Number of children with below-average pre-intervention scores and \textit{average or above scores at post-intervention.}

\textit{Figure 11.} Jumpstart children who "closed the gap" at post-intervention.

**SUMMARY OF CHILD OUTCOMES**

Overall, results indicate that the Jumpstart program is effective in improving children’s language and literacy skills, as assessed by two measures, the JSSC and the TOPEL. The JSSC data suggest that Jumpstart is especially beneficial for those children with the lowest language and literacy skills. Similarly, TOPEL data suggest that Jumpstart helps children with the lowest language and literacy skills close the gap.
APPENDIX A

Demographic data are shown for the 5,513 children in the JSSC evaluation sample (second column), and for the 359 children in the TOPEL evaluation sample (third column). As a reference, corresponding data for all children with information and consent, including those who participated in pilots or innovations, are shown in grey (fourth column). There were no major differences in demographic composition between children participating in the traditional program and those participating with Jumpstart overall.

**Percentage of children in each demographic category during the 2016-2017 program year**

<table>
<thead>
<tr>
<th>DEMOGRAPHICS</th>
<th>Percentage, Children in JSSC Evaluation Sample (n=5,513)</th>
<th>Percentage, Children in TOPEL Evaluation Sample (n=359)</th>
<th>Percentage, All Jumpstart Children (n=9,888)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>6%</td>
<td>3%</td>
<td>6%</td>
</tr>
<tr>
<td>Black or African American</td>
<td>34%</td>
<td>50%</td>
<td>35%</td>
</tr>
<tr>
<td>Hispanic or Latino/a</td>
<td>40%</td>
<td>21%</td>
<td>39%</td>
</tr>
<tr>
<td>White</td>
<td>9%</td>
<td>16%</td>
<td>8%</td>
</tr>
<tr>
<td>Multiple races</td>
<td>10%</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>Other</td>
<td>1%</td>
<td>5%</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Home Language</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chinese</td>
<td>4%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>English</td>
<td>70%</td>
<td>78%</td>
<td>69%</td>
</tr>
<tr>
<td>Haitian Creole</td>
<td>1%</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>Spanish</td>
<td>22%</td>
<td>13%</td>
<td>23%</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>50%</td>
<td>54%</td>
<td>50%</td>
</tr>
<tr>
<td>Male</td>
<td>50%</td>
<td>46%</td>
<td>50%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 3 years (36.00 months) old</td>
<td>4%</td>
<td>1%</td>
<td>5%</td>
</tr>
<tr>
<td>3 years (36.00 - 47.99 months) old</td>
<td>39%</td>
<td>36%</td>
<td>39%</td>
</tr>
<tr>
<td>4 years (48.00 - 59.99 months) old</td>
<td>54%</td>
<td>58%</td>
<td>52%</td>
</tr>
<tr>
<td>5 years (60.00 - 71.99 months) old</td>
<td>3%</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>6 years (72.00 months) or older</td>
<td>&lt;1%</td>
<td>&lt;1%</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

*Note: Percentages may not total 100% due to rounding.*

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1. Traditional programming refers to all Jumpstart programs that were not pilots, innovations, or summer programs. These programs were evaluated separately.
2. Results for members are presented in a separate report, [Major Findings for Members Participating in Jumpstart’s Traditional Service Model: 2016-2017](#).
3. Results for children participating in the Curriculum Revisions Pilot can be found in a separate report.
4. As compared to 2015-2016, a smaller percentage of children served in 2016-2017 are included in the evaluation sample. This is due in part to the fact that there were many more children participating in innovation/pilot programs (1,550 in 2016-2017 as compared to 586...
in the previous program year). There were also more children in 2016-2017 whose families did not consent to evaluation activities, and more who were missing valid pre- and post-intervention JSSC scores.

vi Colleges, universities, or community sites from which members are recruited

vi Atlanta University Center, DePaul University, Georgia State University, Northwestern University, Pace University, Rutgers University - Newark, Temple University, Tufts University, University of Pittsburgh, University of Rhode Island, and Wheelock College

vii Boston Community Corps, Catholic University of America, Roxbury Community College, University of Massachusetts - Boston, and University of Missouri - Columbia

viii Demographics for children in the JSSC evaluation sample were similar to those for children in the TOPEL evaluation sample, and for the overall population of Jumpstart children participating in traditional programs. Of the 5,513 children in the JSSC evaluation sample, 5,235 had demographic information available, and their families’ consent for Jumpstart to use that information.

ix As part of Jumpstart’s continuing efforts to use inclusive language, the gender-neutral term “Latinx” will be used to refer to individuals previously described as “Latino/a”

For a fuller description of the outcomes for children who are DLLs, see the report Major Findings for Jumpstart’s Dual Language Learners: 2016-2017 Program Year.

x The TOPEL is a standardized, norm-referenced measure of early language and literacy skills. Norm-referenced tests compare and rank test takers in relation to others who have already taken the test – the normative sample. The TOPEL was normed on a group of 842 children from across the U.S. This sample closely approximates the U.S. population by geographic area, gender, ethnicity, family income, families’ educational attainment, exceptionality status (e.g., learning disorders, emotional disturbance, hearing impairment), and age.

xi Historically, Jumpstart has used 3.99 as a criterion for identifying children with lower language and literacy skills; however, the Research & Evaluation team found it more informative to compare children who scored below average at pre-intervention with those who scored at or above average at pre-intervention. Thus, for the purposes of this report, the “Lower skills” group refers to children who scored below the pre-intervention JSSC average score of 2.65. While redefining “lower language skills” in this way allows for more meaningful analyses, it also means that the cutoff point will change each year.

xii Major Findings For Jumpstart’s Dual Language Learners: 2016-2017 Program Year

xiv However, while not typical practice, if we look at raw scores – which are similar to the JSSC scores in that they do not account for age – it is interesting to note that 95% of children received higher raw TOPEL scores at post-intervention as compared to pre-intervention.

xv By comparison, during the 2015-2016 program year, children in the TOPEL sample began with a higher baseline on average (73% scored average or above at pre-intervention), and ended the year with 84% scoring average or above at post-intervention.

xvi The ELI is a composite score obtained by converting the sum of the standard scores on the subtests to a standard score; it is not an average of the standard scores on the subtests. Each standard score is normed at 100; thus, the percentage of children making a gain on the ELI will not be an average of the percentage of children making gains on the subtests.