

DPP Student Performance Outcomes School Year 2016-17

Background

Each year, Denver Preschool Program (DPP) evaluates the short- and long-term child outcomes of students who receive tuition support. While DPP and their subcontractors are in the process of updating data sharing agreements with Denver Public Schools, DPS has agreed to provide data comparing DPP students to a matched non-DPP sample to support this annual reporting.

Method

Sample

Data in this report is limited to students who were in Kindergarten, first-, second-, and third-grade students in the Spring 2017 and were in the Denver Public School system. The DPP sample (children who were part of the Child Outcomes study and received tuition support from DPP during their last year of preschool) were matched to a sample of DPS students who did not receive DPP tuition support nor had a parent who reported the child did not have ECE experience prior to entering Kindergarten.

Assessments

Here we have reported student performance on several early assessments from Spring 2016-17:

- **READ Act** assessment proficiency from Kindergarten, first-, second-, and third-grade students
 - o dichotomous – ‘on a READ plan’
 - Vendor cut point of Significantly Below Grade Level (see Appendix for details)
- **CMAS ELA (English Language Arts)** proficiency in third grade
 - o dichotomous – ‘met or exceeded expectations’
 - o CMAS CSLA (Spanish Language assessment) excluded due to small N
- **CMAS Math** proficiency in third grade
 - o dichotomous – ‘met or exceeded expectations’

Matching

Each DPP student with assessment data was matched to a similar non-DPP student without known ECE experience based on the following criteria.

Students were matched on: gender, assessment type, language of testing, grade in school, concurrent income status (Free and Reduced Lunch), concurrent English-language learner status, concurrent Student with Disabilities status, and attending schools serving a similar proportion of low-income students. *Students were not matched on race/ethnicity.*

Assessment Type	#DPP students who have recorded assessment scores in Spring 2017	#DPP students with perfect match and included in analyses
READ Act (K-3 rd)	529	515
CMAS ELA	88	87
CMAS MATH	106	105

These criteria were chosen to minimize the number of un-matched DPP students and to ensure the matched sample was similar to the DPP sample. An exact match method was used.

Statistical Method

Because assessments use a categorical variable to describe student performance, differences between treatment (DPP) and control (matched non-DPP DPS students with no known ECE experience) groups were tested using chi-square and two-sample test of proportions.

Results

- ❖ DPP students were less likely to be placed on a READ Plan than similarly matched non-DPP students.
- ❖ Among low income students, there was a lower proportion of DPP students on a READ Plan than similar low income non-DPP students.
- ❖ In third grade, though not statistically significant, DPP students were more likely to perform better on Literacy and Math assessments than similarly matched non-DPP students.

Performance on READ Act assessments in Spring 2017 (Kindergarten through Third Grade)

- When collapsing READ Act performance across Grades K – 3rd, DPP students are significantly less likely to be placed on a READ Plan than similar peers (Figure 1).
- Breaking this down by grade (Figure 2), this effect is statistically significant among 1st Grade students and marginally significant among Kindergarten and 3rd Grade students.

Figure 1. Percentage of Students on READ Plan

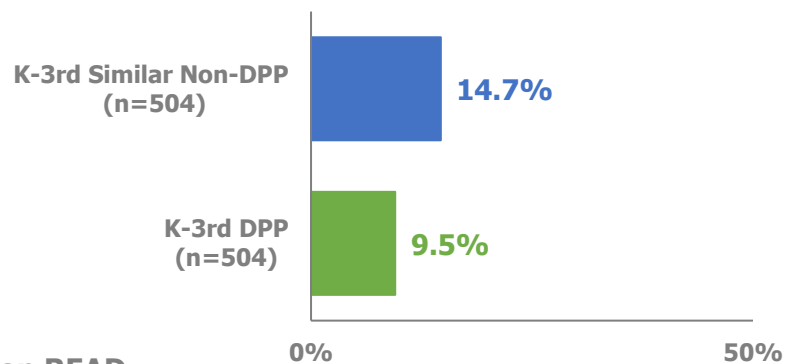
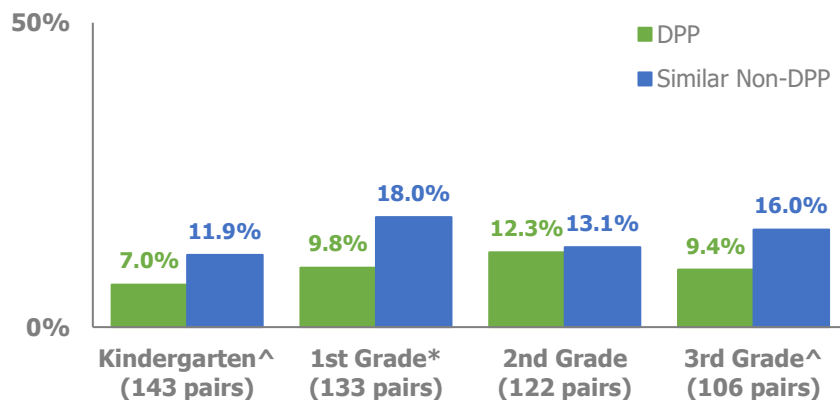


Figure 2. Percentage of Students on READ Plan by Grade



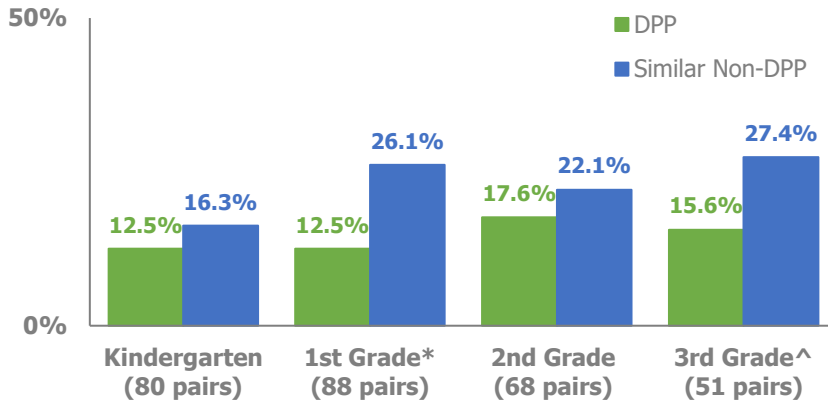
* = p<.05 (statistically significant difference)

[^] = p<.10 (notable but non-significant difference)

- Among low-income students, the proportion of DPP students on a READ Plan (14.3%) was lower compared to similar non-DPP students (22.6%, p<.05)

- The proportion of low-income students on a READ Plan is notably lower among 1st and 3rd grade DPP students than similar peers (**Figure 3**).

Figure 3. Percentage of Low-Income on READ Plan by Grade



Statistical Notation
 * = $p < .05$, statistically significant difference between DPP and similar non-DPP students
 ^ = $p < .10$, notable but non-significant difference between DPP and similar non-DPP students

DRAFT

3rd Grade Performance on CMAS English Language Arts (ELA) and Mathematics in Spring 2017

- The proportion of DPP students Meeting or Exceeding Expectations on CMAS English Language Arts was marginally higher than among similar non-DPP students (Figure 4).
- There is a similar trend among low-income DPP and non-DPP students (Figure 4).

Figure 4. % Met or Exceeded Expectations on CMAS ELA

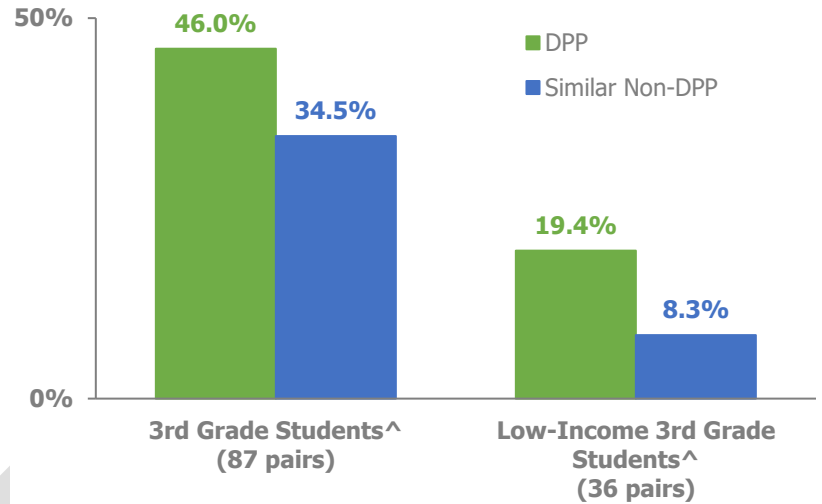
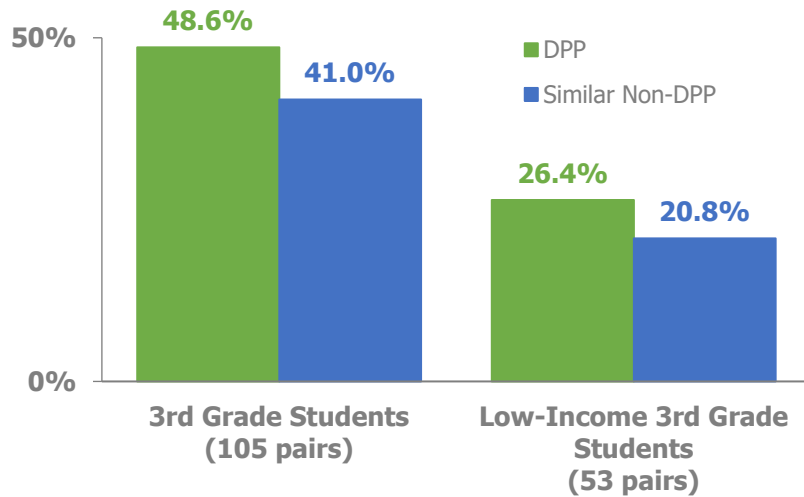


Figure 5. % Met or Exceeded Expectations on CMAS Math



- The proportion of DPP students Meeting or Exceeding Expectations on CMAS Math was slightly higher than among similar non-DPP students (Figure 5).
- There is a similar trend among low-income DPP and non-DPP students (Figure 5).

Appendix

Descriptive Information by Assessment Type

Table 1. Race/Ethnicity Breakdown for K-3rd students tested on READ Act in Spring 2017

Race/Ethnicity	DPP (n=504)	Similar non-DPP (n=504)
Asian	2.8%	3.4%
Black	10.1%	7.3%
Hispanic	50.2%	47.6%
Native American	0.4%	0.4%
Native Hawaiian/Pacific Islander	0.0%	0.6%
Two or More Races	5.6%	5.4%
White	31.0%	35.3%

Table 1. The distribution of students in different race/ethnicity categories tested on **READ Act in Spring 2017** does not differ between DPP and non-DPP samples.

Table 2. This table displays demographics of students included in **READ Act** analyses. The proportion of students in each group is equivalent in both the DPP and similar non-DPP samples.

Table 2. Demographics for K-3rd students tested on READ Act in Spring 2017

Demographic Factor	% of Students (of 504 pairs)
Low-Income	56.9%
English-Language Learners	36.9%
Students with Disabilities	4.8%
Female	49.4%

Table 3. Race/Ethnicity Breakdown for 3rd Grade students tested on CMAS ELA in Spring 2017

Race/Ethnicity	DPP (n = 87)	non-DPP (n = 87)
Asian	4.6%	2.3%
Black	11.5%	11.5%
Hispanic	36.8%	39.1%
Two+ Races	6.9%	4.6%
White	40.2%	42.5%

Table 3. The distribution of students in different race/ethnicity categories tested on **CMAS ELA in Spring 2017** does not differ between DPP and non-DPP samples.

Table 4. This table displays demographics of students included in **CMAS ELA** analyses. The proportion of students in each group is equivalent in both the DPP and similar non-DPP samples.

Table 4. Demographics for 3rd Grade students tested on CMAS ELA in Spring 2017

Demographic Factor	% of Students (of 87 pairs)
Low-Income	41.4%
English-Language Learners	24.1%
Students with Disabilities	9.2%
Female	52.9%

Table 5. Race/Ethnicity Breakdown for 3rd Grade students tested on CMAS Math in Spring 2017

Race/Ethnicity	DPP (n = 105)	non-DPP (n = 105)
Asian	3.8%	2.9%
Black	9.5%	9.5%
Hispanic	47.6%	51.4%
Two+ Races	5.7%	6.7%
White	33.3%	29.5%

Table 5. The distribution of students in different race/ethnicity categories tested on **CMAS Math in Spring 2017** does not differ between DPP and non-DPP samples.

Table 6. This table displays demographics of students included in **CMAS Math** analyses. The proportion of students in each group is equivalent in both the DPP and similar non-DPP samples.

Table 6. Demographics for 3rd Grade students tested on CMAS Math in Spring 2017

Demographic Factor	% of Students (of 105 pairs)
Low-Income	50.5%
English-Language Learners	37.1%
Students with Disabilities	9.5%
Female	49.5%

Additional Methods Notes and Limitations

In accordance with the READ Act legislation, DPS is required to assess students' literacy skills from Kindergarten through 3rd Grade using state-approved assessments. DPS schools have primarily adopted 4 assessments to meet these requirements (Istation, i-Ready, STAR, DIBELS/IDEL) with proficiency levels categorized as follows: Significantly Below Grade Level (requires documentation of intervention plan), Below Grade Level, or Above Grade Level.

- The At/Above Grade Level designation is less comparable across different READ Act assessments than the SBGL designation.
- Significantly Below Grade Level designation requires that students be placed on a READ Plan.
- We chose to report this metric because it is the most standardized across assessments.