Summary of Evaluation Findings: Dallas Afterschool

Propensity Score Matched comparison of DAS v nonDAS students on DallasISD academic outcomes only

Spring 2017
## Big Picture

After a careful process of matching DAS students to similar students who were not enrolled in afterschool, a check mark indicates that the DAS students outperformed the non-DAS group by a meaningful and statistically significant margin.

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Reading</th>
<th>Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st &amp; 2nd graders</td>
<td>✓✓</td>
<td>✓✓</td>
</tr>
<tr>
<td>3rd graders</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4th graders</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>5th graders</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

DAS > nonDAS but n.s.
Why Propensity Score Matching?

PSM helps create an “apples to apples” comparisons of students who participated in a DAS afterschool program and those who did not. This means that differences between the groups can be reasonably attributed to the intervention (to afterschool) instead of to other factors.
Why PSM? An example...

An initial comparison of n=55 1st and 2nd graders in DAS programs to all other 1st and 2nd graders (n=3498) shows the comparison group to slightly outperform the treatment group on average ITBS Reading percentile scores.

After PSM, a comparison of n=3553 treatment and n=3553 comparison students shows that the treatment group performed significantly better than the comparison group on the 2015-16 reading score and demonstrates that the effect of OST programming was statistically significant.
Why PSM? An example...

Average Reading Percentile Before Any PSM Matching

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>40.58%</td>
<td>45.66%</td>
</tr>
</tbody>
</table>

Average Reading Percentile After PSM Matching

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>45.32%</td>
<td>70.8% *</td>
</tr>
</tbody>
</table>
PSM: Matching Variables

We matched students on the following variables:

• Gender (female or male)
• Race: Black
• Race: Hispanic
• School Attendance Percentage
• Spanish Speaking at Home
• Spanish Speaking as Primary Language
• Tardy Number
• Referral Number
• Pretest Scores:
  – ITBS for 1\textsuperscript{st} and 2\textsuperscript{nd} Grade
  – STAAR for 3\textsuperscript{rd}-5\textsuperscript{th} Grade
Results
PSM Results: 1\textsuperscript{st} & 2\textsuperscript{nd} Grade

CORE conducted a Propensity Score Match technique that matched a sample of 1\textsuperscript{st} and 2\textsuperscript{nd} graders who attended DAS sites during the 2015-16 school year. In order to help isolate the impacts of attending afterschool programs vs not, the matching process took into account other contributing variables such as demographics and previous performance on standardized exams. These analyses show that there is a significant effect of afterschool attendance on both the reading and math scores for 1\textsuperscript{st} and 2\textsuperscript{nd} grade students.
Before Matching

Original 2015-16 Sample

DAS 1st and 2nd graders n= 55

Non-DAS 1st and 2nd graders n= 3,498

After Matching; sample used for analysis

DAS 1st and 2nd graders n= 3,553

Non-DAS 1st and 2nd graders n= 3,553
PSM Results: 1st & 2nd Grade

Average Effect of Participation in DAS Sites on ITBS **Reading*** for 1st & 2nd Grade (n=3,553)

- Comparison: 0.117
- Treatment: 0.548

Average Effect of Participation in DAS Sites on ITBS **Math*** for 1st & 2nd Grade (n=3,553)

- Comparison: 0.121
- Treatment: 0.474

*A significant finding (p<.05)
Interpreting 1st & 2nd Grade Differences

CORE converted the standardized scores into percentile ranks. (For example, a standardized score of -0.11 translated into a percentile rank of 45).

On average, in 2015-16 the comparison group scored in the 45th percentile for both reading and math. However, students who participated in DAS OST sites scored in the 70th percentile in reading and the 68th percentile in math.
Average Percentile Rank on 2015-16 ITBS Reading Scores

*The effect of attending a DAS program was statistically significant, $p<.05$
Average Percentile Rank on 2015-16 ITBS Math Scores

*The effect of attending a DAS program was statistically significant, \( p < 0.05 \)

Matched Comparison
\( N=3,553 \)
45.2%

DAS 1\(^{st}\) & 2\(^{nd}\) graders
\( N=3,553 \)
68.2%
**PSM: 3rd through 5th Grade**

CORE also conducted Propensity Score Matching techniques to match a sample of 3rd, 4th and 5th graders who attended DAS sites during the 2015-16 school year. In order to help isolate the impacts of attending afterschool programs vs not, the matching process took into account other contributing variables such as demographics and previous performance on standardized exams. These analyses show that DAS afterschool has positive impacts on third grade math, and on fifth grade reading and math. DAS third graders out-performed non-DAS third graders on STAAR reading though the differences were not significant. On average, DAS fourth graders performed under non-DAS fourth graders on both reading and math.

*A significant finding (p<.05)*
Before Matching

Original 2015-16 Sample

DAS 3rd graders n=51

Non-DAS 3rd graders n=480

After Matching; sample used for analysis

DAS 3rd graders n=493

Non-DAS 3rd graders n=493
PSM Results: 3rd Grade

Average Scale Scores - 3rd Grade STAAR **Reading** 2015-16, \(N=493\)

Average Scale Scores - 3rd Grade STAAR **Math** 2015-16, \(N=493\)

*effects were significant \((p<.05)\)
Original 2015-16 Sample

Before Matching

DAS 4th graders n=53

Non-DAS 4th graders n=749

After Matching; sample used for analysis

DAS 4th graders n=802

Non-DAS 4th graders n=802
PSM Results: 4th Grade

Average Scale Score STAAR

**Reading** 2015-16

\[N = 802\]

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1398.5</td>
<td>1371.8</td>
</tr>
</tbody>
</table>

\[\text{ns}\]

Average Scale Score STAAR

**Math** 2015-16

\[N = 802\]

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1467.5</td>
<td>1436.6</td>
</tr>
</tbody>
</table>

\[\text{ns}\]

*Effects of afterschool on 4th grade scores were not significant; mean differences between treatment and control 15-16 scores were not significant.*
Before Matching

DAS 5th graders n=64
Non-DAS 5th graders n=817

After Matching; sample used for analysis

DAS 5th graders n=881
Non-DAS 5th graders n=881
PSM Results: 5th Grade

Average Scale Score STAAR

**Reading** 2015-16
N=881

<table>
<thead>
<tr>
<th></th>
<th>Comparison</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Scale</td>
<td>1384.5</td>
<td>1487.9</td>
</tr>
</tbody>
</table>

**Math** 2015-16
N=881

<table>
<thead>
<tr>
<th></th>
<th>Comparison</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Scale</td>
<td>1485.6</td>
<td>1544.6</td>
</tr>
</tbody>
</table>

*effects were significant at p<.05