Addendum to the Students and Teachers Accessing Tomorrow – Year Four Evaluation Report:
Student Achievement

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PARCC Student Achievement

The present addendum presents findings related to the impact of the S.T.A.T. initiative on student achievement. In addition to MAP results presented in the Year 4 evaluation report, the student achievement effects were examined descriptively through Partnership for Assessment of Readiness for College and Careers (PARCC) scores in both English/language arts (ELA) and mathematics in all BCPS schools Grade 3 and Lighthouse schools Grades 4-5 and 6. The PARCC data presented aggregates the percentage of students who met (Level 4) or exceeded (Level 5) expectations on the PARCC achievement scale.

In addition to average PARCC scores for mathematics and ELA for Baltimore County Public Schools (BCPS), Maryland state scores as well as scores from three districts within the state of Maryland are presented for comparative purposes. Comparison data was drawn from student achievement data presented in the Maryland Report Card.1

Demographic district and state data2 are displayed in Table 1 below. In using student data from the Maryland Report Card, there was a total enrollment count discrepancy between race/ethnicity demographic data and students receiving special services data (BCPS data came directly from the district, so there is no discrepancy for BCPS percentages). Race/ethnicity demographic percentages were calculated using total enrollment counts as displayed in Table 1, whereas students receiving special services percentages were calculated using total enrollment counts available from the Maryland Report Card 2017 Students Receiving Special Services Data file.3

Table 1

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Total Enrollment</th>
<th>Black %</th>
<th>White %</th>
<th>Hispanic/Latino %</th>
<th>Other1 %</th>
<th>Free and Reduced Price Meals (FARMS) %</th>
<th>LEP %</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCPS</td>
<td>113,282</td>
<td>39.1</td>
<td>38.7</td>
<td>9.7</td>
<td>12.5</td>
<td>48.1</td>
<td>5.6</td>
</tr>
<tr>
<td>District A</td>
<td>81,379</td>
<td>20.6</td>
<td>55.4</td>
<td>13.7</td>
<td>10.3</td>
<td>33.5</td>
<td>7.9²</td>
</tr>
<tr>
<td>District B</td>
<td>159,010</td>
<td>21.3</td>
<td>29.3</td>
<td>30.1</td>
<td>19.3</td>
<td>36.4</td>
<td>16.6</td>
</tr>
<tr>
<td>District C</td>
<td>130,814</td>
<td>59.8</td>
<td>4.2</td>
<td>31.3</td>
<td>4.6</td>
<td>63.2</td>
<td>17.8</td>
</tr>
<tr>
<td>State</td>
<td>886,221</td>
<td>34.1</td>
<td>38.2</td>
<td>16.5</td>
<td>11.3</td>
<td>43.0</td>
<td>8.5</td>
</tr>
</tbody>
</table>

1 “Other” includes the following race/ethnicity categories: American Indian/Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, and Two or More Races.
2 LEP percentage for District A is based on LEP elementary enrollment, as middle- and high-school LEP enrollment counts were masked in accordance with FERPA requirements.

As shown above, BCPS has a higher proportion of Black students as compared with District A and B but a lower proportion of Black students as compared with District C. Similar trends are noted for the proportion of FARMS-eligible students. BCPS has a lower proportion of
Hispanic/Latino students and LEP students than the three comparison districts and the state. In general, BCPS is comparable to the state of Maryland in student demographics.

According to the logic model (Figure 1 in the main report), we would expect to see an impact on student achievement beginning in Year Three of S.T.A.T implementation. BCPS Lighthouse Grade 3 (Cohort One) began S.T.A.T. implementation during the 2014-15 school year and recently completed their fourth year of implementation. The rest of BCPS Grade 3 students (Cohort Two) began implementation in 2015-16 and are presently in their third year of implementation. Lighthouse Grades 4-5 and 6 (Cohort Two) began S.T.A.T. in 2015-16 and recently completed their third year of implementation.

As the following sections will discuss in more detail, BCPS Grade 3 Lighthouse students have experienced a slight increase in the proportion of students meeting ELA expectations whereas non-Lighthouse students have remained fairly stable over the past few years. The proportion of students meeting mathematics expectations has declined for both groups. BCPS Lighthouse Grade 4 and 5 students increased proficiency in ELA, but mathematics proficiency changes were more variable. In Grade 6, BCPS Lighthouse schools have increased proficiency during years of implementation in ELA, though mathematics scores have remained fairly stable.

Figures 1 and 2 display the complete range of proficiency changes across districts for Grades 3, 4, 5, and 6 ELA and mathematics achievement, respectively. The reader should be reminded that the PARCC mode varied between schools during the 2014-15 school year. All Lighthouse elementary school students took the PARCC exam online, whereas just only a portion of non-Lighthouse took the PARCC exam online.

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4 Grade 3 represents the only PARCC tested grade in which the entirety of the BCPS district is in at least the third year of S.T.A.T. implementation. For this reason, Lighthouse and non-Lighthouse elementary schools were combined as one group for the third grade analysis.

5 Although both part of Cohort Two, Lighthouse Grades 4-5 and Lighthouse Grade 6 are presented separately in this analysis in order to better distinguish between trends occurring at the elementary and middle school levels.
Figure 1. Proficiency change from 2014-15 to 2017-18 for PARCC ELA achievement compared to other districts and Maryland at large.

Note. Grade 3 includes both Lighthouse and non-Lighthouse schools, which implemented S.T.A.T. in 2014-15 and 2015-16, respectively. Grades 4, 5, and 6 includes Lighthouse only, which implemented S.T.A.T. in 2015-16.
Figure 2. Proficiency change from 2014-15 to 2017-18 for PARCC mathematics achievement compared to other districts and Maryland at large.

Note. Grade 3 includes both Lighthouse and non-Lighthouse schools, which implemented S.T.A.T. in 2014-15 and 2015-16, respectively. Grades 4, 5, and 6 includes Lighthouse only, which implemented S.T.A.T. in 2015-16.

Grade 3. In ELA, achievement in BCPS was generally consistent across all four years. Achievement was also comparable to what was exhibited across Maryland during this timeframe, but overall, was lower than two of the three comparison districts.

BCPS achievement in mathematics was also similar to Maryland’s statewide average. In contrast with what was found in ELA however, mathematics achievement in BCPS increased from Year One to Year Two and has remained at a relatively similar level in the years since. Figures 3 and 4 display the complete range of timepoints and districts for Grade 3 ELA and mathematics achievement, respectively.
Grades 4-5. For Grade 4 ELA, achievement in BCPS Lighthouse schools increased slightly each year from Pre-program through Year Three, and slightly exceeded the achievement of both the state each year S.T.A.T. has been in place. In Grade 5, ELA achievement in Lighthouse schools increased slightly each of the past three years, and has slightly exceeded the state averages the past two years. Figures 5 and 6 display the complete range of timepoints and districts for Grade 4 and 5 ELA achievement, respectively.

For mathematics, BCPS Lighthouse schools exhibited a visible improvement in mathematics achievement from the Pre-program year to Year One in Grades 4 and 5. This mirrored a similar trend that occurred during this timeframe across the state of Maryland and the other
comparison districts. In Grade 4, Lighthouse school achievement slightly exceeded that of both the state averages in two of the past three years. In Grade 5, Lighthouse schools exhibited slightly higher achievement than the overall state average this past year. Figures 7 and 8 display the complete range of timepoints and districts for Grade 4 and 5 mathematics achievement, respectively.

**Figure 5. Proportion of Grade 4 students who met/exceeded expectations for PARCC ELA.**

![Figure 5](image1)

**Figure 6. Proportion of Grade 5 students who met/exceeded expectations for PARCC ELA.**

![Figure 6](image2)
Grade 6. Lighthouse schools’ Grade 6 ELA achievement demonstrated a unique trendline, as they decreased from Pre-Program to Year One but increased Year One through Three. In contrast, most comparison districts and the state incrementally increased from Pre-Program through Year Three. Overall, Lighthouse Grade 6 ELA achievement has slightly exceeded both district and state averages over the past two years.

For mathematics, Lighthouse schools, comparison districts, and the state demonstrated little change from Pre-Program through Year Three: for all participant groups, achievement did not fluctuate more than 6% from 2014-15 through 2017-18. Across all four of these years however, Lighthouse Grade 6 math achievement was visibly higher than Maryland state averages. Figures
9 and 10 display the complete range of timepoints and districts for Grade 6 ELA and mathematics achievement, respectively.

**Figure 9. Proportion of Grade 6 students who met/exceeded expectations for PARCC ELA.**

![Gr. 6 ELA - Yearly Achievement](image)

**Figure 10. Proportion of Grade 6 students who met/exceeded expectations for PARCC mathematics.**

![Gr. 6 Mathematics - Yearly Achievement](image)
Conclusion

The findings presented in this addendum are generally consistent with the S.T.A.T. temporal logic model. This model posits that measurable impacts on student achievement may begin to appear around Year Three of the initiative. By this time, it is hypothesized that changes in classroom environment and teacher practice have had time to permeate the district, leading to improvements in students’ P21 skills and overall engagement with school. In ELA, BCPS Grade 3 (Lighthouse and non-Lighthouse) and Lighthouse Grades 4 and 5 have exhibited little change in proficiency over the past two years. Grade 6 Lighthouse has exhibited a slight increase during this timeframe. In mathematics, Grade 3 (Lighthouse and non-Lighthouse) have remained stable over the past two years in the proportion of students meeting or exceeding expectations. The same is true for Lighthouse Grade 4. In contrast, Lighthouse Grades 5 and 6 have exhibited slight increases in the proportion of students meeting expectations. The proficiency change across S.T.A.T. implementation years, however, indicates that the initiative is having a positive effect on closing the gap between BCPS students, comparison districts, and the state, in mathematics and ELA for Grades 3, 4, and 5. Taken in combination with the positive achievement trends found for the NWEA MAP assessment, these results suggest that the S.T.A.T. initiative may be beginning to play a role in fostering positive achievement growth for Cohort One and Cohort Two students.
Appendix

PARCC Student Achievement Graph Data Notes

- For Lyons Mill ES, there is no data for 2015 since the school did not open until the 2015-16 school year.
- For Scholars K8, there is no data for 2017 and 2018 since that school closed at the end of the 2015-16 school year.
- For Norwood ES, there is no data for Grades 4-5 since those students in that area all attend Holabird Middle School.
- For Holabird Middle, there is no Grade 3 data since Grade 3 students in that area all attend Norwood ES.