

The Relationship between Performance and Growth on the ACCESS Assessment and Third Grade PSSA-ELA Performance for English Learners

Kristyn Stewart, Senior Research Associate; Mark Lewis, Research Fellow

Introduction

Of the approximately 16,500 English Learners enrolled in the School District of Philadelphia, 34% are enrolled in the K-3 grade band.¹ In order to effectively monitor the progress of English Learners on their path to English proficiency as measured by the PSSA-ELA, ORE analyzed the relationship between achievement on the third-grade PSSA-ELA and on the ACCESS² assessment. The information gathered in this analysis can inform the goals set for ELs in order to ensure that they are making progress towards English proficiency as measured by the both the ACCESS and PSSA-ELA assessments.

Research Questions

1. What is the relationship between performance on the ACCESS assessment and the third-grade PSSA-ELA?
2. What is the relationship between English proficiency at the start of third-grade and PSSA-ELA performance?
3. What is the relationship between meeting ACCESS annual growth targets and performance on the third-grade PSSA-ELA?

About ACCESS

Who takes it?

All English Learners (ELs) in kindergarten through 12th grade take the ACCESS assessment. In 2018-19, 97% of K-5 ELs took the exam.

What does it measure?

The test rates students' English proficiency in four language domains: Listening, Speaking, Reading, and Writing.

How are scores calculated?

Students receive a scale score in each domain, which is then translated to a level (1.0-6.0) representing English Language Proficiency (ELP), with a 5.0+ considered proficient. A composite ACCESS score combines the domain scale scores and also ranges from 1.0 to 6.0.

The scale score required for students to reach proficiency varies by grade level.

When is ACCESS administered?

Students take the ACCESS annually in January or February.

¹ Qlik Enrollment Application, October 1 Snapshot, V1.5, Accessed 12/09/19

² ACCESS (*Assessing Communication and Comprehension in English State to State*) was developed by World Class Instruction Design and Assessment (WIDA) Consortium at the University of Wisconsin. Visit PDE's website to read more about the ACCESS assessment: <https://bit.ly/2IW7d2v>.

Sample

Each research question used a slightly different sample tailored to the availability of data and related timespan.

Sample for Research Question 1 (relationship between performance on the ACCESS assessment and the third-grade PSSA-ELA)

The sample for this analysis includes 1432 students who met the following four criteria:

- Were enrolled in third-grade in SDP in 2018-19;
- Were classified as English Learners (ELs) in 2018-19;
- Took the ACCESS assessment in 2018-19; and
- Took the third-grade PSSA-ELA in 2018-19.

Nearly half of this sample (49.6%) identified their home language as Spanish, and another 12% identified as Mandarin speakers. Table 1 shows the home languages that comprised at least 2% of the overall sample. For a complete list of home languages represented in the overall sample and the number of students speaking each language, see Appendix A.

Table 1. Home languages representing at least 2% of the overall sample for Research Question 1

Home Language	Number of Students	Percent of Sample
Spanish	710	49.6%
Chinese (Mandarin)	165	11.5%
Arabic	81	5.7%
Russian	56	3.9%
Portuguese	51	3.6%
Vietnamese	44	3.1%
Khmer	35	2.4%

Sample for Research Question 2 (relationship between English proficiency at the start of third grade and PSSA-ELA performance)

To better understand the relationship between ACCESS English proficiency levels and PSSA-ELA scores, we also looked at students' English proficiency levels upon entering third grade. These levels are determined by the ACCESS assessment taken in the winter of the prior year (when the students are in second grade). ACCESS scores are not returned from the Pennsylvania Department of Education (PDE) until summer, and thus, it is the ACCESS assessment taken in second grade that determines that English Proficiency level of students upon entering third grade. Of the 1,432 third-grade students in the overall sample, 1,287 had an English proficiency level as determined by their second grade (2017-18) ACCESS assessment. In the analytical sample of students (n=1,287) with a 2017-18 ACCESS English proficiency level, nearly 70% of students were classified as a level 2.0 (beginning) or 3.0 (developing) English Learner at the beginning of third-grade.

Table 2. English proficiency levels represented in the analytical sample for Research Question 2

ACCESS level at the start of third-grade (based on ACCESS score from second-grade)	Number of Students	Percent of Analytical Sample
1.0 – 1.9 (entering)	197	15%
2.0 – 2.9 (beginning)	367	29%
3.0 – 3.9 (developing)	519	40%
4.0 – 4.9 (expanding)	188	15%
5.0 – 5.9 (bridging)	16	1%
Total	1287	100%

Sample for Research Question 3 (relationship between meeting ACCESS annual growth targets and performance on the third-grade PSSA-ELA)

In our analysis of the relationship between a student’s ACCESS score and PSSA-ELA performance, we further restricted the sample to the 1,058 students with three years of ACCESS growth data (from grades K-3). Of the analytical sample of students with three years of growth data, 10% never met the annual growth target assigned to them by PDE, and another 10% met all three annual growth targets before taking the third-grade PSSA-ELA. For more about how and why PDE calculates and assigns annual student growth targets, see Appendix B.

Table 3. Number of students who met annual ACCESS growth targets for 0, 1, 2, or 3 years

Number of years students met annual ACCESS growth targets	Number of Students	Percent of Analytical Sample
Never	103	10%
1 year	436	41%
2 years	413	39%
3 years	106	10%
Total	1058	100%

Findings

Research Question #1: What is the relationship between performance on the ACCESS assessment and the 3rd grade PSSA-ELA?

There is a strong, statistically significant correlation between a student’s ACCESS composite scale score and their scale score on the 3rd-grade PSSA-ELA (Table 4 and Figure 1). For this sample of third- grade ELs, the correlation between ACCESS and PSSA-ELA scale scores is slightly stronger than the correlation between raw scores on the aimsweb oral reading fluency assessment (ORF) and PSSA scale scores. This is not surprising, because ACCESS is a full-day assessment that measures a student’s ability to speak, read, write, and understand spoken English, whereas aimsweb ORF is a one-minute assessment of oral reading fluency.

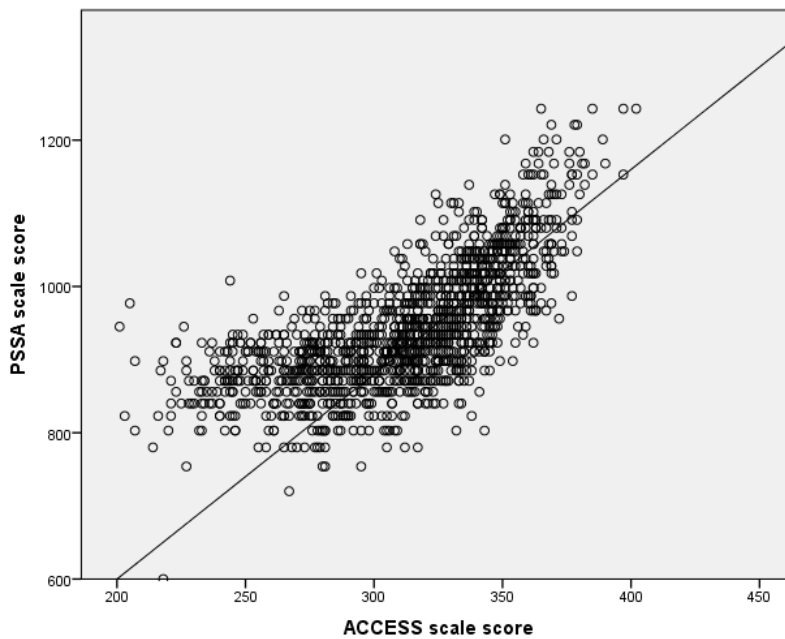
Table 4. Correlations between third-grade PSSA-ELA scale scores and other required assessments

3 rd grade required assessment	Number of students with data	Correlation to third-grade PSSA-ELA Scale Score
ACCESS scale score	1432	.713**
Fall aimsweb ORF raw score	1397	.697**
Winter aimsweb ORF raw score	1400	.683**

** . Correlation is significant at the 0.01 level (2-tailed)

When ACCESS and PSSA-ELA scale scores are displayed on a scatter plot, there is a positive, linear relationship between them (Figure 1). In general, as ACCESS composite scores increase, so do PSSA-ELA scale scores.

Figure 1. There is a positive linear relationship between PSSA-ELA and ACCESS scale scores

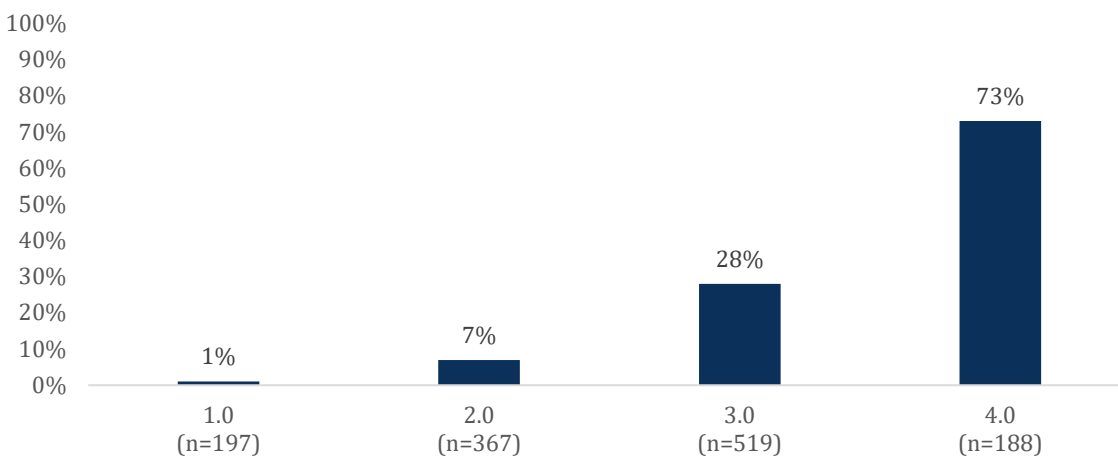


ORE conducted a simple linear regression to predict a student’s PSSA-ELA scale score based on their ACCESS scale score. A significant regression equation was found ($F(1, 1430) = 1478.487$, $p < .001$) with an R^2 of .508, meaning that approximately 51% of the variance in PSSA-ELA scale scores for this sample can be explained by ACCESS scale scores. **The linear regression further revealed that for every one-point increase in ACCESS scale scores, a 1.7 point increase can be expected on the PSSA.** See Appendix C for the SPSS linear regression outputs.

Research Question #2: What is the relationship between English proficiency at the beginning of third-grade and PSSA-ELA performance?

There is a statistically significant relationship³ between a student’s ACCESS English proficiency level upon entering 3rd grade and the likelihood of scoring proficient or advanced on the PSSA (Figure 2). More than a quarter of students (28%) who entered third grade with an English proficiency level of 3.0 and nearly three-quarters of students (73%) who entered third grade with an English proficiency level of 4.0 scored proficient or advanced on the PSSA (Figure 2).⁴

Figure 2. The percentage of students entering third-grade at each ACCESS proficiency level who scored proficient or advanced on the third-grade PSSA-ELA



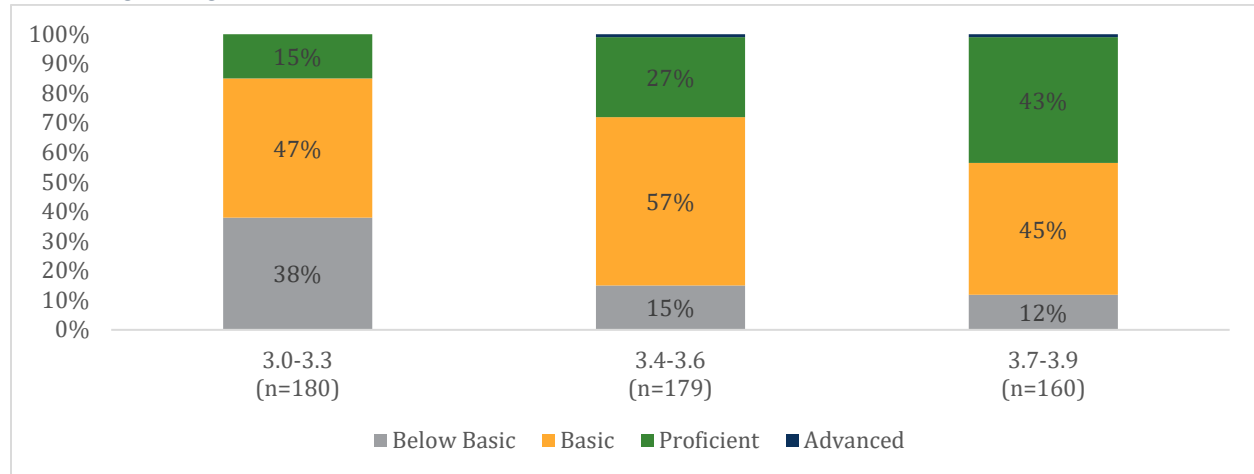
A large number of students entered third-grade with an English Proficiency level of 3.0 (n=519), so ORE conducted a secondary analysis of third-grade PSSA-ELA outcomes using students’ specific performance scores⁵ rather than their categories (i.e., 3.1, 3.2, or 3.3 instead of 3.0). **Only 15% of students who scored between 3.0-3.3 were proficient or advanced on the PSSA, compared to 28% of students who scored between 3.4-3.6 and 44% of students who scored between 3.7-3.9 (Figure 3).**

³ Spearman correlation =.565**, $p < 0.01$

⁴ Sixteen students entered 3rd grade with an English proficiency level of 5.0, and all these students scored proficient or advanced on the PSSA-ELA. They were included in statistical analysis but are not displayed in Figure 2 due to the low n-count and because they likely should have been exited from EL status based on their ACCESS scores.

⁵ Students’ ACCESS scale scores are converted to performance levels (3.1, 3.2, 3.3, etc.) which are then converted to performance categories (1.0, 2.0, 3.0, etc). All performance levels are rounded down to the nearest category; that is, students with scores between 3.0 and 3.9 are classified as level 3.0.

Figure 3. PSSA-ELA performance of students who scored in the 3.0-3.9 range the ACCESS assessment prior to entering third-grade



Research Question #3: What is the relationship between meeting ACCESS growth targets and performance on the third-grade PSSA-ELA?

An ANOVA and Tukey post-hoc analysis⁶ revealed that there is a statistically significant relationship between the number of years a student met their PDE-assigned annual ACCESS growth target and their PSSA-ELA scale score. In general, the more years that a student met their annual ACCESS growth target prior to taking the PSSA, the higher their scale score on the ELA-PSSA (Table 5). However, there was no statistically significant difference between the scale scores of students who never met their growth goal and those who only met their growth goal once. For more about ACCESS annual growth targets, see Appendix B. For the SPSS ANOVA output, see Appendix D.

Table 5. Average PSSA-ELA scale scores, by number of annual ACCESS growth targets met

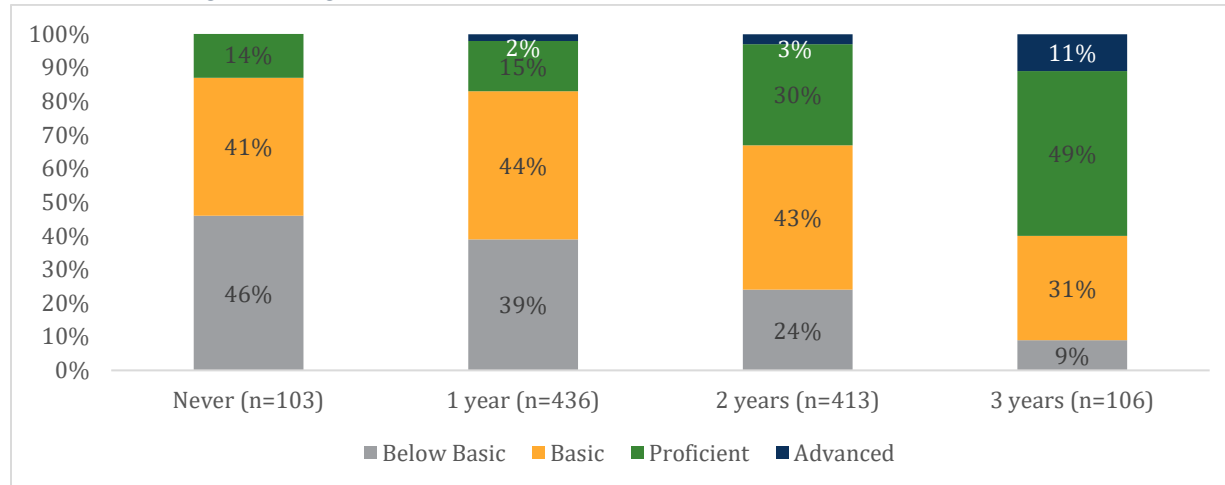
Number of years a student met their ACCESS growth target	Average scale score on third-grade PSSA-ELA ⁷
Never (n=103)	913
1 year (n=436)	930
2 years (n=413)	971
3 years (n=106)	1031
All students	954

A similar relationship exists between PSSA performance categories and the number of years that students met their ACCESS growth goals. **Sixty percent of EL students who met all three annual ACCESS growth goals scored proficient or advanced on the PSSA-ELA, compared to 33% of students who met their growth goals twice and 17% of students who met their growth goal once** (Figure 4).

⁶ Tukey HSD, The mean difference is significant at the 0.05 level.

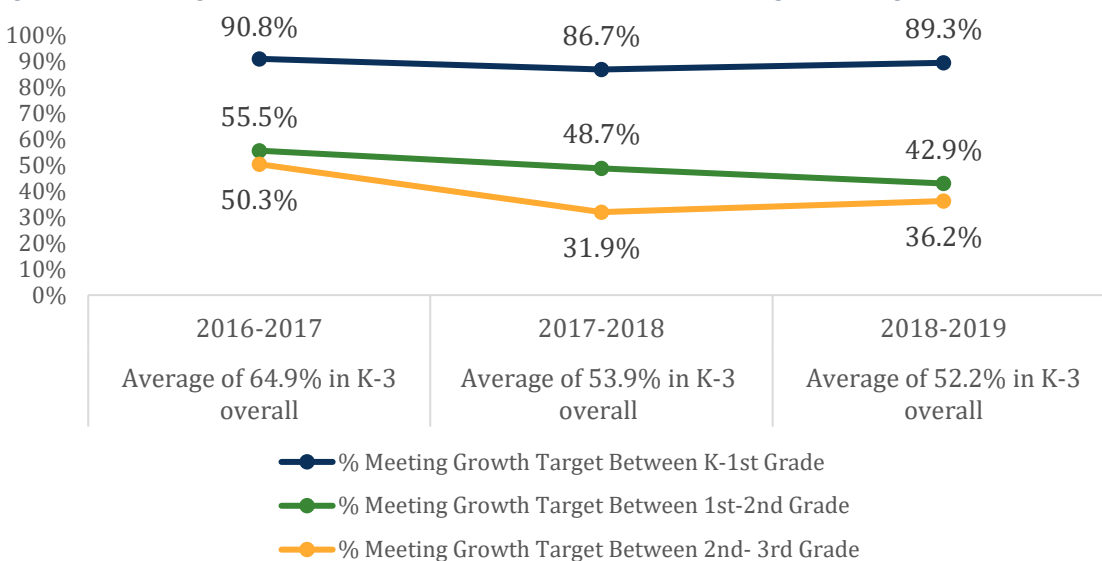
⁷ The scale score ranges for the third-grade PSSA-ELA are as follows: Below Basic (600-904), Basic (905-999), Proficient (1000-1142), Advanced (1143 and above).

Figure 4. The percentage of third-grade EL students in each PSSA-ELA performance category, by number of annual ACCESS growth targets met



Monitoring the overall percentage of students meeting their annual ACCESS growth targets reveals patterns across grade levels and cohort years. As seen in Figure 5, students in our sample met their annual ACCESS growth targets much less often after first grade. Also, the overall average of K-3 students meeting their annual growth targets has somewhat declined since 2016-2017 while the proportion of students meeting their annual ACCESS growth targets from Kindergarten has stayed relatively consistent. Continuing to monitor these measures over the next several years will provide evidence of the effectiveness of interventions focused on K-3 students' progress in learning English.

Figure 5. Percentage of students who met each K-3 annual ACCESS growth target, 2016-2017 to 2018-2019



Conclusion and Recommendations

ACCESS performance and PSSA-ELA performance are closely related. PSSA-ELA performance in third-grade was higher for students who performed better on the ACCESS in third-grade (Research Question #1), higher for students who entered third-grade with a higher ACCESS score (Research Question #2), and higher for students who met more of their annual ACCESS growth targets (Research Question #3). Closely monitoring ELs' ACCESS performance in grades K-3 will provide important leading indicators of their eventual third-grade PSSA-ELA performance. Efforts to improve PSSA-ELA performance would likely benefit from additional supports for teachers and administrators to analyze and use ACCESS data as a way to understand the performances of the EL students and chose interventions when appropriate.

The number of annual ACCESS growth targets met by each student is a valuable indicator of PSSA-ELA performance. However, for the purposes of identifying students in need of intervention, only two years of ACCESS data are needed to determine if they met their annual growth target. Analyzing which students met annual ACCESS growth targets would allow teachers, administrators, and District staff to identify students in need of intervention before third-grade.