



Efficacy Analysis:

A Retrospective Investigation of Longitudinal
Performance Change From 2023 to 2024
Using Pennsylvania PSSA Math Data

Fall 2025

Executive Summary

This retrospective study followed the academic progression of over 3,600 students in 4th, 5th, and 6th grade in Pennsylvania who used Prodigy during the 2023-2024 school year. The study examined each cohort of students' test performance on the Pennsylvania System of School Assessment (PSSA) math test in 2024 and compared it to the same cohort's performance from the prior year to determine growth. The analysis reveals that the cohorts of students who used Prodigy significantly outperformed the state average in terms of year-over-year growth on the PSSA math test.

Specifically, students in Prodigy Treatment schools—defined as those where at least 50% of the students in a grade answered 10+ questions monthly, averaged over 100 questions per student, and teachers created at least 20 Prodigy assignments—outperformed the state average in the percentage of students meeting state standards in all three grades.

These findings reinforce the value of Prodigy not only as an engaging math platform but as an effective instructional tool when intentionally implemented, offering measurable academic growth in math achievement for elementary students.



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Background

The publicly available Pennsylvania System of School Assessment (PSSA) test results aggregated at the grade level present a great opportunity for Prodigy to conduct an internal investigation of efficacy. This analysis compares the longitudinal performance change on the PSSA math test from 2023 to 2024 among “Prodigy Treatment” schools in 4th, 5th, and 6th grade, to the state average performance change across the two test years. The goal is to determine if there is a noticeable difference in test score performance for the Prodigy Treatment schools versus the state average.

Sample

For this longitudinal analysis, we examined school grade-level cohorts that were in 4th, 5th, and 6th grade in 2024 separately. This means the 4th-grade school cohorts in 2024 took part in the 2023 test as 3rd graders; similarly, the 5th-grade school cohorts in 2024 were 4th-grade test takers in 2023, and the 6th-grade school cohorts in 2024 were 5th graders in 2023. We tracked the same cohorts of students across the two test years to observe their test performance change. Within each grade level, schools with intentional Prodigy usage throughout the 2024 school year that participated in both the 2023 and 2024 PSSA math tests constituted the analysis sample. **The average year-over-year change in the test performance from 2023 to 2024 among the Prodigy Treatment schools is compared with the state average performance change.** Selection criteria for the **Prodigy Treatment schools** are:

- On average, 50% or more of the students in each of the examined grade levels in a school answered at least 10 questions in Prodigy Math monthly between September 2023 and May 2024.
- The average monthly questions answered on Prodigy Math per student was 100 questions or more between September 2023 and May 2024.
- Teachers created 20 or more Prodigy Math assignments between September 2023 and May 2024. This emphasizes the importance of intentional usage of Prodigy as a learning tool.

This sample of high Prodigy Math usage schools across 4th, 5th, and 6th grade included 46 school grade-level cohorts and 3,603 students tested across 42 districts in Florida from 2023 and 2024. The sample did not exclude any classrooms or schools that met the above criteria.

Data

We examined **the percentage of students who met the state standard** as the key test performance metric in this analysis. The year-over-year performance change for each grade level was student-weighted by first subtracting each school's percentage of students meeting the state standard in 2024 from the cohort's previous year's result in 2023, and then applying a student-weighted average across all schools.

The table below shows the usage statistics of the Prodigy Treatment schools, segmented by grade level. For context, assignments are a feature within the Prodigy teacher platform that allows a teacher to select specific math skills for their students to work on in Prodigy's game-based learning platform. Teachers can use this to align Prodigy practice to their lesson plan, conduct formative assessments, or do exit tickets.

Table 1. Prodigy usage statistics by grade.

Grade Level in 2024	Schools with High Prodigy Math Usage (#)	Students Tested in Both 2023 and 2024	% of Enrolled Students Who Answered 10+ Prodigy Math Questions Monthly	Average Monthly Math Questions Answered on Prodigy Math Per Student (#)	Free and Reduced Lunch Ratio (%)
4th grade	31	2,410	73.0%	246	67.4%
5th grade	13	940	66.1%	227	59.3%
6th grade	4	253	66.8%	216	73.4%

Results

Across the grades examined, we saw the Prodigy treatment schools outperform the state average in the percentage change of students who met the state standard year over year, ranging from 1% students higher in the 4th grade to 2.5% students higher in the 5th grade to 6% students higher in the 6th grade (see the figures below).

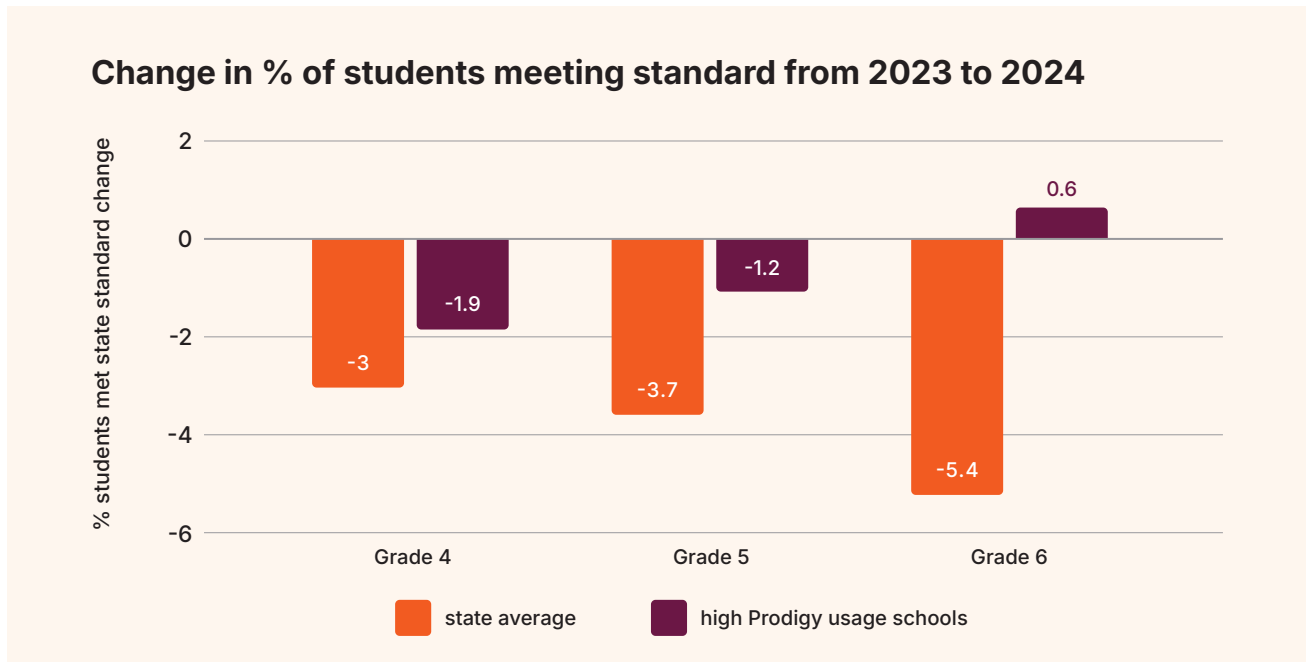


Figure 1a. Average year-over-year change in the percentage of students who met the state standard for 4th, 5th, and 6th grade. The orange bars indicate the state average year-over-year change for each grade. The red bars indicate the year-over-year change from the Prodigy treatment schools.

Improvement in Prodigy Treatment Schools vs. State Average

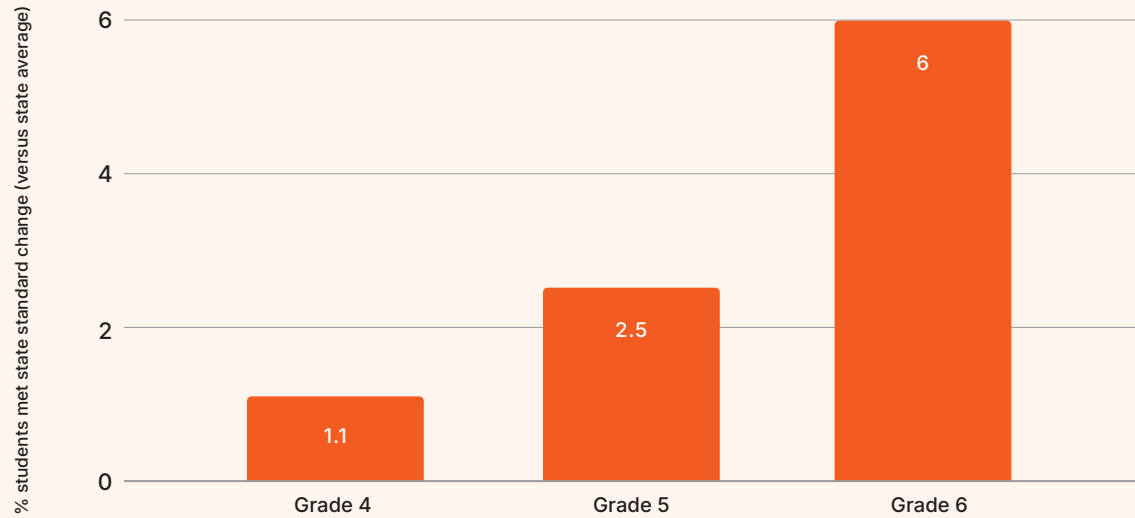


Figure 1b. Improvement over the state average in the percentage of students who met the state standard from the Prodigy treatment schools in each grade.

Overall, we saw 2.4% more students in the Prodigy treatment schools meeting the state standard from 2023 to 2024 compared to the state average year-over-year performance change across the 4th, 5th, and 6th grades. Summary results for 4th to 6th grade are shown below in the table and charts.

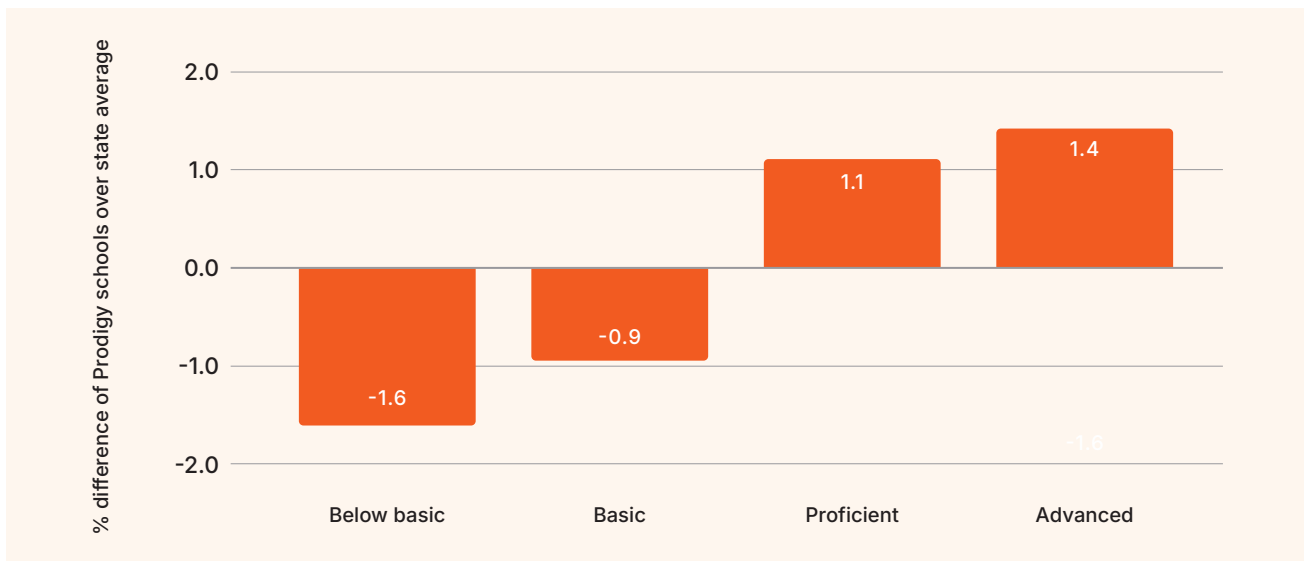
Table 2. Average changes in the percentage of students meeting the state standard from 2023 to 2024 by grade.

	4th Grade		5th Grade		6th Grade		All Grades (Student-Weighted Average)	
	State Average	Prodigy Treatment Schools	State Average	Prodigy Treatment Schools	State Average	Prodigy Treatment Schools	State Average	Prodigy Treatment Schools
Year-Over- Year % Students Met	-3.0%	-1.9%	-3.7%	-1.2%	-5.4%	+0.6%	-4.0%	-1.6%
State Standard Change								

In addition, while the performance improvement in the 4th grade was relatively small, we observed a stronger impact of Prodigy usage in the 5th and 6th grades. This was evident when we broke down the performance by the PSSA performance criteria – Advanced, Proficient, Basic, and Below Basic.

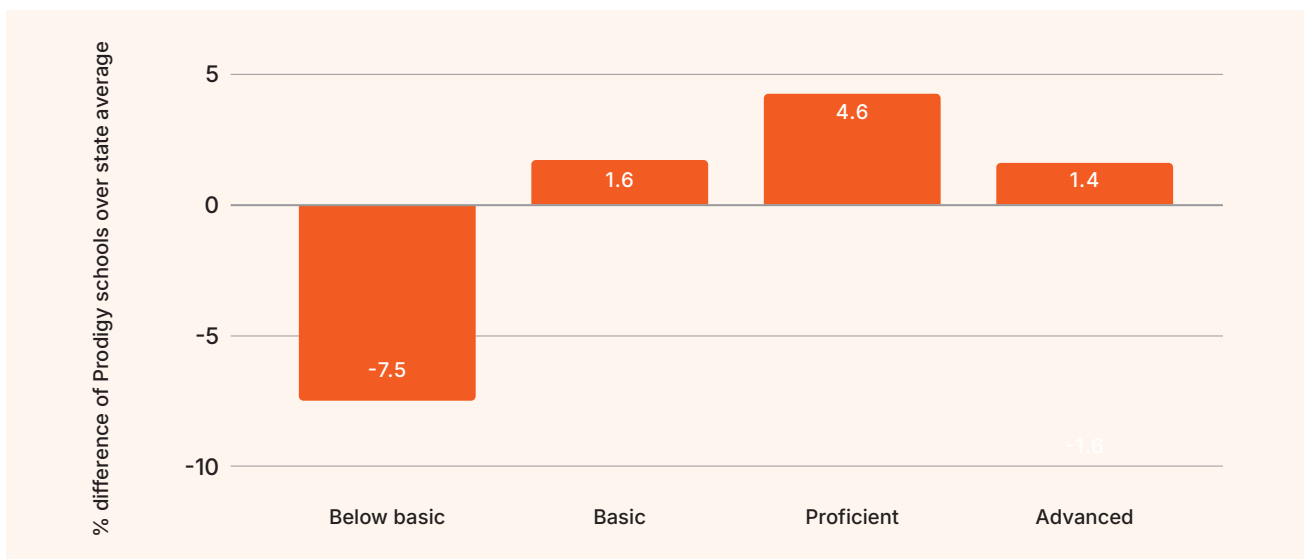
5th Grade

For 5th graders in Pennsylvania, when comparing to the state average year-over-year performance change on the performance criteria, the Prodigy treatment schools had an increase in the percentage of students in Proficient (+1.1%) and Advanced (+1.4%) while having a smaller percentage of students in Below Basic (-1.6%) and Basic (-0.9%).



6th Grade

A similar trend was observed when looking at the performance criteria among the 6th graders. Compared to the state average, the Prodigy treatment schools had a greater percentage of students in Advanced (+1.4%), Proficient (+4.6%), and Basic (+1.6%), while fewer students were in Below Basic (-7.5%).



Summary

This efficacy analysis examined the year-over-year performance change of over 3,600 students who used Prodigy's math platform in 4th, 5th, and 6th grade on the Pennsylvania System of School Assessment (PSSA) math tests from 2023 to 2024. Prodigy Treatment schools, defined as 1) having an average of 50% or more of the students in one of the examined grades in a school answer at least 10 questions in Prodigy monthly, 2) having over 100 average monthly questions answered per student, and 3) having teachers create 20 or more Prodigy Math assignments between September 2023 and May 2024, were compared with the state average performance of their respective grade. The results showed that the Prodigy Treatment schools had stronger year-over-year performance in the percentage of students who met the state standard than the state average across the three grades examined. On average, Prodigy Treatment schools saw 2.4% more students meeting standards compared to the state average year over year. These results, along with prior efficacy evidence, continue to advocate for Prodigy's positive impact as an educational product to help boost math achievement.



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