

What Should You Know about PVAAS?

Since 2002, PVAAS has provided Pennsylvania educators with a powerful tool to determine—grade by grade and subject by subject—whether all students have plentiful choices and increased opportunities for learning.

What is PVAAS?

- **PVAAS is Pennsylvania’s Value-Added Assessment System.** *Value added* is a statistical analysis used to measure a district’s or school’s impact on the academic progress rates of groups of students from year to year. Conceptually and as a simple explanation, a value added “score” is calculated in the following manner: Growth=Current Achievement (or current results) compared to all prior achievement/prior results, with achievement being measured by quality assessments such as the PSSA and Keystone Exams.
- **PVAAS is *not* another test.** It provides analyses based on existing student assessment data.
- **PVAAS measures student growth** from one year to the next using state assessments, and reports whether students made the *expected growth* based on their prior testing history.
- **Unlike achievement, PVAAS is *not* typically related to students’ socioeconomic or demographic background.** *Achievement* captures students’ performance at a single point in time while *growth* measures the change in achievement over time.
- **PVAAS uses a time-tested, externally validated approach to measuring student growth.** Independent, non-partisan researchers at RAND and WestEd have named the PVAAS approach as one of the most reliable. The methodology used by PVAAS is called Education Value Added Assessment System (EVAAS). Pennsylvania’s implementation of EVAAS is called the Pennsylvania Value Added Assessment System (PVAAS). The EVAAS methodology has been published since 1998 and has been nationally peer reviewed.

What is the difference between achievement and growth data?

- **Achievement measures a student’s performance at one single point in time**, and compares student performance to a standard. It is critical to a student’s post-secondary opportunities. Achievement is highly correlated with a student’s demographics.
- **Growth measures students’ academic performance across time**, i.e., across years, and compares student performance to his/her own prior performance. It is critical to ensuring a student’s future academic success. Growth data shows little to no relationship to a student’s demographics.
- **By measuring students’ academic achievement AND growth, schools and districts have a more comprehensive picture of their own effectiveness in raising student achievement!**

How does PVAAS benefit educators?

- **PVAAS tells educators what works in their districts, schools, and classrooms.** It is more than just a single number; it is a comprehensive, interactive system that provides customized reporting regarding the effectiveness of curricular and instructional practices.
- **Pennsylvania educators use PVAAS to improve student outcomes.**
 - Kelly Byrne, supervisor in the Downingtown Area School District, said that *“PVAAS reports allowed us to really look at our middle school students and their math placements. We were able to better ensure that every student had the opportunity to be enrolled in the appropriate math course. It also helped us look at the much larger picture of getting more students in rigorous math courses in high school.”*
 - Principal Jeff Clinton of South Mountain Elementary noted, *“We were already a school engaged in rich data conversations. PVAAS helped us take that conversation to the next level.”*

How does PVAAS benefit students?

- **With PVAAS, the growth of every student matters, regardless of their achievement level and background.** The PVAAS reporting can match students with teachers who have demonstrated success with similar students in the past, *priming both the teacher and student for success.*
- **Research by value-added experts confirms the impact that teachers make in their students' life.** According to a recent Harvard study, students who have *high value-added* teachers, on average, *increase their test scores* immediately relative to the previous year as well as their *college attendance and incomes*, compared to students with low value-added teachers (Chetty, Raj et al. [2011] "The Long-Term Impacts of Teachers.>").

How do educators use PVAAS?

PVAAS offers an objective, more accurate way to measure student growth and the influence Pennsylvania's public districts and schools have on students' educational experiences. Districts, schools, and teachers are using PVAAS (growth data), in conjunction with achievement data, to make sure students are on the path to proficiency and beyond. With the information in PVAAS, educators are better able to:

- Monitor the growth of all groups of students from low-achieving to high-achieving, ensuring growth opportunities for all students
- Measure student achievement as a result of the impact of educational practices, classroom curricula, instructional methods, and professional development
- Make informed, data-driven decisions about where to focus resources to help students make greater growth and perform at higher levels
- Modify and differentiate instruction to address the needs of all students
- Align professional development efforts in the areas of greatest need
- Network with other districts/schools that may be yielding different growth results
- Identify best practices and implement programs that best meet the needs of their students

Educators are using PVAAS, in conjunction with achievement data, to make sure students are on the path to proficiency and beyond!

How is PVAAS different from a state's academic standards?

- **Unlike a state's academic standards, PVAAS is not a set of standards and does not require a specific set of standards to measure student growth.** PVAAS uses student scores from a variety of state assessments.

How is PVAAS used in Pennsylvania?

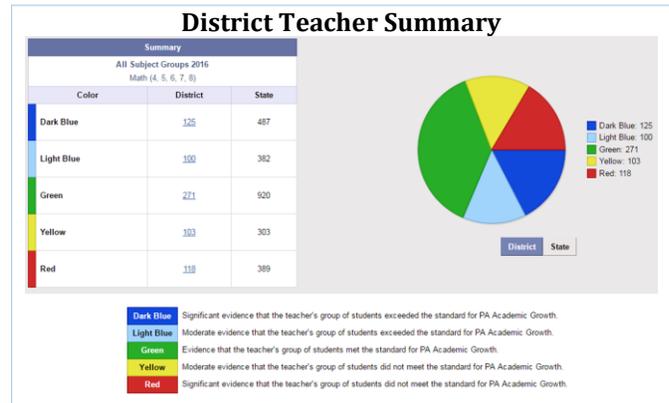
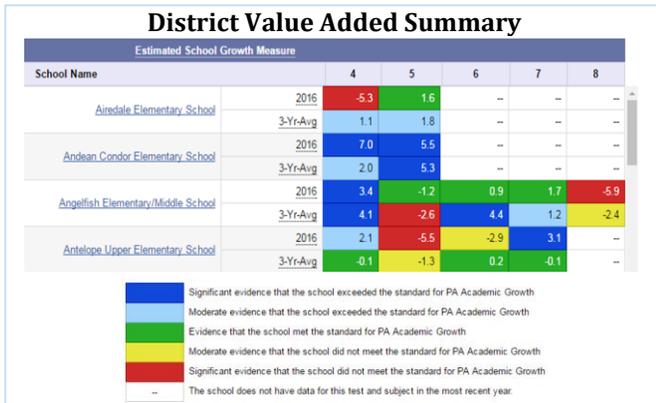
- **Every district, public school, and charter school has access to PVAAS** as a resource for district/school continuous improvement. Districts and schools can access PVAAS reports at <https://pvaas.sas.com>; the public can access PVAAS through the same site, by clicking on the "Public Access" button.
- **The Educator Effectiveness System (per Act 82 of 2012) and the School Performance Profile** use PVAAS reporting as one of multiple measures.

What specific types of PVAAS reports are available to districts, schools, and teachers?

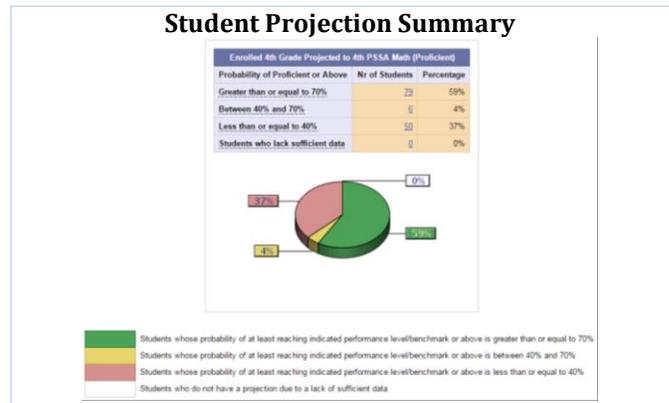
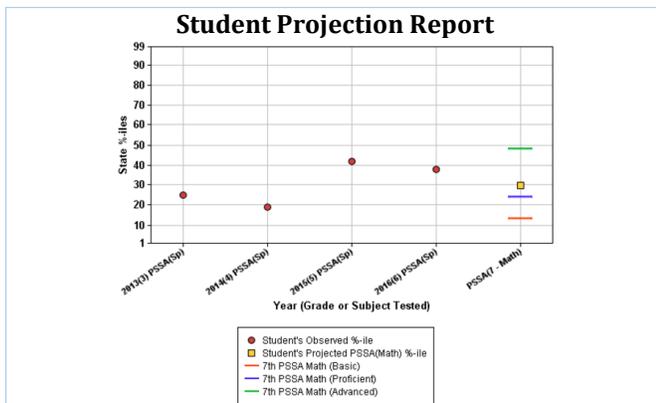
PVAAS provides two types of information: value added (growth) data on groups of students and student-level projection data.

- **Value added, or growth, information analyzes available data from previous years (looking back) to help districts, schools, and teachers evaluate how much groups of students have gained academically in a school year.**
 - Value added reports can help answer questions such as, "Did a group or subgroup of students make a year's worth of growth for a year's worth of schooling?"

- PVAAS is available in the grades and subjects/courses assessed in Pennsylvania’s statewide assessment system, beginning in Grade 4. This includes reporting for mathematics and English language arts (Grades 4-8), science (Grades 4 and 8), and Keystone (Algebra 1, Literature, and Biology).



- **Projection information uses the data already analyzed to help schools project (look forward) to the future.**
 - Projection reports can help answer questions such as, “What is the likelihood of a student being proficient on a future state assessment (PSSA or Keystone exam)?” “What is the likelihood of a student reaching a specific benchmark on a college/career readiness assessment including Advanced Placement exams, PSAT, ACT and SAT?”
 - Projection data can be used for intervention planning, enrichment planning, college/career readiness planning, course placement decisions, and resource allocation.



- **In early fall, all public school districts, charter schools, cyber charter schools, and full time career and technology centers across the Commonwealth receive web-based reporting through PVAAS.** PVAAS data is also provided on a Public site at <https://pvaas.sas.com>
 - PVAAS is one of several tools provided to districts from the Pennsylvania Department of Education.

Where can I find additional information?

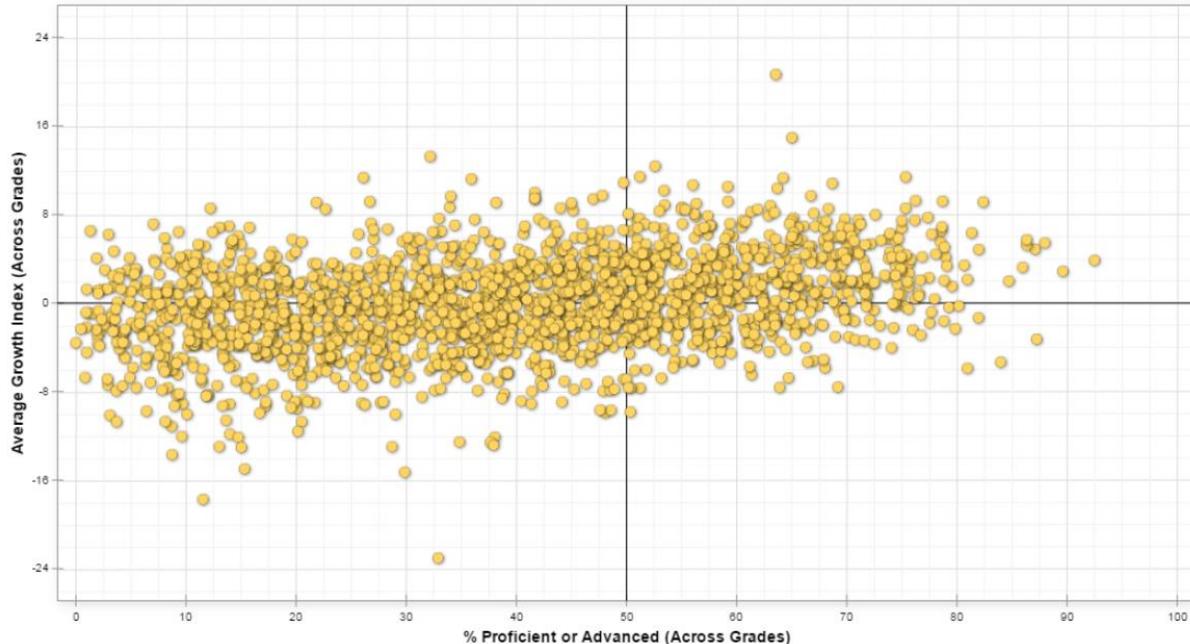
- Visit the PVAAS reporting site at <https://pvaas.sas.com>
- Visit the PVAAS Statewide Team’s Resources site at <https://sites.google.com/a/iu13.org/pvaas-pl-resources/>
- Contact the PVAAS Statewide Team at pdepvaas@iu13.org or (717) 606-1911.

Addressing Common Misconceptions about PVAAS

The PVAAS progress measures are based on a robust and reliable methodology. This approach overcomes many critical statistical issues related to using standardized tests to assess student progress and mitigates concerns about fairness. Some of the common concerns about PVAAS and its model are addressed below.

Are PVAAS progress measures typically related to student achievement?

No! The figure below reports the actual 2014-2015 school PVAAS growth measures with the school's achievement PSSA Math 4-8. Each yellow dot is a school in Pennsylvania. Regardless of student achievement at the school, there is a fairly even distribution of schools that make, exceed or fall short of the expected growth.



Even high-achieving schools can make the expected growth?

Yes! There are high-achieving schools in Pennsylvania with very high growth through PVAAS based on the PSSA or Keystones assessments.

Very few students make perfect scores in the same subject from year to year. Some educators are concerned about their students who make perfect scores and how that may impact their progress measures. In fact, of the 800,000 students assessed on the PSSA in 2014:

- Less than 0.3% (less than 3300 students) score at the highest point of the Advanced range
- Only 0.03% (less than 200 students) scored at the highest point of the Advanced range in Math two years in a row
- Only 0.004% (less than 30 students) scored at the highest point of the Advanced range in Reading two years in a row

Even low-achieving schools can make expected growth?

Yes! There are low-achieving schools in Pennsylvania with very high growth through PVAAS based on the PSSA or Keystones assessments.

What if a student has a bad testing day?

PVAAS measures of progress are not about one student on one day. It's about looking at the growth of an entire group of students over time. In fact, PVAAS does not provide growth measures for *individual* students. It only provides a growth measure for *groups* of students.

PVAAS protects educators by excluding outlier test scores, providing a progress measure based on groups of students rather than individual students and using a multiple-year trend for

accountability and evaluation. In other words, PVAAS looks for a pattern across multiple years of growth estimates and multiple years of student test scores to see whether there *evidence* that students, on average, made expected growth.

Are PVAAS estimates reliable from year to year?

Independent researchers have noted that the reliability of value-added modeling is similar to what is used elsewhere for high-stakes decision-making (Source: [Evaluating Teachers: The Important Role of Value-Added](#)). Multiyear estimates from the PVAAS approach are among the most reliable, in part because the model uses so much testing history for each student and because the model requires sufficient evidence or certainty (standard errors) to report that students made more than or less than the expected growth.

How can PVAAS measure progress during test transitions?

The PVAAS approach has been in use for over twenty years, during which it has accommodated a number of test transitions. It is not required for test scores to be on the same scales in order to measure progress during a test transition. The most important factor is that the new test has a relationship to the old test, meaning the old 6th grade math test has can predict scores on the new 7th grade math test, and this requirement has not been a problem with PVAAS reporting in the past.

Why does the PVAAS model need to be so complex?

The concept of growth is simple, but the application requires sufficient statistical rigor to overcome challenges when analyzing longitudinal student data. The PVAAS approach has the following advantages:

- Includes students with missing test scores (many models exclude students with missing test scores).
- Uses all available testing history for each student (many models restrict prior testing history to 1-2 subjects in 1-2 years).
- Uses all available testing history for each student, even with the historical data are not on the same scale or when tests have changed over time.
- Dampens the effects of measurement error, which is inherent in all student assessments because the tests themselves are estimates of student knowledge, not an exact measurement.

Value-added experts have validated the PVAAS approach. For example, researchers at RAND and WestEd recommended a modeling approach such as PVAAS as one of the least biased and most reliable (For example: <http://www.ncpublicschools.org/effectiveness-model/evaas/selection/>).

Although the statistical approach is robust and complex, PVAAS reports in the web application are easy to understand. The reports are color-coded for easy interpretation so that educators and administrators can identify their strengths and opportunities for improvement at a glance. The reporting is interactive, so that authorized users can drill down to access diagnostic reports for students by subgroup or achievement level, individual student-level projections, and other reports. Educators have a comprehensive view of past practices as well as tools for current and future students. Thus, educators benefit from the rigor of the PVAAS models by gaining insight in an accessible and non-technical format.

PVAAS is more than a number.

PVAAS allows for teachers, schools, and districts to use the real data to make real changes. As the Commonwealth of Pennsylvania works to improve teacher effectiveness and student outcomes, PVAAS data provides numerous ways to help. PVAAS is a *flashlight* into improved student outcomes. Pennsylvania educators have said it best:

- Alicia Gismondi, Coordinator of Federal Programs and Student Achievement for Fox Chapel Schools states that *“We want to grow all our students whether they are high achieving or special needs. PVAAS helps us do that.”*
- Assistant Principal Corey Mosher of the Athens Area School District notes that *“Using the projections data [helps] to ensure students are enrolled in the best courses. Projection data ensures that teachers have the best data available to hone in individual instruction offering early, targeted interventions.”*