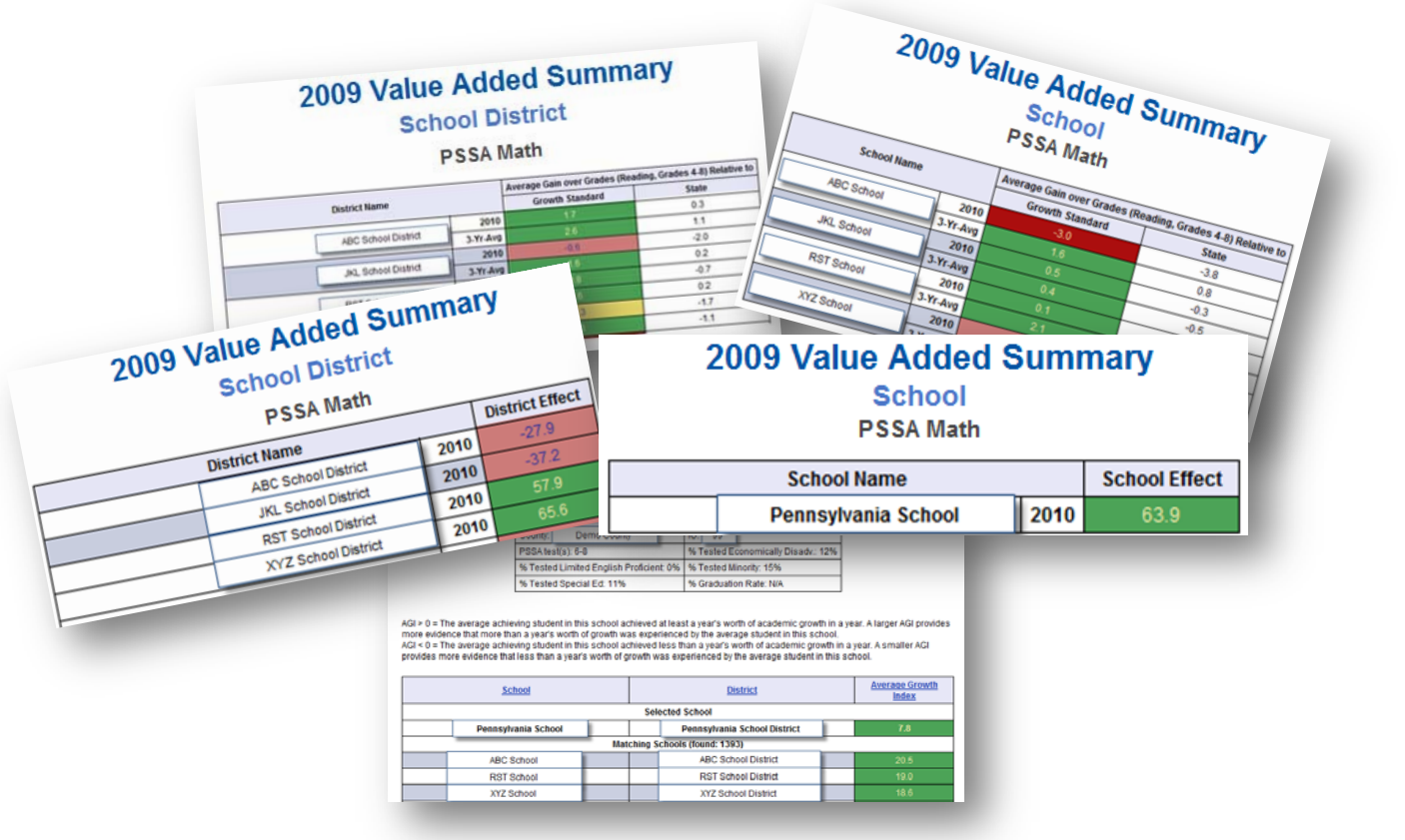
Pennsylvania Value-Added Assessment System (PVAAS)

Guide for PVAAS Public Reporting



PVAAS Reports provide indicators of the effectiveness of a district/LEA/school in making academic progress with students. Achievement results (PSSA) and growth results (PVAAS) MUST be used together to get a complete picture of student learning.

Contents

Student Achievement v. Student Progress

- Student achievement and student progress are complementary but different types of academic measures.
- Student Achievement
  - The final result of an academic experience
  - Highly correlated with demographic factors, e.g., socioeconomic status
  - Affected by factors outside the school
- Student progress
  - Not correlated with demographic factors
  - Dependent on what happens as a result of schooling
  - This is the concept underlying value-added analysis and reporting

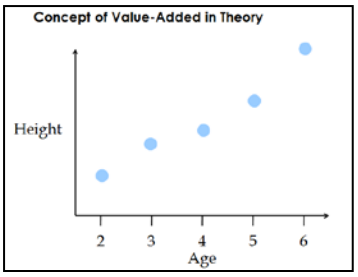
Achievement AND Progress

- Achievement
  - Measures a student's performance at a single point in time
  - Highly correlated with a student's demographics
  - Compares student performance to a standard
  - Critical to a student's post-secondary opportunities
- Progress
  - Measures a student's progress across time/years
  - Not related to a student's demographics
  - Compares student performance to his/her own prior performance
  - Critical to ensuring a student's future academic success
- By measuring students' academic achievement AND progress, schools and districts will have a more comprehensive picture of their effectiveness in raising student achievement.

PVAAS Data Provides Information to:
-Raise Achievement
-Close Achievement Gaps
-Decrease Dropouts
-Increase College Readiness

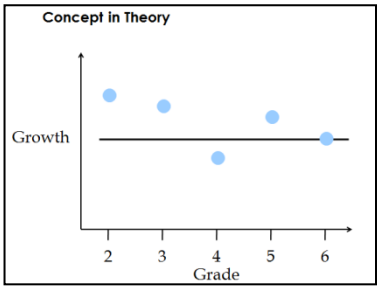
The Concept of Value-Added

To understand the concept of value-added analysis and reporting, imagine a child's physical growth curve. Every year, a child stands up against the wall; the parent puts a ruler on his head and measures the child's height at ages 2, 3, 4, and so on.



From these data points, the parent can construct a graph to illustrate the height of the child, as you see here, and then use these points to construct a graph of the growth of the child. Often, parents discover that this growth curve does not resemble the smooth line seen on a pediatrician's chart. Instead, there are "dimples" and "bubbles" in this constructed graph. Children may have growth spurts. In addition, errors of measurement are possible: the child may not have stood straight or the parent did not hold the ruler level.

Now apply the same process to education. This graph measures growth for the same group of students for each grade. Imagine that a school has been testing each student annually in math and that the scores from these tests are used to construct each student's math growth curve. The curve for any group of students will likely exhibit a pattern of dimples and bubbles similar to the physical growth curve for an individual child.



However, if by aggregating the information on many students we discover a dimple effect occurring in the 4th grade math at a specific school, then the dimple is evidence that the "standards-aligned system" for 4th grade math may need to be examined.

This is value-added– following the progress of students over time to estimate their growth during a year of schooling. With value-added assessment, educators get a sense of whether they are making appropriate academic progress for their students.

More specifically, value-added does this by following the same students over time and then looking at the progress of groups of students to make an estimate of educational effectiveness.

- These schooling influences accumulate across the years and measurably affect students' attainment at least four years beyond the grade in which the student encountered them.
- Without a value-added metric for measuring effective schooling, districts/schools have no way of knowing if they are capitalizing academic growth opportunities for all students.
- Student opportunities to progress each year must be maximized to allow more students to enroll in and be academically prepared for college and a career.

What is Value-Added?

- Value-added is a statistical analysis used to measure the district's/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 (current results) compared to Prior Achievement (prior results), with achievement being measured by an appropriate test such as the PSSA.
    - Note: Simple approaches (comparing two scores) to value-added assessment yield results that are confounded by measurement error and several other issues of concern/quality.
    - The methodology used in Pennsylvania for value-added assessment is based on the EVAAS methodology. This methodology has been nationally peer reviewed and published.
    - Pennsylvania's implementation of EVAAS is called the Pennsylvania Value-Added Assessment System (PVAAS).

The Benefits of Value-Added

- Value-added offers an objective, more accurate way to measure student progress and the influence districts/schools have on students' educational experiences. With this information, educators are better able to:
    - Monitor the progress of all groups of students from low-achieving to high- achieving- ensuring growth opportunities for all students
    - Measure the impact of educational practices, classroom curricula, instructional methods, and professional development on student achievement
    - Make informed, data-driven decisions about where to focus resources to help students make greater progress 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

A Look at PVAAS Public Reports

District Value-Added Summary Report

School Value-Added Summary Report

School Search

Achievement results (PSSA) and growth results (PVAAS) must be used together to get a complete picture of student learning. To view the achievement results of Pennsylvania's public districts/schools, go to: http://paayp.emetric.net/

District Value-Added Summary Report for Grades 4-8 in Reading and Mathematics

District Name		Average Gain over Grades (Reading, Grades 4-8) Relative to	
		Growth Standard	State
ABC School District	2010	1.7	0.3
	3-Yr-Avg	2.6	1.1
JKL School District	2010	-0.6	-2.0
	3-Yr-Avg	1.6	0.2
RST School District	2010	0.8	-0.7
	3-Yr-Avg	1.6	0.2
XYZ School District	2010	-0.3	-1.7
	3-Yr-Avg	0.3	-1.1

The District Value-Added Summary Report provides an indicator of the effectiveness of public districts in Pennsylvania in making academic progress with students.

The Average Gain over Grades for grades 4-8 is expressed in Normal Curve Equivalent (NCE) units. The use of the NCEs allows PSSA scores in any school year and grade level to be compared across years.	
	Green (Favorable) – The district/LEA was effective in supporting students to achieve one year's worth of academic growth in a year.
	Yellow (Caution) – There was minimal evidence that the district/LEA was not effective in support students to achieve one year's worth of academic growth in a year.
	Rose (Concern) – There was moderate evidence that the district/LEA was not effective in support students to achieve one year's worth of academic growth in a year.
	Red (Strong Concern) – There was significant evidence that the district/LEA was not effective in support students to achieve one year's worth of academic growth in a year.

The three levels below the Favorable indicator (Yellow, Rose, and Red) can be understood using a medical analogy:

- The Yellow, or Caution, indicator is comparable to taking your temperature and recording a 99.5°F. It is unlikely that you would go to the emergency room with that temperature but you might check your temperature later or the next day.
- The Rose, or Concern, indicator indicates more moderate evidence comparable to a temperature of approximately 100.6°F. This temperature would suggest perhaps a call to the doctor's office.
- The Red, or Strong Concern, indicator requires immediate attention, comparable to a temperature of perhaps 102.4°F. This temperature provides significant confidence that the patient needs immediate attention.

What do we need to know about this report?

- The Average Gain over Grades for grades 4-8 is expressed in Normal Curve Equivalent (NCE) units. The use of NCEs allows PSSA scores in any school year and grade level to be compared across years.
- The Average Gain over Grades Relative to the Growth Standard represents the average gain across the grade levels served between 4 and 8 compared to the Growth Standard. In other words, it is the average academic growth of the district's (LEA's) students, compared to the Growth Standard.
- The Average Gain over Grades Relative to the Growth Standard answers the question *"how effective was the district/LEA in impacting the academic progress of its students compared to the Growth Standard?"*
- The Average Gain over Grades Relative to the State represents the average gain across the grade levels served between 4 and 8 compared to the average progress of all students in Pennsylvania at the same grade levels. In other words, it is the average academic growth of the district's (LEA's) students, compared to the academic growth of students statewide.
- The Average Gain over Grades Relative to the State answers the question *"how much did the district/LEA impact the academic progress of its students compared to the progress of other students in Pennsylvania in those same grade levels?"*
- The 3-Yr-Avg values differ from the most current year's values in that they represent the average gain (or progress) across grades for the past 3 years.

District Value-Added Summary Report for Grades 9-11 in Reading and Mathematics

District Name			District Effect
	ABC School District	2010	-27.9
	JKL School District	2010	-37.2
	RST School District	2010	57.9
	XYZ School District	2010	65.6

The District Value-Added Summary Report provides an indicator of the effectiveness of public districts in Pennsylvania in making academic progress with students.

The District Effect for grades 9-11 is expressed in PSSA scaled score points.	
	Green (ABOVE Predicted Achievement) – The district/LEA was highly effective. The district/LEA exceeded the expected progress with its students.
	Yellow (MET Predicted Achievement) – The district/LEA was effective. The district/LEA met the expected progress with its students.
	Rose (BELOW Predicted Achievement) – The district/LEA was not effective. The district/LEA did not meet the expected progress with its students.

What do we need to know about this report?

- The District Effect for grades 9-11 is expressed in PSSA scaled score points.
- The District Effect provides an estimate of the district's (LEA's) impact on students' academic progress. It is a measure of growth that the students tested in grade 11 have made over the past 3 years since being tested in grade 8. Specifically, the District Effect is a function of the the difference between the observed/actual PSSA achievement and the predicted PSSA achievement.
- If students score as expected (i.e., students' observed/actual scores are equal to their predicted scores), then the estimated District Effect would be 0. A negative District Effect indicates students' actual scores were lower than their predicted scores, while a positive District Effect indicates students' actual scores were higher than their predicted scores.
- The District Effect answers the question *"how effective was the district/LEA this past year in promoting student academic growth and supporting students to meet or exceed their expected progress?"*

School Value-Added Summary Report for Grades 4-8 in Reading and Mathematics

School Name		Average Gain over Grades (Reading, Grades 4-8) Relative to	
		Growth Standard	State
ABC School	2010	-3.0	-3.8
	3-Yr-Avg	1.6	0.8
JKL School	2010	0.5	-0.3
	3-Yr-Avg	0.4	-0.5
RST School	2010	0.1	-1.8
	3-Yr-Avg	2.1	0.2
XYZ School	2010	-1.7	-2.5
	3-Yr-Avg	1.9	1.1

The School Value-Added Summary Report provides an indicator of the effectiveness of public schools in a selected district in making academic progress with students.

The Average Gain over Grades for grades 4-8 is expressed in Normal Curve Equivalent (NCE) units. The use of the NCEs allows PSSA scores in any school year and grade level to be compared across years.	
	Green (Favorable) – The school was effective in supporting students to achieve one year's worth of academic growth in a year.
	Yellow (Caution) – There was minimal evidence that the school was not effective in support students to achieve one year's worth of academic growth in a year.
	Rose (Concern) – There was moderate evidence that the school was not effective in support students to achieve one year's worth of academic growth in a year.
	Red (Strong Concern) – There was significant evidence that the school was not effective in support students to achieve one year's worth of academic growth in a year.

The three levels below the Favorable indicator (Yellow, Rose, and Red) can be understood using a medical analogy:

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- The Average Gain over Grades Relative to the Growth Standard answers the question *"how effective was the school in impacting the academic progress of its students compared to the Growth Standard?"*
- The Average Gain over Grades Relative to the State represents the average gain across the grade levels served between 4 and 8 compared to the average progress of all students in Pennsylvania at the same grade levels. In other words, it is the average academic growth of the school's students, compared to the academic growth of students statewide.
- The Average Gain over Grades Relative to the State answers the question *"how much did the school impact the academic progress of its students compared to the progress of other students in Pennsylvania in those same grade levels?"*
- The 3-Yr-Avg values differ from the most current year's values in that they represent the average gain (or progress) across grades for the past 3 years.

School Value-Added Summary Report for Grades 9-11 in Reading and Mathematics

School Name			School Effect
	Pennsylvania School	2010	63.9

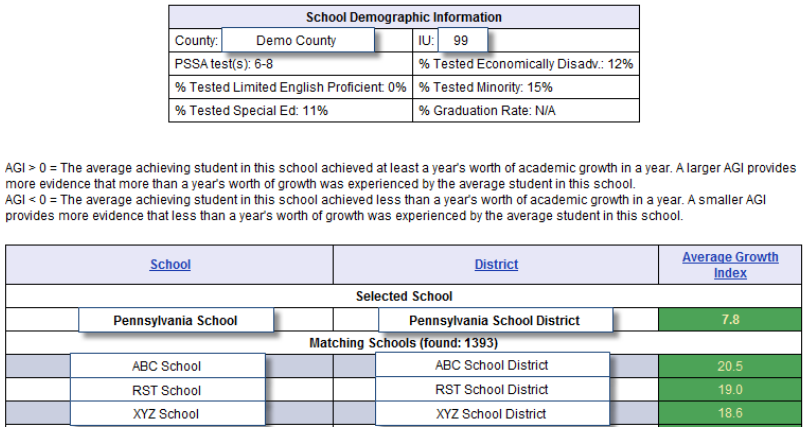
The School Value-Added Summary Report provides an indicator of the effectiveness of public schools in a selected district in making academic progress with students.

The School Effect for grades 9-11 is expressed in PSSA scaled score points.	
	Green (ABOVE Predicted Achievement) – The school was highly effective. The school exceeded the expected progress with its students.
	Yellow (MET Predicted Achievement) – The school was effective. The school met the expected progress with its students.
	Rose (BELOW Predicted Achievement) – The school was not effective. The school did not meet the expected progress with its students.

What do we need to know about this report?

- The School Effect for grades 9-11 is expressed in PSSA scaled score points.
- The School Effect provides an estimate of the school's impact on students' academic progress. It is a measure of growth that the students tested in grade 11 have made over the past 3 years since being tested in grade 8. Specifically, the School Effect is a function of the the difference between the observed/actual PSSA achievement and the predicted PSSA achievement.
- If students score as expected (i.e., students' observed/actual scores are equal to their predicted scores), then the estimated School Effect would be 0. A negative School Effect indicates students' actual scores were lower than their predicted scores, while a positive School Effect indicates students' actual scores were higher than their predicted scores.
- The School Effect answers the question *"how effective was the school this past year in promoting student academic growth and supporting students to meet or exceed their expected progress?"*

School Search



School Demographic Information	
County: Demo County	IU: 99
PSSA test(s): 6-8	% Tested Economically Disadv.: 12%
% Tested Limited English Proficient: 0%	% Tested Minority: 15%
% Tested Special Ed: 11%	% Graduation Rate: N/A

AGI > 0 = The average achieving student in this school achieved at least a year's worth of academic growth in a year. A larger AGI provides more evidence that more than a year's worth of growth was experienced by the average student in this school.
AGI < 0 = The average achieving student in this school achieved less than a year's worth of academic growth in a year. A smaller AGI provides more evidence that less than a year's worth of growth was experienced by the average student in this school.

School	District	Average Growth Index
Selected School		
Pennsylvania School	Pennsylvania School District	7.8
Matching Schools (found: 1393)		
ABC School	ABC School District	20.5
RST School	RST School District	19.0
XYZ School	XYZ School District	18.6

Users can find and view the progress of public schools across Pennsylvania and search for similar schools based on grade levels tested, various demographics, Intermediate Unit (IU) region and/or county.

The first table displayed on the top portion of the screen provides the selected school's demographics, including the percentage of PSSA tested Economically Disadvantaged students, Minority (non-Caucasian) students, Limited English Proficient students, and Special Education students. The table also lists county, Intermediate Unit (IU) region, the tested grades served by the selected school and for high schools, the graduation rate.

The second table displayed on the bottom portion of the screen provides a list of public schools across Pennsylvania that meets your search criteria. This table includes for each school the Average Growth Index across PSSA tested grade levels served in the school. This index is something like the Consumer Price Index and is a way to compare growth across schools. Note: The growth (AGI) information is based only on PSSA results, NOT on PASA or PSSA-M results.

What do we need to know about this report?

- The Average Growth Index is a measure of student progress across the tested grade levels in a school. This index is a value based on the average growth across grade levels and its relationship to the standard error so that comparison among schools in meaningful. PVAAS utilizes this index (based on the standard error) to allow for a view across schools. If the standard error is not accounted for, users might get a skewed picture of the relative effectiveness of different schools.
- The Average Growth Index is a way to compare growth across schools.
- For grades 4 through 8, the Average Growth Index is calculated by dividing the most recent year's Average Gain over Grades Relative to the Growth Standard by the corresponding Standard Error.
- For grades 9 through 11, the Average Growth Index is calculated by dividing the most recent year's School Effect by the corresponding Standard Error.
- If the Average Growth Index is positive (greater than 0), this indicates that, on average, students in the school achieved a year's worth of academic growth in a year. A large, positive Average Growth Index provides more evidence that more than a year's worth of growth was experienced by the average students in the school.
- If the Average Growth Index is negative (less than 0), this indicates that, on average, students in the school achieved less than a year's worth of academic growth in a year. A large, negative Average Growth Index provides more evidence that less than a year's worth of growth was experienced by the average students in the school.

Value-Added Frequently Asked Questions

Why is measuring both achievement and progress important?

How can value-added information help educators improve teaching and learning?

Is it possible to show progress with all groups of students, including students with IEPs, gifted students, high achieving and low-achieving students?

The value-added methodology seems complicated. How can people understand the measure?

Does value-added analysis require additional testing?

How can teachers be innovative or creative if student progress is based on test scores?

Do socioeconomic or other demographic factors of a school's student population impact *progress*?

Can you measure the progress of schools/districts with high mobility rates?

Who provides PVAAS reporting for Pennsylvania?

How is PVAAS different from the assessment already in use in districts?

How is PVAAS different from other data tools being used in local districts?

How is PVAAS information useful to teachers in content areas beyond reading and math?

Is there a cost for the PVAAS analyses, reports, and training opportunities and resources?

Value-Added Frequently Asked Questions (FAQs)

#1: Why is measuring both achievement and progress important?

- Achievement measures provide educators with a snapshot of students' performance at a single point in time and how well those students perform against a standard.
- Progress measures provide a more complete, and comprehensive picture of student growth from year-to-year, including how much growth, or gain, groups of students make over time.
- By measuring progress, all students count, regardless of their achievement level, rather than just those students near the proficiency cut.
- By combining achievement and progress information, educators will have a more comprehensive picture of their impact on student learning.

#2: How can value-added information help educators improve teaching and learning?

- Provides important diagnostic information that was not previously available with traditional achievement reporting.
- Allows educators to assess their schools' impact on student learning.
- Can help initiate conversations about the effectiveness of curriculum, instructional practices, and programs.
- Allows educators to better identify what is working well and areas for improvement to help individual students and groups of students.

#3: Is it possible to show progress with all groups of students, including students with IEPs, gifted students, high achieving and low-achieving students?

- Yes!
  - If assessments have enough "stretch" to measure the achievement of both low- and high-achieving students, it is possible to measure all groups of students' progress. The PSSA meets the criteria!
  - The value-added methodology used is sensitive to individual students' achievement levels.
  - It measures growth from the end of one year to the end of the next year, regardless of whether a student performs below, at, or above grade level.

#4: The value-added methodology seems complicated. How can people understand the measure?

- While the statistical methodology used for value-added analysis is robust, the data produced are valid, reliable, and presented in readable charts and graphs.
- See additional explanations in this guide to explain the concepts behind value-added analyses.
- If we understand the information derived from the value-added reports, we can use it to make sound decisions about improving student achievement.
- Providing robust measures that yield quality information as compared to simple measures that are questionable in quality and accuracy makes the most sense for students.

#5: Does value-added analysis require additional testing?

- No new testing is required.
- Test data must meet the following criteria to be used for value-added analysis:
  - Be highly correlated with curricular objectives
  - Have enough "stretch" to measure the growth of both low- and high-achieving students
  - Meet appropriate standards of test reliability
  - The PSSA meets all of these criteria!
- The analysis uses existing standardized assessment data, such as the PSSA, to produce progress reports and can only be done where annual testing is provided (which is everywhere).

#6: How can teachers be innovative or creative if student progress is based on test scores?

- The value-added approach was developed to estimate each student's academic growth over his/her school year in each subject and provide a report on the progress of a group of students.
- It does not suggest a particular method or instructional approach for encouraging this growth.
- Thus, teachers can and must be flexible, innovative, and evidence-based in their approaches to move all students toward higher levels of achievement.

#7: Do socioeconomic or other demographic factors of a school's student population impact *progress*?

- Demographic variables have no significant relationship with student *progress* measures.
- Value-added analysis measures the change in students' academic achievement levels from one point in time to another (i.e., year-to-year).
- Factors that remain relatively constant over time, such as socioeconomic status, have shown little or no impact on student *progress*.

#8: Can you measure the progress of schools/districts with high mobility rates?

- Yes!
  - Value-added analysis includes <u>all</u> students, for which there are sufficient test data, including highly-mobile students.
  - From a statistical perspective, it is important to include highly-mobile students in the analysis because their exclusion could bias the results.
  - From a philosophical perspective, all students must be included in the school's analysis to ensure that highly-mobile students receive the same level of attention as non-mobile students.
  - The EVAAS modeling approaches do take into account the quantity and quality of information available for each student.
- It is not enough to consider student achievement alone!
- Students' progress must also be considered, so that students at every achievement level count.
- Ultimately, positive student growth will raise <u>overall achievement for all student populations</u> instead of placing focus on a specific proficiency mark.
- The SAS team has been working for more than 20 years to develop a process that will enable a fair, objective measure of the impact of districts, LEAs, schools and teachers on the rate of academic progress of populations of students utilizing student achievement test data.

#9: Who provides PVAAS reporting for Pennsylvania?

- The SAS EVAAS team has more than 20 years of experience of delivering value-added results in a production environment, and the statistical modeling behind EVAAS reporting has been publically available for many years.
- The reliability of EVAAS reporting has been reviewed and confirmed by prominent experts.
  - US Government Accounting Office
  - Four US Department of Education Peer Review Committees
  - The RAND Corporation
- The rigors of EVAAS value-added models protect student opportunity, while more fairly informing the effectiveness of educators.

#10: How is PVAAS different from the assessment already in use in districts?

- PVAAS is the analysis of existing PSSA assessment data to produce measures of district and school effectiveness on the academic progress of groups of students. These measures of growth or progress are different from measures of achievement or proficiency. Growth, or progress, measures are different from measures of achievement or attainment/proficiency.

#11: How is PVAAS different from other data tools being used in local districts?

- PVAAS is a unique measure of the progress of groups of students. This measure is based on a robust statistical methodology. PVAAS reporting is complementary to information yielded from other data tools, such as PSSA Data Interaction by eMetric, PAAYP, 4Sight benchmark assessments, and locally-used data systems and warehouses.

#12: How is PVAAS information useful to teachers in content areas beyond reading and math?

- Successful schools know that many of the concepts measured by reading and math assessments can and should be reinforced and applied in other content areas. Grade-level teams, subject-area teams, and other groups of teachers can work together to use their knowledge of effective curriculum, assessment, and instruction to take students to increased levels of growth in these areas.

#13: Is there a cost for the PVAAS analyses, reports, and training opportunities and resources?

- Data submission, analyses and web-based reporting are being funded by the Pennsylvania Department of Education. In addition, school districts and IUs may obtain, free of charge, Pennsylvania Department of Education developed print resources, professional development training and materials.

Glossary of PVAAS Terms

Average Gain over Grades Relative to Growth Standard
Average Gain over Grades Relative to the State
Average Growth Index
District Effect
EVAAS
Gain
Growth Standard
NCE
One Year's Growth
PSSA
PVAAS
School Effect
Standard Error
Statewide Distribution

Glossary

1. **Average Gain over Grades Relative to Growth Standard**
   - The Average Gain over Grades Relative to the Growth Standard represents the average gain across the grade levels served between 4 and 8 compared to the Growth Standard. In other words, it the average academic growth of the student district's or school's students, compared to the Growth Standard.
   - The Average Gain over Grades Relative to the Growth Standard is expressed in Normal Curve Equivalent (NCE) units. The use of NCEs allows PSSA scores in any school year and grade level to be compared across years.
   - What question does this answer? *How effective was the district, LEA, or school in impacting the academic progress of its students compared to the Growth Standard?*
   - Where can I find this? District/School Value-Added Summary Report (Grades 4-8, Reading and Math)

2. **Average Gain over Grades Relative to the State**
   - The Average Gain over Grades Relative to the State represents the average gain across the grade levels served between 4 and 8 compared to the average progress of all students in Pennsylvania at the same grade levels. In other words, it is the average academic growth of student district's or school's students, compared to the academic growth of students statewide.
   - The Average Gain over Grades Relative to the State is expressed in Normal Curve Equivalent (NCE) units. The use of NCEs allows PSSA scores in any school year and grade level to be compared across years.
   - What question does this answer? *How much did a specific district, LEA, or school impact the academic progress of its students compared to the progress of other students in Pennsylvania in those same grade levels?*
   - Where can I find this? District/School Value-Added Summary Report (Grades 4-8, Reading and Math)

3. **Average Growth Index**
   - The Average Growth Index is a measure of student progress across the tested grade levels in a school. This index is a value based on the average growth across grade levels and its relationship to the standard error so that comparison among schools is meaningful. PVAAS utilizes this index (based on the standard error) to allow for a view across schools. If the standard error is not accounted for, users might get a skewed picture of the relative effectiveness of different schools.
   - For grades 4 through 8, the Average Growth Index is calculated by dividing the most recent year's Average Gain over Gains Relative to the Growth Standard by the corresponding Standard Error. For grades 9 through 11, the Average Growth Index is calculated by dividing the most recent year's School Effect by the corresponding Standard Error.
   - What question does this answer? *How does the progress of students in this school compare to the progress of students in other schools who were tested in the same subject?*
   - Where can I find this? School Search

4. **District Effect**
   - The District Effect provides an estimate of the district's impact on students' academic progress. It is a measure of the growth that the students tested in grade 11 have made over the past 3 years since being tested in grade 8. Specifically, the District Effect is a function of the difference between the observed/actual PSSA achievement and the predicted PSSA achievement.
   - The District Effect is expressed in PSSA scaled score points.
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   - What question does this answer? *How effective was the district/LEA in promoting student academic growth and supporting students to meet or exceed their expected progress?*
   - Where can I find this? District Value-Added Summary Report (Grades 9-11, Reading and Math)

5. **EVAAS**
   - EVAAS stands for Educational Value-Added Assessment System.
   - EVAAS is the statistical methodology used for value-added reporting in Pennsylvania.
   - The EVAAS methodology is based on a mixed model multivariate longitudinal analyses of assessment data. In Pennsylvania, it is an analysis of the Pennsylvania System of School Assessment (PSSA).

6. **Gain**
   - The gain is the amount of academic progress made by a group of students. It is a measure of a district's or school's influence on students' academic progress.

7. **Growth Standard**
   - The Growth Standard represents the minimum amount of progress schools should expect a group of students to make from grade to grade in consecutive school years. The use of the Growth Standard sets a target of growth that ALL schools can achieve, since growth only depends on the performances of students in that school and not the average performance of schools across Pennsylvania.
   - The Growth Standard is based on the 2006 PSSA statewide distributions of scale scores; hence this is NOT a moving target.

8. **NCE**
   - NCE stands for Normal Curve Equivalent. The NCE is simply a rescaled score for which a chosen reference distribution is rescaled so that the mean is always 50, the standard deviation is 21.06, and the scores follow a normal distribution. In Pennsylvania, the reference distribution is the statewide distribution of PSSA scaled scores in 2006. PSSA scaled scores are converted to NCE units prior to the PVAAS analyses.
   - The conversion of all PSSA scaled scores to NCE units using the 2006 statewide distribution allows the scores in any year to be on the same scale as the base year 2006, and therefore allows meaningful comparisons of position in the distribution relative to statewide student achievement in 2006. Simply stated, this means there is NOT a "moving target" for growth.
   - The NCE score is simply a standard score where the mean is always 50 and the standard deviation is 21.06. There are four important points to remember when thinking about the use of NCE scores.
     - Due to rescaling, NCE scores have an equal-interval relationship so averages and differences of test scores remain meaningful. This allows the Average Gains to be comparable for all schools no matter what the average achievement level is for that school.
     - NCE units are about rescaling so that scores can be compared from year to year. It is like putting the scores into a common language so they can talk to each other – in order to yield a measure of growth on a group of students.
     - The shape of the distributions of scaled scores in each year is irrelevant in the application of NCE units that are used in the PVAAS analyses.
     - There is no relationship between Normal Curve Equivalents and norm-referenced tests. The intent is to put the scores on a common scale for comparison.

9. <u>One Year's Growth</u>

- This term is applied in a specific way with PVAAS reporting.
- One year's growth does NOT refer to reading levels, grade levels or instructional levels.
- On the District/School Value-Added Summary Report for Grades 4-8 Reading and Math, one year's growth is indicated by a green indicator. This means the district, LEA, or school has maintained or improved the academic performance position of its students relative to their prior academic performance. A district, LEA, or school makes the determination if maintaining the position of its students is the growth needed to meet its achievement goals.
- On the District/School Value-Added Summary Report for Grades 9-11 Reading and Math, one year's growth is indicated by a yellow indicator. This means the district, LEA, or school has supported its students in meeting their expected performance. A district, LEA, or school makes the determination if "meeting the expected performance" of its students is the growth needed to meet its achievement goals.

10. <u>PSSA</u>

- PSSA stands for the Pennsylvania System of School Assessment.
- The annual Pennsylvania System of School Assessment (PSSA) is a standards-based, criterion-referenced assessment used to measure a student's attainment of the academic standards while also determining the degree to which school programs enable students to attain proficiency of the standards.
- Each school year, every Pennsylvania student:
  - in grades 3 through 8 and grade 11 is assessed in Reading and Math;
  - in grades 5, 8 and 11 is assessed in Writing; and
  - in grades 4, 8 and 11 is assessed in Science.

11. <u>PVAAS</u>

- PVAAS is the Pennsylvania Value-Added Assessment System.
- PVAAS is Pennsylvania's approach for providing value-added reporting to local education agencies.
- The PVAAS methodology is based on the EVAAS methodology which is a mixed model multivariate longitudinal analyses of assessment data. In PVAAS, it is an analysis of the Pennsylvania System of School Assessment (PSSA).

12. <u>School Effect</u>

- The School Effect provides an estimate of the school's impact on students' academic progress. It is a measure of the growth that the students tested in grade 11 have made over the past 3 years since being tested in grade 8. Specifically, the School Effect is a function of the difference between the observed/actual PSSA achievement and the predicted PSSA achievement.
- The School Effect is expressed in PSSA scaled score points.
- If students score as expected (i.e., students' observed/actual scores are equal to their predicted scores), then the estimated School Effect would be 0. A negative School Effect indicates students' actual scores were lower than their predicted scores, while a positive School Effect indicates students' actual scores were higher than their predicted scores.
- <u>What question does this answer</u>? *How effective was the school in promoting student academic growth and supporting students to meet or exceed their expected progress?*
- <u>Where can I find this</u>? School Value-Added Summary Report (Grades 9-11, Reading and Math)

13. Standard Error

- Growth values reported on the PVAAS reports are estimates of progress for groups of students. There is natural error involved with any estimate, and this error is expressed in terms of the Standard Error. On the Value-Added Summary Reports, the Standard Error allows users to establish a confidence band around the Average Gain over Grades or the District/School Effect to determine if progress is evident for the group of students in question. The inclusion of more data (i.e., more students, more data points) generally yields a smaller Standard Error and makes the Average Gain over Grades or District/School Effect more precise. One of the major functions of the Standard Error is that it allows us to evaluate the significance or level of evidence that the estimate provides.
- The Standard Error is used in determining the color coding given to each Average Gain over Grades value and each District/School Effect value.

14. Statewide Distribution

- Each school year, every Pennsylvania student in grades 3 through 8 and 11 is assessed using the Pennsylvania System of School Assessment (PSSA). The PSSA is a standards-based, criterion-referenced assessment used to measure a student's attainment of the academic standards while also determining the degree to which school programs enable students to attain proficiency of the standards.
- A statewide distribution is produced each year detailing the arrangement of scores and their frequency of occurrence.

Questions about this resource or PVAAS reporting can be directed to the PVAAS Statewide Core Team for PDE at pdepvaas@iu13.org or (717) 606-1911