

### Measuring Student Academic Growth for School Accountability

School accountability systems need to balance student proficiency status and student learning growth. All students have the ability to learn, and a strong accountability system must capture measures of that growth. While the ultimate goal is that all students will be performing on grade level, the reality is that many are not. Focusing on both proficiency and growth provides a true picture of how a school is doing.

Using a growth component in the school accountability formula levels the playing field so that schools do not have advantages or disadvantages simply as a result of the students who attend a school. The growth component requires schools to demonstrate that all students, high achieving and low achieving, have made progress towards proficiency or advanced achievement during the year.

There are two widely used methods for calculating student growth – “criterion-based” and “norm-referenced” – and adopting a criterion-based method is essential to ensure that each individual student is measured on making progress toward proficient or advanced achievement.

In a criterion-based system, students are measured on their individual progress towards meeting pre-determined expectations. The expectation is a set for the amount of growth a student must make to demonstrate progress toward proficient or advanced achievement during the year. This growth expectation measures whether or not the student has the demonstrated growth towards the mastery of a certain set of skills.

Norm-referenced growth models, by contrast, compare students to the performance of other students across the state – not how well an individual student progressed towards meeting a predetermined expectation. With a norm referenced method, there will always be students that make growth relative to others and students that do not make growth relative to others, regardless of how well or poorly the students are performing. Even if student performance improves substantially across the state, there will still be a constant set of students that are determined to not be making growth, only because a higher proportion of their cohort is performing better than usual.

Criterion-based growth models are the fairest, because they measure what matters – whether each student is learning each year – not how well a student did compared to their peers, using an ever-changing scale.

### Purpose for Using Growth in School Accountability Models

- Schools have students who enter with different levels of proficiency.
- Therefore, we cannot simply compare status scores across schools because the status scores only reflect the students who entered the school, not the impact of the school.
- Growth models are designed to mitigate the influence of differences among the entering students. In other words, growth models “level the playing field” so that all schools are accountable for improving student achievement and no school is at an advantage or disadvantage simply as a result of the students who attend a school.

### Why Use a Growth to Proficient and Advanced Model

- Individual student learning expectations are set and measured
- All students could demonstrate growth
- Criteria for determining individual student growth is set, and expectations are known by students, parents, educators, policymakers, and the public before testing
- Consistent expectations from year to year allows for longitudinal comparisons
- Expectations, if met each year, will result in proficient or advanced student achievement
- Educators can compute and replicate growth calculation

### Different Methods for Measuring Growth

#### Status Methods

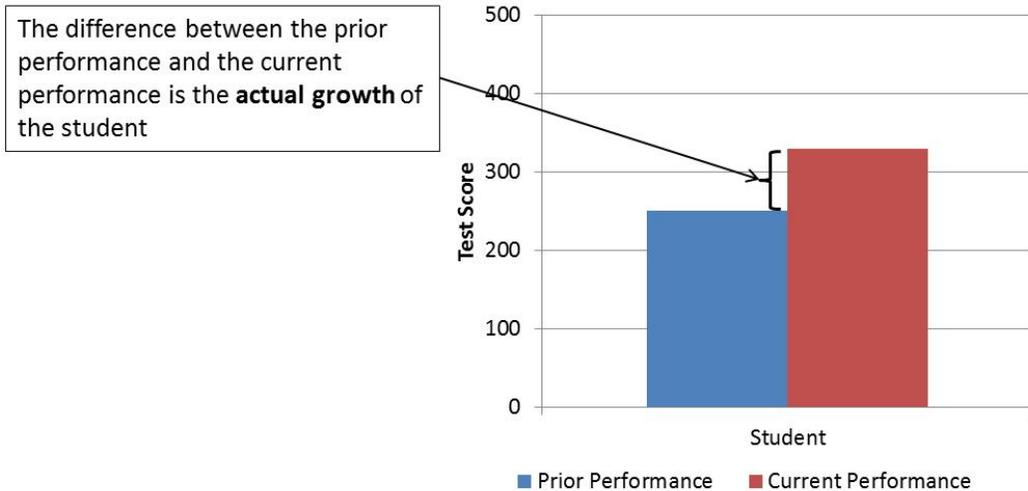
- The status method of measuring the growth of a cohort, or improvement, is criterion based
- Percent proficient is determined by using a single year of test score data
- Comparisons are made from one year to the next, but are based on different groups of students
- Using one year of data, comparisons can be made between 2015 ninth graders and 2016 ninth graders to determine if there was “growth” in the percent of proficient ninth graders
- Since this method does not measure individual student growth from year to year, “improvement” may be a reflection of the differences among student groups, rather than a measure of the school’s impact on improving individual student learning.

Subject	Grade	2015 percent proficient	2016 percent proficient	“Growth” Improvement
Algebra I	9	81	83	2
Geometry	10	75	78	3
Algebra II	11	72	71	-1

#### Growth to Proficient and Advanced Models

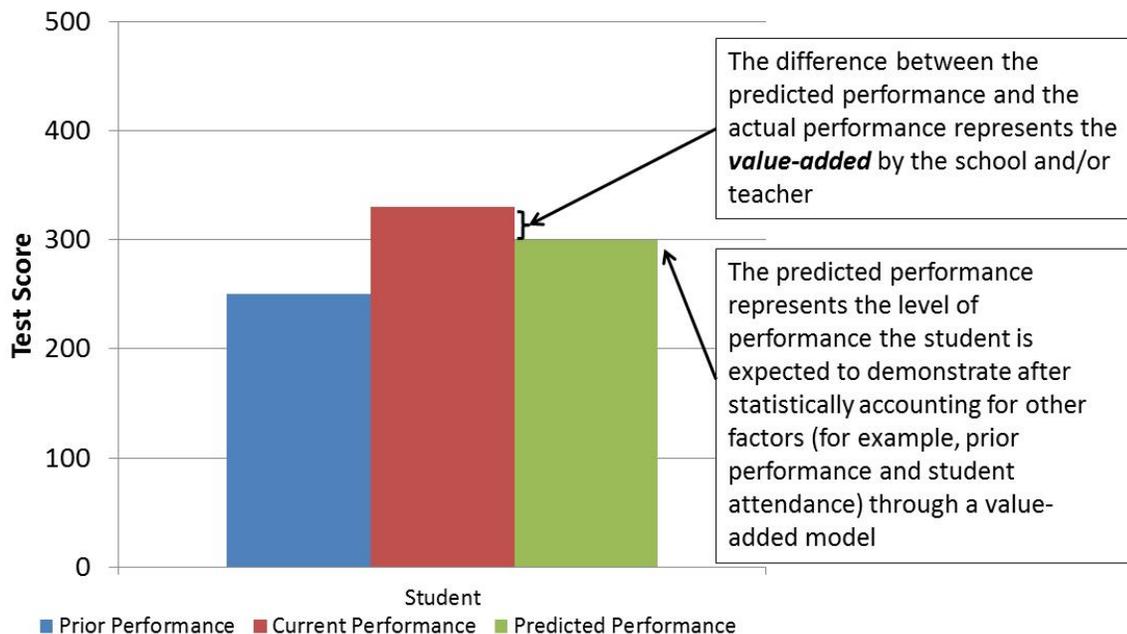
- Growth to Proficient and Advanced models measure growth based on a set of criteria
- Measures the change in an individual student’s test scores from year to year such as the growth of the student score on the third grade test to the fourth grade test
- The actual growth is compared to the growth needed to be proficient or advanced in a specified amount of time to determine if the student met growth in the current year.

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### Value-Added Models

- Value-Added Models are a normative way of measuring growth
- Statistical model estimates the portion of the individual student's growth from year to year that is attributable to the school or teacher
- Value-added models estimate how much each student is expected to learn from year to year, based on past performance and compare actual performance to expected performance to determine how much "value" was added by the school
- If the student achieves growth greater than what was expected, the amount that the student surpassed the expectation is considered "value-added" and then attributed to the school



Student Growth Percentiles

- Student Growth Percentiles are an example of normative growth
- “Growth percentiles” are estimated statewide among students who started at a similar score level in order to evaluate individual student growth from year to year (educators at the district and school level are not able to compute or replicate the state calculation)
- Performance is judged entirely relative to that of other students, not against a set expectation
- Student Growth Percentiles are a zero sum scenario, for every student that makes growth another student has to not make growth
- Low performing students can be in a high growth percentile, but not making enough growth to ever reach proficiency, but given accolades for being the best of the worst
- Growth targets are determined based on the performance of other students in the state
- Growth expectations are set annually, after testing is complete, and shift annually based on statewide performance
- The same percent of students make growth every year making longitudinal comparisons statewide meaningless

Student Growth Percentiles (continued)

Student	4 <sup>th</sup> Grade Score	5 <sup>th</sup> Grade Score	Growth	Growth Percentile
Steve	300	325	25	30 <sup>th</sup>
Lyn	295	310	15	70 <sup>th</sup>
John	285	305	20	50 <sup>th</sup>
Ann	250	255	5	10 <sup>th</sup>
Roger	200	225	25	90 <sup>th</sup>

- For example, in the table above, though Steve and Roger both improved their test scores by 25 points, their improvement is classified differently based on how their academic peers scored
- Steve’s 25 point improvement in 5<sup>th</sup> grade was better than 30% of all students who scored a 300 in 4<sup>th</sup> grade, while Roger’s 25 point improvement in 5<sup>th</sup> grade was better than 90% of all students who scored a 200 in 4<sup>th</sup> grade.
- Measuring growth on a comparative basis does not ensure that the accountability system is measuring student progress toward proficient or advanced achievement
  - Using an SGP model it is conceivable that student achievement may be improving substantially across the state, but since growth is measured relative to how well students are growing statewide there will still the same number of students who will not make growth.
  - Likewise, substantial declines in student achievement during a school year mean that student performance is going down, but there will still be the same number of students that make growth, since some students will decline less severely than others.