



A-F SCHOOL GRADING

Growth Models Summary

ExcelinEd Policy Toolkit - 2019

All students can learn, and a strong accountability system must capture measures of that growth. While the 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.

SCHOOL ACCOUNTABILITY SYSTEMS MUST BALANCE STUDENT PROFICIENCY AND GROWTH

Using a growth component in the school accountability calculation levels the playing field so that schools do not have advantages or disadvantages simply because 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 proficient or advanced achievement during the year. In high school, growth may be used, but the focus should be on ensuring students reach proficient and advanced achievement to ensure they are ready for opportunities post high school.

There are two widely used methods for calculating student growth - “criterion-based” and “norm-referenced” - adopting a criterion-based method is essential to ensure that each 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 set for growth a student must make to demonstrate progress toward proficient or advanced achievement during the year. This expectation measures whether the student has the demonstrated growth towards the mastery of the state standards.

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 - not how well a student did compared to their peers, using an ever-changing scale.

Reasons to Measure Growth to Proficient and Advanced Achievement

- Educators can compute and replicate growth calculation
- 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

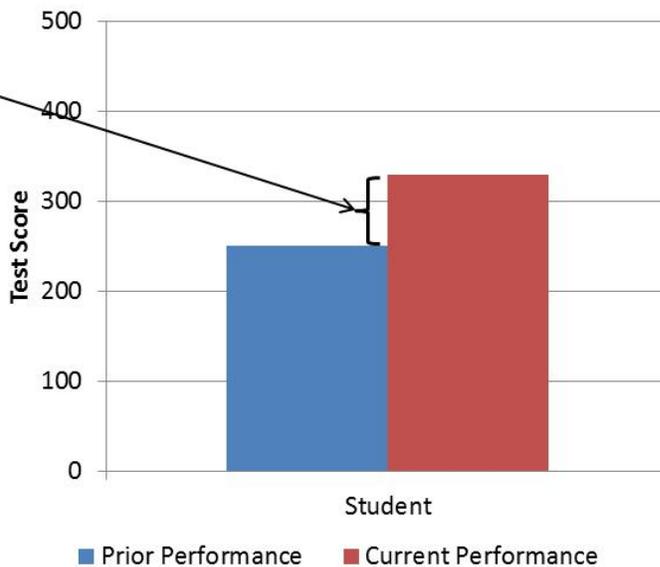


DIFFERENT METHODS FOR MEASURING GROWTH IN SCHOOL ACCOUNTABILITY

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. For example, the growth of the student score on the third reading grade test to the fourth reading grade test the next year.
- 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.

The difference between the prior performance and the current performance is the **actual growth** of the student



Status Methods

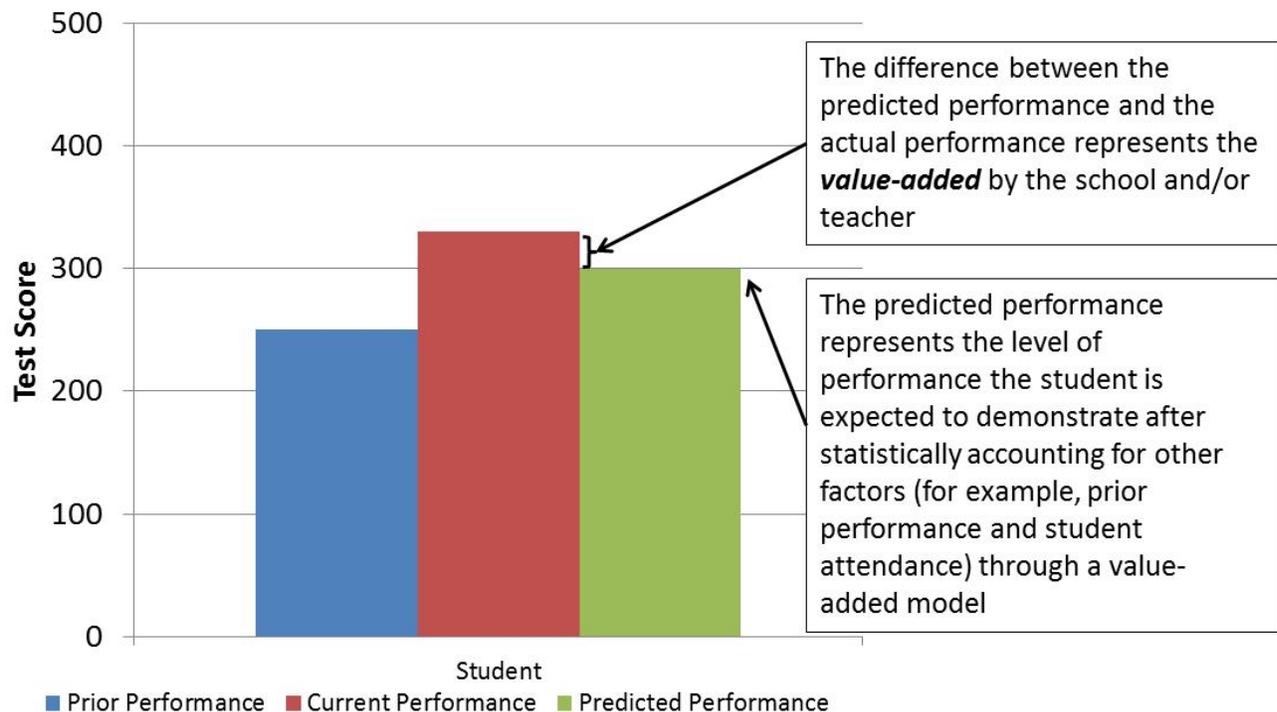
- The status method of measuring the “growth” - or improvement - of a cohort is criterion-based.
- Percent proficient is determined by using a single year of test score data.
- Comparisons are made from one year to the next, but are based on different groups of students.
- Using one year of data, comparisons can be made between 2018 ninth graders and 2019 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 reflect the differences among student groups, rather than a measure of the school’s impact on improving individual student learning.

Subject	Grade	2018 % Proficient	2019 % Proficient	“Growth” Improvement
Algebra I	9	81	83	2
Geometry	10	75	78	3
Algebra II	11	72	71	-1



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 (SGP) are an example of normative growth.
- Estimates “growth percentiles” among students who started at a similar level to evaluate individual student growth from year to year.
- Performance is judged relative to that of other students, not against a set expectation.
- Growth targets are determined based on the performance of other students in the state.
- Growth expectations are set annually and shift annually based on statewide performance.
- The same percent of students make growth every year making longitudinal comparisons meaningless.

Student	4th Grade Score	5th Grade Score	Growth	Growth Percentile
Steve	300	350	50	70th
Ann	250	255	5	10th
John	285	305	20	50th
Roger	200	250	50	30th
Lyn	325	340	15	90th

- For example, in the table above, though Steve and Roger both improved their test scores by 50 points, their improvement is classified differently based on how their academic peers scored
- Steve’s 50 point improvement in fifth grade was better than 70% of all students who scored a 300 in fourth grade, while Roger’s 50 point improvement in fifth grade was better than 30% of all students who scored a 200 in fourth 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 be 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.