

Introduction to Value-Added

The Growth Priority Area of the Accountability Report Cards is built upon a value-added model. Value-added is a type of student growth model that measures student improvement on state standardized assessments in comparison to similar students from one year to the next. Like all growth models, value-added models look at growth over time focusing on the pace of improvement in student performance among similar groups of students. Value-added models try to pinpoint how much a particular school contributed to that improvement.

Value-added quantifies how much growth students make over time after applying statistical controls for factors that are generally beyond a school's influence, but may be related to how much growth students make. This is meant to facilitate "apples to apples" comparisons of school performance between schools that often serve very different student populations. The measure reflects growth across the entire spectrum of student performance, regardless of a student's starting achievement level.

While the calculations behind value-added are complex, the concept is fairly straightforward. Value-added, simply put, is the difference between the *actual* and *predicted* growth over time of students who are "observationally similar," as defined by prior achievement and a selected set of characteristics about the students themselves.

Value-Added Scores in the Report Card

The Growth priority area in the report cards is a school-based growth measure based on value-added scores. Beginning with the 2015-16 report cards,¹ the School Growth calculation has been based on a value-added model produced by an external vendor (first, the Value-Added Research Center (VARC) at the University of Wisconsin-Madison; and now, by Education Analytics).

Value-added scores measure how rapidly students are gaining knowledge and skills from year to year, focusing on the pace of improvement in student performance, as compared to other students with similar score histories. Value-added models also allow for the inclusion of additional demographic information to pinpoint how much a particular school or district contributed to student growth. Specifically, value-added calculations are designed to identify and measure the difference between predicted growth and actual growth for a group of students.

The Growth measure provides a single score that characterizes the growth of a district or school's students by taking into account students' starting levels of academic achievement and their improvement or decline in annual state assessment scores. In addition to prior achievement, the value-added model includes statistical controls for students' family income status (as measured by free/reduced lunch eligibility), disability status, English Language proficiency level, and race/ethnicity. The value-added score presented in the report cards is a weighted average of three value-added growth intervals for both English language arts (ELA) and mathematics content areas:

¹ Prior to 2015-16, a different growth calculation – Student Growth Percentiles (SGPs) – was used in the report cards. SGPs are now used in the federal ESSA accountability system.

- (1) value-added scores from 2017-18, which use 2017-18 and 2016-17 Forward results
- (2) value-added scores from 2016-17, which use 2016-17 and 2015-16 Forward results
- (3) value-added scores from 2015-16, which use 2015-16 Forward and 2014-15 Badger results

As in other parts of the report card, the current year is weighted more heavily than prior years' data.

Value-Added Calculations

Value-added uses a student's prior year test scores as the starting point, controlling for demographic characteristics, and compares the student's performance to others like him or her. Value-added models predict what a student's post-test score would be (his or her *predicted growth*) assuming that the student was in the average school, and compares it to his or her *actual growth* over time. If the school produced more growth than expected, then the school would have a higher value-added score.

In short, value-added works as such:

- Value-added starts with a pre-test score from the prior year, such as a 3rd grade ELA score, to generate predictions of how much growth a student is likely to make based on his or her students' prior test score history.
- When a second post-test score, such as a 4th grade ELA score, is available, the actual scores of students within a school are compared to their predicted scores.
- If, collectively, the school's actual scores are higher than predicted scores, we call this high value-added, meaning that the school produced more growth than schools that serve similar student populations.
- The value-added model also includes a statistical correction for natural variation in scores on standardized assessments. Such fluctuation in scores is especially common among students with very low or very high scores.

For further details on the value-added calculations used in the School and District Report Cards, please see the Value-Added Technical Manual (<http://dpi.wi.gov/accountability/resources>).

Additional Information

For more information, contact [Education Analytics](#) and check out the [Value-Added Research Center](#) at the [Wisconsin Center for Education Research](#), which has a long history of working with educators in Wisconsin and around the nation. They have a number of valuable resources to help educators understand value-added growth models:

- VARC Tutorials
<http://varc.wceruw.org/tutorials/>
- VARC Professional Development
<http://varc.wceruw.org/what-we-do/professional-development.aspx>

The resources provided above can be used to build a general understanding of what value-added is and how it works. However, these resources are not specific to the Accountability Report Cards. For specifics on the calculations used in the Accountability Report Cards, please refer to the Value-Added Technical Report (<http://dpi.wi.gov/accountability/resources>).

