TENNESSEE FIRST TO THE TOP

The Power of Using Value-Added Analysis to Improve Student Learning

A Guide for Educators

An introduction to value-added progress measures, a tool that Tennessee K–12 public school educators and other stakeholders can use to help students succeed

What is Value-Added Analysis?

Value-added analysis is a tool that Tennessee K–12 public school educators and other stakeholders can use to help students succeed. Teachers, school leaders and district administrators use TVAAS® value-added information to measure the impact of their curriculum and instruction on students' academic progress from year to year. Parents use value-added information to learn how well their child's school is doing to help groups of students improve. When used with other data and information, value-added analysis provides a comprehensive picture of our effectiveness in raising student performance.

When teachers know how to guide their instructional practices based on the interpretation of TVAAS® (Tennessee Value-Added Assessment System) value-added and achievement data, the result is higher achievement and progress levels for students. As part of First to the Top and Tennessee's commitment to preparing students to be college- and career-ready, the Tennessee Department of Education, in partnership with Battelle for Kids, is helping build educators' capacity to maximize the use of TVAAS® value-added information and make an explicit and actionable link between this data and the educational-improvement process.

A Typical Classroom

It's the beginning of another school year, and Ms. James greets her new class of 23 students. As she welcomes each student at the door, she knows the differences among them are likely profound. Some will already be good readers, while others won't know all the primary colors in the crayon box. Sound familiar?

The reasons for these discrepancies are many, but, whatever they are, Ms. James cannot control and should not be held accountable for where her students are when they come to her. What she should be held accountable for is the progress her students make while they are in her classroom. Regardless of whether her students start the year above, at or below grade level, all of them should grow significantly during the time they are in her classroom.

People may reasonably disagree about how much progress students are expected to make, but most people agree that an educator's role is to take students wherever they are and add value to their lives. Educators add value in many ways, some of which can be measured and some of which cannot.

The purpose of this guide is to focus on the importance of measuring student progress, how TVAAS® provides a fair and reliable student growth measure and how this information can help educators make decisions about student learning and adjust instruction to accelerate achievement.

Introductory value-added content reprinted with permission from Battelle for Kids

Get acquainted with value-added data. It's important to realize what value-added is and what it can do. It's not just another look at test scores—we're looking at growth. Value-added analysis fills that gap of not just looking at a snapshot of the student—but seeing growth. It's important to understand the need. Value-added can affirm what you already suspect to be true, or may be an eye opening experience.

—Stephen Blessing, Director 6–12 Curriculum and Instruction
Testing Coordinator

Achievement and Progress

How are they similar? How are they different?

Achievement. Progress. These two words are often used interchangeably, but their meanings are actually very different. Achievement is a point-in-time measure that evaluates how well students perform against a standard. In contrast, progress is measured by how much "gain" or "growth" students make over time, typically from the end of one year to the end of the next. Both of these measures are important, but they provide different information.

For years, in most states across the country, student achievement typically has been measured by how well students perform on state tests. Similarly, the performance of school districts and school buildings has been evaluated based on the percentage of students who pass the test. While providing some useful evaluative information, passage rates are incomplete and, in some ways, unfair measures of school effectiveness. Passage rates ignore the different starting points that characterize urban, suburban and rural schools. It is for this reason that progress measures are important.

Tennessee recognizes the need for a more complete and accurate understanding of student growth. For this reason, we use value-added analysis, combined with TCAP (Tennessee Comprehensive Assessment Program) student performance results, to measure the impact educators have on student learning. TVAAS® has been available in Tennessee since 1992 and has tracked over 26 million student progress results, making our state the largest provider of value-added analysis to educators in the country.

The Power of Two

By measuring students' academic achievement and the progress they are making, Tennessee schools and districts will have a more robust, comprehensive picture of their effectiveness and can use this data to inform their practice.

Combining achievement and progress information leads to a more complete picture of student learning.

Achievement:

- Measures students' performance at a single point in time
- Relates to students' family background
- Compares students' performance to a standard
- Critical to students' post secondary opportunities

Progress:

- Measures students' progress between two points in time
- Not related to students' family background
- Compares students' performance to their own prior performance
- Critical to ensuring students' future academic success

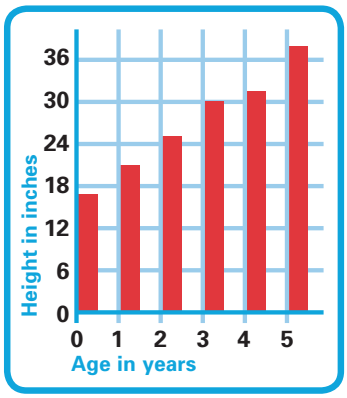
No longer are we saying, "You're doing a good job." Now we say, "You're doing a good job, and we have proof that you're doing a good job." We really have a lot of credence in the scores, or a lot of respect for the data, with regard to value-added and achievement. And we put those two pieces together. It's almost like a pat on the back.

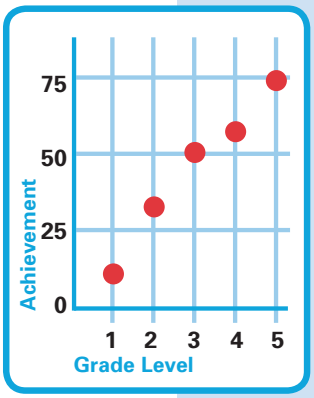
—Dr. Tara Tiller,
Numeracy Coordinator K–12

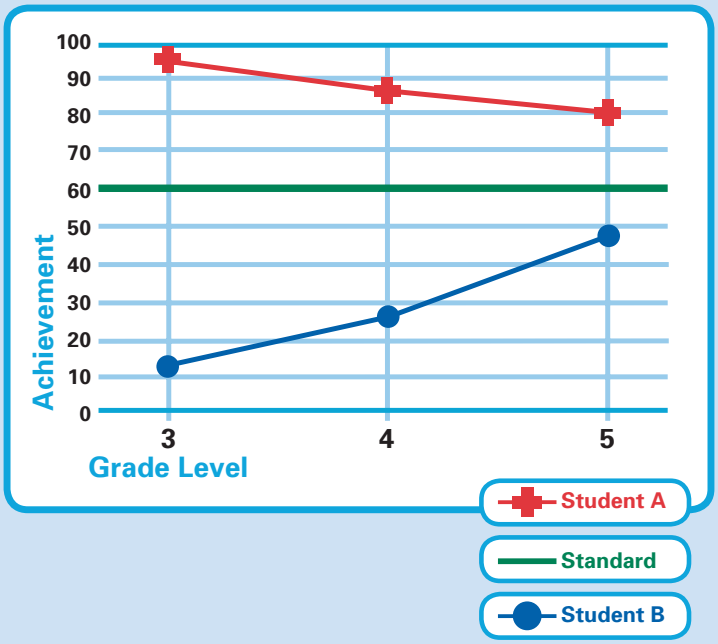
The Importance of Measuring Student Progress

Why is measuring student progress important? Because it provides a clearer view of the impact a Tennessee school has on student academic performance. Without progress measures, schools that produce little academic growth can be ranked higher than schools that produce significant growth.

What is a Value-Added Progress Metric?







A value-added metric makes use of multiple years of student achievement data to produce the most fair, accurate and reliable measure of student progress. Think of academic progress in terms of a child's growth chart. A growth chart shows a child's height at age two, three, four, etc. These data points can be plotted on graph paper to display that child's physical growth in height and weight over a specific period of time.

Similarly, if the math achievement level of students is measured annually using state proficiency or nationally normed tests, the student's "growth pattern" in math can be plotted and assessed.

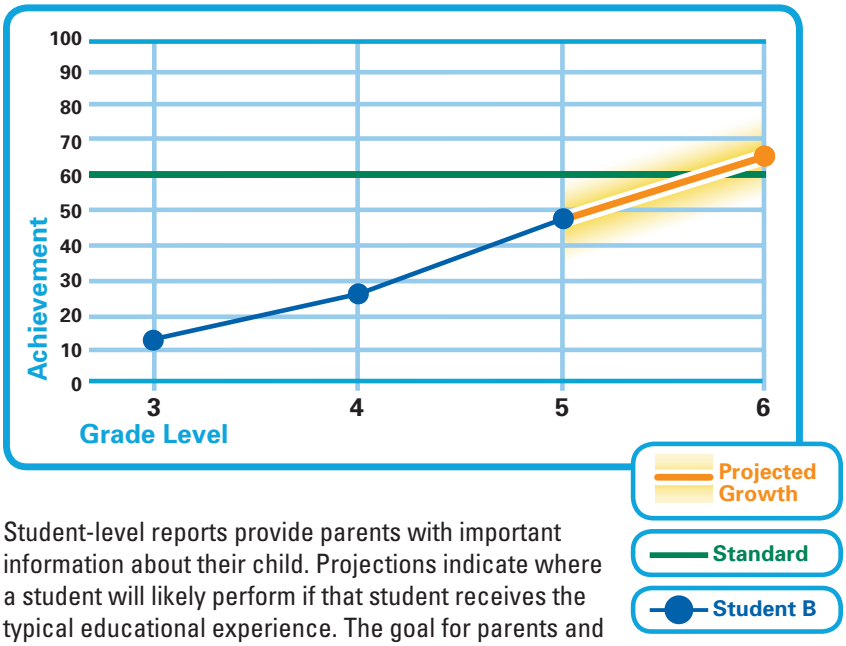
Simply said, a progress metric assesses the impact Tennessee schools have on their students' academic performances. Using this metric, schools and districts can assess the impact of their curriculum, instruction, programs and practices on student achievement.

For example, Student A may score at the 96th percentile in math in third grade, the 88th percentile in fourth grade and the 80th percentile in fifth grade. While he/she is still above the proficiency bar, his/her performance is declining relative to the proficiency bar.

In contrast, Student B may score at the 13th percentile in math in third grade, the 27th percentile in fourth grade and the 49th percentile in fifth grade. Student B is making significant progress, but because he/she is still below the proficiency bar, his/her progress is devalued. While Student B is still below grade level expectations, he/she is making considerable progress in the right direction.

In most state accountability systems, school and district success are based solely on percentage of their students who are proficient. In this type of system, Student A and his/her school are considered successful, while Student B and his/her school are considered failures. This completely ignores an important reality associated with each of the schools. Accountability systems must recognize both achievement and progress if a fair evaluation of schools and teachers is desired. In fact, Tennessee's past evaluation practices did not make use of progress information to show where teachers were making a significant impact on student growth.

In addition to providing information on student progress, TVAAS® value-added data can be used to project future academic performance. These projections can be used to identify at-risk students as well as those who need additional challenges. Using this information, teachers can provide the appropriate intervention and/or enrichment to maximize each student's growth. For example, Student B's projected growth in math shows that while he/she is currently not proficient as a 5th grader, he/she is projected to be proficient by the end of 6th grade.



Student-level reports provide parents with important information about their child. Projections indicate where a student will likely perform if that student receives the typical educational experience. The goal for parents and for the student's teacher should always be to outperform the projection.

The Benefits of TVAAS® Value-Added Analysis

TVAAS® value-added analysis provides a reliable, objective measure of a school's influence on student growth. With value-added information:

Teachers are better able to:

- Monitor students' progress—from low-achieving to high-achieving students—ensuring growth opportunities for all students;
- Modify instruction to address all students' needs;
- Align professional development efforts in the areas of greatest need; and
- Learn best practices from teachers who facilitate high levels of student growth based on value-added information.

District administrators and principals are better able to:

- Measure the impact of educational practices, classroom curricula, instructional methods and professional development on student achievement;
- Make better-informed, data-driven decisions about where to focus resources to help students make greater progress and perform at higher levels;
- Benchmark progress against other districts and schools; and
- Identify best practices from teachers who facilitate high levels of student growth based on value-added information, as well as from the leaders who support them, and implement more effective programs for their student population.

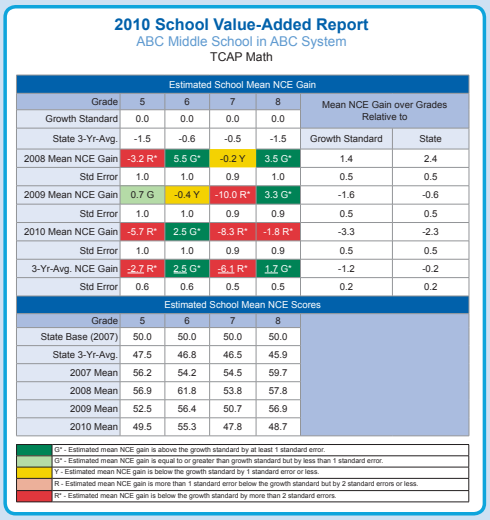
TVAAS® Value-Added Reports

Tennessee educators are using value-added analysis to measure student progress in grades 4–12 in core subject areas (math, reading, science, social studies). The progress reports provide important information to teachers about how curriculum and instruction are helping students make academic progress. They allow educators to see more clearly what is working well and not so well to help individual students and groups of students.

Leaders are using the information to make important district-level and building-level decisions. Parents can use the information to learn about the progress the district and their child's school are making in raising student achievement.

Following are visual representations of copyrighted SAS® TVAAS® Web reporting provided for instructional purposes.

The following value-added reports are particularly beneficial to teachers:



2010 School Value-Added Report
ABC Middle School in ABC System
TCAP Math

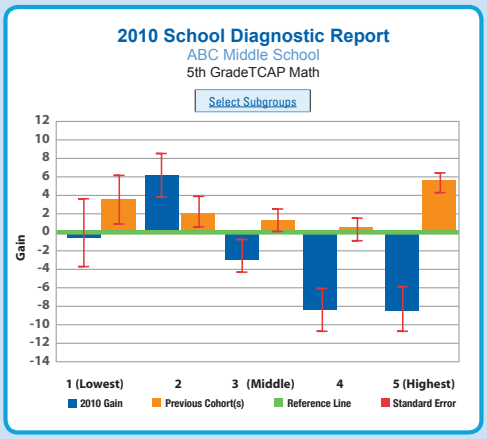
Estimated School Mean NCE Gain						
Grade	5	6	7	8	Mean NCE Gain over Grades Relative to	
Growth Standard	0.0	0.0	0.0	0.0		
State 3-Yr-Avg.	-1.5	-0.6	-0.5	-1.5	Growth Standard	State
2008 Mean NCE Gain	-3.2 R*	5.5 G*	-0.2 Y	3.5 G*	1.4	2.4
Std Error	1.0	1.0	0.9	1.0	0.5	0.5
2009 Mean NCE Gain	0.7 G	-0.4 Y	-10.0 R*	3.3 G*	-1.6	-0.6
Std Error	1.0	1.0	0.9	0.9	0.5	0.5
2010 Mean NCE Gain	-5.7 R*	2.5 G*	-8.3 R*	-1.8 R*	-3.3	-2.3
Std Error	1.0	1.0	0.9	0.9	0.5	0.5
3-Yr-Avg. NCE Gain	-2.7 R*	2.5 G*	-6.1 R*	1.7 G*	-1.2	-0.2
Std Error	0.6	0.6	0.5	0.5	0.2	0.2

Estimated School Mean NCE Scores				
Grade	5	6	7	8
State Base (2007)	50.0	50.0	50.0	50.0
State 3-Yr-Avg.	47.5	46.8	46.5	45.9
2007 Mean	56.2	54.2	54.5	59.7
2008 Mean	56.9	61.8	53.8	57.8
2009 Mean	52.5	56.4	50.7	56.9
2010 Mean	49.5	55.3	47.8	48.7

G* - Estimated mean NCE gain is above the growth standard by at least 1 standard error.
G* - Estimated mean NCE gain is equal to or greater than growth standard but by less than 1 standard error.
Y - Estimated mean NCE gain is below the growth standard by 1 standard error or less.
R - Estimated mean NCE gain is more than 1 standard error below the growth standard but by 2 standard errors or less.
R* - Estimated mean NCE gain is below the growth standard by more than 2 standard errors.

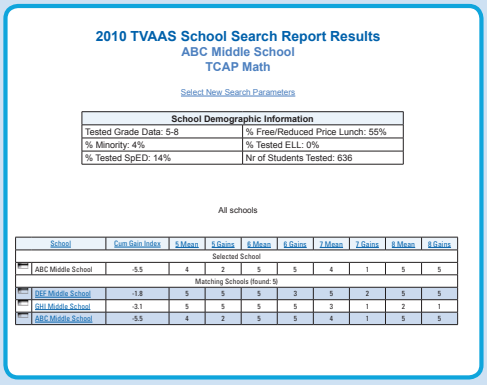
School Value-Added Reports

Provide grade-level comparisons of student progress and are organized by subject-area. Reports display student progress by grade level and across grade levels.



School Diagnostic Reports

Provide achievement subgroup comparisons of student progress organized by grade level and subject area. Reports display progress by prior-achievement subgroups. Reports can also be generated for user-selected AYP subgroups.



2010 TVAAS School Search Report Results
ABC Middle School
TCAP Math

Select New Search Parameters

School Demographic Information	
Tested Grade Data: 5-8	% Free/Reduced Price Lunch: 55%
% Minority: 4%	% Tested ELL: 0%
% Tested SpED: 14%	Nr of Students Tested: 636

All schools

School	Cum Gain Index	5 Mean	5 Gains	6 Mean	6 Gains	7 Mean	7 Gains	8 Mean	8 Gains
Selected School									
ABC Middle School	-5.5	4	2	5	5	4	1	5	5
Matching Schools (found: 5)									
DEF Middle School	-1.8	5	5	5	3	5	2	5	5
GHI Middle School	-3.1	5	5	5	5	3	1	2	1
ABC Middle School	-5.5	4	2	5	5	4	1	5	5

Student Search

Unlike the other inquiries that focus attention on last year's students, this inquiry focuses on the current student cohort. This feature allows educators to build student lists that fit particular criteria of interest.

Understanding and Using the Reports

TVAAS® value-added reports contain simple color-coding to make the reports easier to understand and interpret.

	G - Estimated mean NCE gain is above the growth standard by at least 2 standard errors.
	Y - Estimated mean NCE gain is less than 2 standard errors above the growth standard and no more than 2 standard errors below the growth standard.
	R - Estimated mean NCE gain is below the growth standard by more than 2 standard errors.

Building a Statewide Network of Support

To lead and build the capacity of others to use value-added information to guide instructional decision making through First to the Top, the Tennessee Department of Education has been:

- Preparing and supporting 30 regionally dispersed, credentialed **Regional Value-Added Specialists** (RVAS);
- Providing training and support to 450+ **District Value-Added Leadership Team** (DVALT) members;
- Supporting the RVAS and the DVALT trainings for each district to prepare at least one principal and one teacher leader from every K–12 building to build the capacity of others; and
- Hosting **Webinars** to maintain a support network with the RVAS and DVALT.

Tennessee's new TEAM (Tennessee Educator Accelerator Model) Evaluation Framework

Beginning during the 2011–2012 school year, all Tennessee educators will be evaluated using the TEAM evaluation framework. TEAM uses multiple measures to look at educator performance, including a comprehensive observation system, achievement measures and value-added growth measures. TEAM will become a valuable tool to provide opportunities for growth, support and recognition to Tennessee's educators.

Visit **www.team-tn.org** to learn more about the TEAM framework.

[With TVAAS® value-added information], we are able to pinpoint areas of strength and areas we need to continue to work on. We can see whether this grade is progressing or this subject is progressing. We can determine which subgroups we are leaving behind and which ones we are not. When we show educators positive progress in their classrooms and in their schools, it certainly makes them open to follow through with the challenges that are going to come through as well.

—Dr. John Combs, Middle School Principal

Value-Added Frequently Asked Questions

Q: Why is measuring progress important?

A: Progress measures provide an assessment of student growth from year to year. Measuring student progress—and combining it with achievement information—helps Tennessee teachers, schools and districts have a more robust, comprehensive picture of their impact on student learning.

Q: How can TVAAS® value-added information help educators improve teaching and learning?

A: TVAAS® value-added analysis provides important diagnostic information that was not previously available with traditional achievement reporting. This information allows educators to assess their impact on student learning and engage in conversations about the efficacy of the current curriculum, instructional practices and programs. Value-added information also allows educators to project the future performance of students to identify those who need additional support.

Q: Is it possible to show progress with all groups of students, including high-achieving and low-performing?

A: Yes, the TVAAS® value-added methodology is sensitive enough to measure growth with all of these subgroups of students because the TCAP tests that students take meet three criteria. First, these tests have enough "stretch" to differentiate the achievement levels of both high-achieving and low-performing students. Second, the tests have appropriate levels of reliability. Third, the tests are highly correlated with the curriculum that teachers teach.

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

A: While the statistical methodology used for value-added analysis is complex, the information produced is valid, reliable and presented in easy-to-read charts and graphs. The TVAAS® value-added methodology can be compared to any complex statistical process. For example, few people understand how to calculate the Consumer Price Index, but many people take advantage of the information and use it to make decisions in their daily lives. When thinking about value-added analysis, it may be helpful for educators to focus on the meaning of the information available and how it can help identify student needs rather than the actual methodology. If educators learn to trust the information derived from the value-added reports, then they can use the information to make sound decisions about improving student achievement.

Q: Does value-added analysis require additional testing?

A: No new testing is required. Because TCAP tests are administered routinely on a yearly basis, TVAAS® value-added analysis uses existing standardized and state-produced criterion from these tests to produce progress reports.

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

A: The value-added approach was developed to estimate each student's academic growth over his/her school year in each subject. It does not suggest a particular method for producing this growth. Thus, teachers can and must be flexible, innovative and creative in their approaches to move all students toward higher levels of achievement. The methods teachers use to help their students are still left to their professional judgment.

Q: What kinds of test data are used for value-added analysis?

A: TCAP student performance results as they meet the following criteria to be used in value-added analysis:

- Are highly correlated with curricular objectives;
- Have enough "stretch" to measure the growth of both high-achieving and low-performing students; and
- Meet appropriate standards of test reliability.

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

A: Leading experts have shown student demographic variables have no significant relationship with student progress measures. This is because TVAAS® value-added analysis measures the change in student growth over time (i.e., year to year), and factors that remain relatively constant over time, such as socioeconomic status, cannot account for the changes in growth that students regularly experience.

Q: Can you measure the progress of schools and students with high mobility rates?

A: Yes, as long as the achievement data for those students are available. Value-added analysis takes advantage of the relationships that exist between student performance on TCAP tests. As long as adequate data points for mobile students are available, they can be included in the analysis. Students who attend a school for less than the entire school year are counted less in the analysis than students who are enrolled the entire year.

Q: How can you ensure the teacher data is accurate when developing reports?

A: TVAAS®' Teacher Verification Tool provides teachers the opportunity to review their student list and verify its accuracy, ensuring that teachers are accurately linked to the students they teach. This list will then be validated by principals before it is used to generate a teacher-level value-added report.

Q: When and where can I view TVAAS® value-added reports?

A: Visit https://tvaas.sas.com/evaas/signin to access reports and additional resources to support educators' use of TVAAS® value-added data.

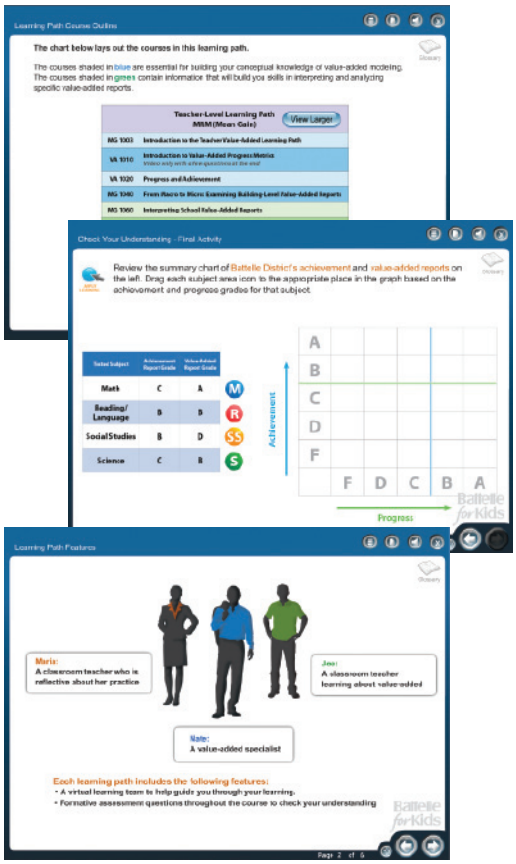
I can pull data to start that springboard conversation: No matter where the child came in, we should be able to show a year's growth as a school and as a teacher. And for our kids coming in way behind, if we do not show a significant amount of growth, which is more than a year's growth, then those kids are going to continue to be behind. We use the reports to get teachers to understand how they play a big part and how they are the difference in a kid being successful.

—Kathryn Dillard, Retired Principal

TVAAS® Value-Added Resources

Available at no cost as part of First to the Top

The following resources are available to Tennessee K–12 public school educators at no cost as part of First to the Top. These materials help build capacity around using value-added information to improve teaching and learning and, ultimately, prepare students to be college- and career-ready.



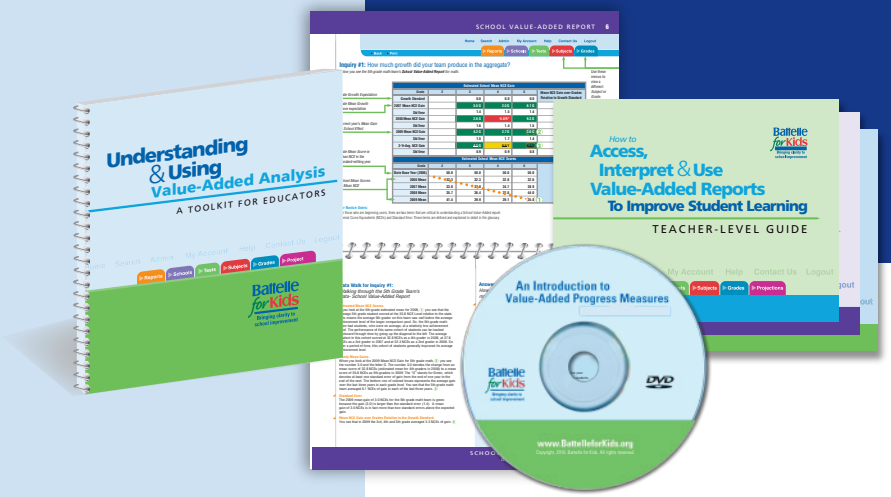
Value-Added Online Courses

A suite of value-added online courses are accessible through the Tennessee Student Progress Portal—any-time, any-place and any-pace. The courses are designed for educators to work independently or with a professional learning team. Participants can enroll in individual courses or in role-based learning paths to:

- Explore basic data terms;
- Prioritize reports for different educational roles;
- Navigate through value-added reports to explore educational issues;
- Provide access to value-added reports;
- Identify strengths and weaknesses in the current educational program; and
- Move from report interpretation to improvement planning.

Understanding and Using Value-Added Analysis: A Toolkit for Educators

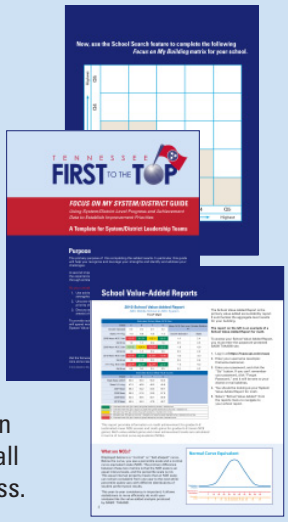
Every K–12 public school and central office received an *Understanding & Using Value-Added Analysis Toolkit*. Developed by Battelle for Kids, this toolkit is designed to help educators increase their knowledge of the fundamentals of TVAAS® value-added analysis, its power as a diagnostic school improvement tool and how to share this information with others. The toolkit includes a DVD, separate guides for specific users and other materials to complement training activities to help educators understand and use their data to inform instruction. Two versions of this toolkit are available—one for elementary/middle schools and one for high schools.



Focus on My Building, Focus on My System/ District and Problem-Based Learning Guides

Tennessee•Focus—a data-based, goal-setting instructional-improvement process—enables school districts, department or grade-level teams to analyze value-added and achievement data by:

- Examining and assessing student performance data;
- Establishing the strengths and challenges associated with the current academic program;
- Identifying one area of strength and one area of challenge around which to build team goals;
- Determining the root causes of the identified area of strength and area of challenge; and
- Producing SMART goals and action plans to leverage an area of strength and productively address an area of challenge.



At the end of the online analysis process, participants can download the Focus Forward document that inventories all the work completed through the Tennessee•Focus process.

Versions of the *Focus on My Building* and *Focus on My System/District* Guides are also available for high school educators.

Value-Added Analysis: Frequently Asked Questions

The frequently asked questions found within this guide are also available on the Tennessee Student Progress Portal (www.BattelleforKids.org/Tennessee/Resources/Value_Added_FAQ). Educators at all levels can access these questions at anytime to learn more about TVAAS® value-added analysis and how this information can help them interpret the impact of their curriculum, instruction, programs and practices on student achievement.

Battelle for Kids

Bringing clarity to school improvement

The Tennessee Department of Education is partnering with Battelle for Kids to expand the use of value-added analysis and formative instructional practices as well as other educational-improvement strategies to increase student progress and achievement in K–12 public schools statewide as part of First to the Top.

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