TULSA
PUBLIC SCHOOLS

FREQUENTLY-ASKED QUESTIONS
ABOUT VALUE-ADDED ANALYSIS

October 2015

Defining Value-Added Analysis

What is value-added analysis?
Value-added analysis is a statistical method that helps educators measure the impact their practices have on students' growth in academic achievement from year to year. Because it statistically controls for factors outside of educators' influence, it allows teachers and leaders to begin interpreting the impact of their curriculum, instruction, programs, and practices on student achievement.

Why is measuring both achievement and growth important?
Achievement measures provide educators with a snapshot of a student's knowledge at a single point in time and how well those students perform against a standard. Growth measures provide a more complete, accurate picture of growth from year to year, including how much growth or gain a group of students make over time. By combining achievement and growth information with other data sources, schools and districts will have a more meaningful picture of their impact on student learning and a more informed plan for continuous improvement.

Why use value-added data? It's just achievement data spun another way.
Comparing achievement scores year to year is NOT a good way to measure the impact of programs. It's like comparing apples to oranges. Problems include population differences, test equivalency, and condition changes. Value-added analysis is a measure of the effects of instruction on a group of students with important statistical controls. It measures the gain that can be attributed to a teacher, school or district. Value-added analysis allows you to compare apples to apples when you determine if your "program" is working. Value-added information creates meaningful equivalency, uses statistical rigor, makes an effort to reduce measurement error and is designed as a measure of group effects.

Access to Reports

Who can view school-level value-added reports?
School-level reports are available for the 2009–2010, 2010–2011, 2011–2012, 2012−2013, 2013–2014 and 2014-15 school years. In addition to every TPS educator having access to school-level value added reports—the reports showing each school's overall value-added analysis—some school-level reports are available to the public on the Student Progress Portal (http://valueadded.tulsaschools.org).

Who can view teacher-level value-added reports?
As of October 20, 2015, teachers and principals have online access to their 2014–2015 value-added reports.

Can I get a value-added report that is reflective of the students I taught last year if I switched buildings?
Yes. Your individual 2014–2015 value-added report will reflect the students you taught last academic year. Teacher reports reflect the contribution to the learning of students each teacher had last year, regardless of location.

Value-Added Methodology

The value-added methodology seems complicated. How can people understand the measure?
While the statistical methodology used for value-added analysis is complex, the data produced are valid, reliable and presented in easy-to-read charts and graphs. Value-added methodology has been both studied in academic contexts and utilized in school districts for over twenty years. Understanding this methodology can be compared to understanding the statistics behind the Consumer Price Index (CPI), which measures the change in the cost of living between two periods of time. Few people understand how to calculate the CPI, but many people take advantage of the information and use it to make decisions in their daily lives. If educators understand the information derived from the value-added reports, they can use the information to make sound decisions about improving student achievement.

Is it possible to show growth with all groups of students—special education, gifted and low-performing?
Yes. The value-added methodology is sensitive to and accounts for individual student 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 or above grade level. Toward the back of both teacher- and school-level reports are graphics describing the teacher's/school's value-added estimates with respect to certain student subgroups, including special education students, ELL students, high and low-achieving students, etc. For more information on how the value-added methodology accounts for different groups of students, please refer to the Technical Webinar Section 2 on the Tulsa Student Progress Portal.

Does value-added analysis look at each child or each class?
Value-added reporting requires data from groups of students to reliably determine the effect of schools and classrooms. Value-added methodology first looks at the differences in actual score and typical score for each student. This information is then used to calculate the value-added estimate for a school or classroom. Although predictions are customized at the student level, value-added is not a meaningful measure for reporting the growth of individual students. As such, there are no "student-level" value-added reports.

Control Variables

I don’t understand how value-added weights the variables ("covariates").
Variables outside of the control of the teacher and school are included in the value-added model to increase the accuracy of the statistical modeling that generates the value-added estimates. We use actual student outcomes across Tulsa Public Schools to determine the effect of prior knowledge and demographic characteristics on student academic growth. It is this real data that determines the “weight” of variables included in the model.

How are the weights calculated for the number of students?
The number of students included in the value-added calculation is weighted by the amount of time students were in the teacher's class during the past academic year according to verified, student-teacher assignments (through the "linkage" or roster verification process). Value-added does not require that a teacher's students have been in his or her class for an entire full academic year.

There are so many things that affect children and learning outside of school, how can value-added identify them?
Value-added analysis selects those control variables that can be reliably measured and that actual TPS data shows has an impact on the learning of students. Because it is true that other unmeasured variables may also have an impact on learning, we present confidence intervals around our estimates. With larger groups of students, these non-measured factors will tend to average out and we can be more confident about our estimates. Estimates based on larger groups of students will have tighter confidence intervals.

I'm unclear on how the district is determining the external factors and how those are placed into the growth equation. Specifically, how do you determine the typical growth of individual students in order to conduct the statistical analysis for value-added? For example, how does the district determine how a low-income, ELL, transfer student should grow?
Our value-added modeling uses a multivariate regression technique to determine the effect of particular characteristics on a student's academic growth. For each student in the analysis, the typical outcome is based on prior performance as well as the sum of all measured demographic characteristics. For example, to determine the statistical student growth prediction of a low-income, transfer, ELL student, we find the average growth of ELL students compared to non-ELL students in TPS in a particular grade, subject, and year. For an ELL student, this district-wide ELL effect is then incorporated into this particular student's prediction. If the student is also a transfer student and qualifies for Free/Reduced Lunch, the district-wide FRL and mobility effect are also incorporated into the student's prediction. The e-learning Technical Webinar Section 2 on the Tulsa Student Progress Portal provides additional detail on how individual student projections are derived.

Doesn't value-added analysis lower our expectations of students?
Value-added analysis does not lower our expectations for students. Value-added is a statistical tool to isolate the effect of teachers and schools from external factors that also influence student achievement. Value-added data does NOT evaluate individual students or set individual student achievement expectations. It is a statistical model that develops predictions by analyzing our actual data to determine what the typical growth was for students with similar characteristics. Value-added measures are not about individual student goal-setting and there is no "cap" on achievement potentials. It is the teacher in the classroom that sets high expectations for learning for all students.

Can you measure the impact of schools when the students have high mobility or transfer rates?
Yes. Currently, value-added analysis includes all students, for which there is sufficient test data, including highly-mobile students. 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. A dosage model is used to credit a mobile student's growth to each school in proportion to the amount of time spent at that school.

Is value-added analysis a fair and a useful tool for educators? In particular, does value-added analysis control for factors outside of educators' influence that impact student achievement?
Yes. Isolating and measuring an educators' impact on student learning can be challenging because students start the year at different skill levels and face unique factors outside the classroom that can influence their performance on achievement tests. The value-added analysis controls for these factors. That is why it is a more reliable, useful and fair assessment of the impact of educators' practices. In particular, TPS' value-added approach takes into account prior achievement scores, grade level, gender, race/ethnicity, low-income status, ELL status, special education status, mobility, attendance history, and grade retention.

What control variables are used in the TPS value-added model? What external factors are considered? How did the district choose these variables?
The TPS value-added model incorporates the following control variables:

- Prior achievement test scores
- Grade level
- Grade retention
- Gender
- Low-income status
- LEP (Limited-English-Proficient) status
- SWD (Students with Disabilities) status
- Race/ethnicity
- Attendance history
- Mobility

These variables were chosen after test analytic models showed the statistical significance of these variables in the TPS model. These variables are also commonly used in other value-added models across other districts and states. These variables help to isolate the teacher's and school's contributions to student growth. These are measurable student characteristics outside of the control of the teacher or school which are associated with meaningful differences in student outcomes. It is important to note that controlling for demographic characteristics does not mean lowering expectations for any grouping of students addressed by the control variable. For more information, view the Value-Added: The Oak Tree Analogy e-learning video on the Tulsa Student Progress Portal.

Can the variables (covariates) change?
Yes, covariates are examined each year to see if they still have an effect on student academic growth.

How does class or school size influence value-added results?
Value-added metrics provide increasingly precise estimates as more students are included in the statistical analysis. This is why value-added estimates are more precise at the school level than at the teacher level and why using multiple years of data improves the reliability of value-added estimates at the teacher and school levels.

Can you explain the covariate formula in a way that is clear to everyone? I need transparency!
The e-learning Value-Added Technical Webinar Section 2 and the Value-Added: The Oak Tree Analogy on the Tulsa Student Progress Portal describe the covariate formulas to a wider audience.

Are there plans to make discipline a variable of the value-added analysis?
There are no current plans to make discipline a control variable at this time. Discipline history can be difficult to measure as policy enforcement may vary from school to school and teacher to teacher. Further, with regard to the discipline that occurred during the reporting year, the disciplinary techniques/strategies were under the control of teachers and school, and controlling for those factors would eliminate the ability to recognize the impact of these practices on student growth.

Testing Questions

What kinds of test data are used for value-added analysis?
Value-added analysis is based on standardized test data. At TPS, the MPG/MAP, OCCT, and EOI assessments are used.

Does value-added analysis require additional testing?
No new testing is required for the current value-added reports. Our value-added work uses existing standardized test data to produce growth reports and can only be done where annual testing is provided. This includes some end of course exams.

What allowances are made for mistakes on the test?
Since there may be factors besides those controlled for in the model that affect an individual student's test score, such as test errors or a student incorrectly recording their test answer, value-added analysis is most reliable when used for groups of students. The confidence intervals around estimates represent the reliability of estimates and will be tighter for large groups of students. The more students included in the analysis, the more confident we can be that the measured effect is due to the teacher or school rather than random events. Also, our modeling includes test property data and measurement error correction. Tests that more reliably measure true student knowledge result in tighter confidence intervals around our estimates.

How does this affect librarians and other teachers who work with all kids, but none directly?
A school's value-added score is relevant to every teacher at the school site because all teachers at a school have an effect on student achievement, and thus the school's value-added estimates. Planning and research are underway to determine how we might generate value-added data for certain teachers without state test scores and how that data might eventually influence teacher evaluation.

There may be some teachers, however, for whom it is not appropriate to have value-added results. More specific information and decisions regarding these issues will be available in the future.

How do you select a pretest for subjects like Geometry, which do not have a standard pretest?
Each pretest was selected based on content relevancy, score correlations, timeliness, and coverage.

- Content Relevancy: Whenever possible, a pretest was used in the same content area as the outcome exam.
- Score Correlations: A candidate pretest must be predictive of the post test for a value-added model. This enables us to control for different student starting points. Ideally, the pretest used in a value-added model is correlated at .7 or higher with the post test.
- Timeliness: Ideally, the pretest will have taken place the year before the post test. Occasionally, due to state testing patterns, we will use a pretest from two years before the post test.
- Coverage: When measuring the effects of schools on student growth, it is best to include as many students as possible. However, these students need to follow a testing sequence in common with enough other students to effectively compare schools.

What if a student comes from out-of-state with no OCCT score the previous year—how is his/her growth accounted for?
Only students with prior test scores are included in the value-added model. If a student does not have appropriate prior test scores (OCCT, MAP/MPG, or EOI), this student's growth cannot be included in the value-added model.

SPED

Can SPED teachers receive a report no matter the size of their class?
There must be 10 students to produce a reliable value-added estimate.

Can we get OMAAP data for value-added? Are the SPED students in my building reflected in my school's overall scores?
In the school's overall scores, SPED students who took the OCCT, or EOI consistently from year to year are included in the results.

What happens if one teacher receives all the lowest performing students and the other receives the high performing students? How does this effect value-added?
Prior achievement is one of the control variables. Adjustments are made so that the value-added estimate reflects what is out of the control of the teacher or school. Further, these two teachers are not compared to each other directly. The predictions for these two teachers are customized to the type of students they are serving. The teacher with low performing students would be compared to other teachers across TPS with similarly low performing students. The teacher with high performing students would be compared to other teachers across TPS with similarly high performing students.

When the entire class is intellectually and learning disabled, how will the teacher's evaluation be affected?
Control variables help eliminate the bias that can occur because of non-random assignment of students. Each student in the classroom is measured against his or her statistical typical performance based on the performance of similar student from across TPS. For example, if we found that in 2011, grade four Math, SPED students tended to grow more slowly than non-SPED students across the whole district, the typical outcomes for a SPED student in this teacher's classroom would be adjusted to match. In this way, the growth this teacher produces with her students is compared to the growth other teachers obtained with similar SPED students across TPS. For more information, see Value-Added Technical Webinar Section 2.

Predictions

How is the expected growth value determined?
Rather than “expected”, we refer to a statistically “typical” level of growth. For an individual student, several factors are taken into account when determining this student’s typical growth. We first must determine the effect of prior knowledge and demographic characteristics across the entire district for a particular grade, subject, and year using actual TPS data. After those effects are found, we use those effects to customize a prediction for a student based on the student's prior knowledge and demographics—again, using actual TPS data. For a more complete explanation for this process, see Value-Added Technical Webinar Section 2.

Can high-achieving schools/classrooms show growth?
Yes. The predictions for high-achieving students are based on the actual growth of similar high-achieving students from across TPS. The growth of your students is compared to the average growth of similarly achieving students, so your school or classroom can show growth regardless of your students' starting point.

Can schools be “ceilinged-out” of the scatter plot since it is balanced against the district average?
There are two axes on the scatterplots. On the y-axis, we record the percent proficient/advanced on the prior year’s test. It is possible to “ceiling-out” at 100% proficient/advanced on this *achievement* axis, but this does *not* mean that students have hit the test ceiling. Even if students are above proficient, they will still have room to grow on the scaled score of the test. (The students who "ceiling-out" on the test are those that have obtained the highest obtainable scale score (HOSS), which is generally less than 1% of all students.) On the x-axis, value-added is a relative measure with no set ceiling or floor. Although value-added is usually represented on a 1–5 scale, these are not end points to the scale (value-added below 1 or above 5 are possible). Value-added is based on growth in scale scores, so hitting 100% proficient/advanced is not an indication that high value-added is not possible.

Won’t your value-added scores be lower if you are at a high-performing school because the gap is not as big?
No. Because value-added controls for prior knowledge in the model and includes a feature called the "Post-on-Pre Link," which customizes individual predictions based upon the achievement scores of the particular students, there is no disadvantage or advantage to being a high-achieving school. Value-added fairly measures teacher or school effects regardless of prior performance level of the students. To learn how the value-added model accounts for differences of gain at the low and high end of the test scales, please see Value-Added Technical Webinar Section 2.

Will this measure of improvement and growth be accurate?
Value-added is an estimate of the contribution of the school or teacher to the learning of students. Tulsa Public Schools is taking strides to ensure that value-added estimates are accurate and reliable. One important element is the use of BFK•Link® roster verification to ensure that the district’s Student Information System (SIS) is accurately assigning students to the correct teachers. The model itself also undergoes many statistical checks to determine which characteristics pass requirements to increase the predictive power of the model. Results are only provided to teachers and schools when there are a sufficient number of students in a group to make a valid value-added estimate. To promote responsible use of the data, we report estimates with confidence intervals and color codes based on statistical significance.

Understanding Value-Added Reporting

Can I see individual student growth?
No. This information is not provided in value-added reports. Value-added reflects the impact of the adults on the learning of the students. Value-added is not the tool to use for measuring and goal setting for an individual student.

What does the 3.0 district average mean?
On the 1–5 scale, 3.0 represents the average growth of students across the district for that grade and subject after controlling for the external factors associated with factors influencing student achievement outside of teachers and schools' control. Because of the statistical controls used in the model, another way of looking at this average when viewing your report is that it is the average growth for students like yours across Tulsa Public Schools, meaning students with similar prior knowledge and demographic characteristics.

How do we find out what the district average growth is? Will there always be half of the schools above and half below?
District average growth is determined for each subject, grade, and year. The effect of prior knowledge and demographic characteristics are also determined for each subject, grade, and year. Actual student test scores for TPS are used to determine average growth and the effect of external factors. Since data from TPS is used to determine the average, there will always be schools above and below average. The actual number of schools above and below may be different due to differences in school size. When value-added analysis expands to a larger system (for example, the state of Oklahoma), it would then be possible for TPS to be placed into a larger context and potentially all be above (or below) this state average.

How Will TPS Use Value-Added?

How does value-added fit into the bigger picture of school improvement?
Value-added data is incorporated into schools' WISE plans as an indicator related to the selection and retention of teachers. In addition, school teams are analyzing value-added data to explore and share the practices that generate high value-added estimates.

How can value-added information help educators improve teaching and learning?
Value-added information provides schools and teachers with important diagnostic information that was not previously available with traditional achievement reporting. Value-added information allows educators to assess their impact on student learning and can help initiate conversations about the efficacy of curriculum, instructional practices and programs. Educators can use the information to modify their instruction and practices to maximize student learning. Value-added information also allows educators to better identify what is working well and areas for improvement to help individual students and groups of students.

It seems like value-added is just a tool to eliminate teachers. Is this true?
No, this is not true. Value-added is a more authentic reporting of educators' impact on student learning than student achievement or even simple growth data. As such, the primary use of value-added data is to help identify the practices that have the greatest impact on student growth so that they can be replicated elsewhere. Teachers with value-added data should also use the detail within their individual reports to identify their strengths and areas for improvement. The district is not using value-added data as a component of a teacher's evaluation score.

Is value-added going to take the place of achievement scores when determining whether or not a school makes AYP?
Not at this point. However, note that the state recently adopted value-added as the method by which districts will generate quantitative data regarding teachers' and leaders' effectiveness for purposes of implementing the teacher and leader evaluation system mandated by Senate Bill 2033.

How is TPS using value-added analysis now?
TPS is currently using value-added analysis to measure the effectiveness of our practices and programs, identify and respond to our strengths and challenges, and improve student achievement. TPS also uses this value-added data as one of the components of teachers multiple measures reports.

How will this affect students long-term? Their college applications will not be 'value-added', so why are we doing this disservice to them now?
Value-added is used to inform educators and other stakeholders in the system about the effect of school and classroom practices and processes on the learning of students. Ultimately it is achievement that matters. However, without value-added information, teachers and schools would not know if instruction is moving the needle for all students. If students are not growing, then it will become increasingly difficult to continue to meet or exceed achievement benchmarks.

Will this be linked to merit pay? If I'm not in a testing grade, can I still earn merit pay?
There are no plans to link value-added results to merit pay.

Where has this system worked before? How was student achievement impacted?
In 2007, when Washington Court House City Schools joined Battelle for Kids' Ohio Value-Added High Schools—an initiative that has been building educators' capacity to use value-added information to accelerate student progress—the district ranked 594th out of 610 Ohio school districts. Today, the district is among the top 10 percent of school districts in the state in academic progress based on statewide value-added data.

Value-Added Analysis and Teaching Practices

What is this supposed to do for me becoming a more effective teacher and how will this affect my teaching habits and instruction? How is it valuable to both students and teachers? How does understanding value-added impact my teaching?
Because value-added data provides rich information regarding our impact as educators, it is important data for school teams to analyze and discuss for purposes of improving instruction. Value-added data can help identify the practices that have the greatest impact on student growth so that they can be replicated elsewhere. Teachers with value-added data can also use the detail within their individual reports to identify their strengths and areas for improvement. For example, the subgroup detail will identify whether the teacher's impact on ELL or special education students is greater or less than the district's average. It might also reveal that a teacher's impact is greater or lesser than the district's average with respect to students' achievement levels. Most of all, value-added is intended to generate school and department-level discussions and provide reliable data points relating to how we can measure and better impact student achievement.

How is this information useful in school improvement? How should educators use the data?
Grade-level/department teams should:

- Examine value-added data and other performance information;
- Assess strengths and weaknesses and their potential root causes;
- Celebrate strengths;
- Set goal(s) that build on replicating strengths and addressing weaknesses; and
- Create action plans, timelines and responsibilities.

How can teachers be innovative or creative if student growth is based on test scores?
The value-added approach was developed to estimate each student's academic growth over his or her school year in each subject. It does not suggest a particular method for encouraging 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. However, value-added analysis can be combined with the other aspects to create formative feedback for improvement.

What steps can I take *now* to increase my value-added results for my current students before seeing scores next year?
Value-added does not provide you with specific recipes for improvement, but it does help you to ask the right questions, be reflective about your practice and determine some root causes for your strengths and challenges.

Help Resources

Where do I get more information on value-added analysis?
More information and resources to further your understanding of value-added analysis are available at the Tulsa Student Progress Portal, http://valueadded.tulsaschools.org. The district also is offering a series of training opportunities, also available on the Portal.

Tulsa Public Schools Policy Questions

Can we use the value-added scores to implement a new grading system that reflects student growth as well? An "A" should communicate growth for a disadvantaged student but I feel like our current reporting system does not allow for this.
Achievement and mastery of standards still matters. Value-added is not used for grading students. It is about the impact of the school on the achievement of students.

How will we be kept up to date on changes to value-added control variables and other report changes?
Additional training opportunities are being planned for this school year and next. Trainings will be available at the district level, site level, and individual level for TPS staff.

Do value-added reports include both FAY and NFAY students?
Value-added reports include both FAY and NFAY scores weighted by the proportion of time students were enrolled in the teacher's class during the past academic year according to verified, student/teacher assignments (through the roster verification process). Value-added does not require that a teacher's students have been in his or her class for an entire full academic year.