



TAKING NOTE

by SCORE

OCTOBER 2014

MEASURING STUDENT GROWTH IN TENNESSEE: UNDERSTANDING TVAAS

INTRODUCTION

Teachers have a greater impact on students' academic growth than any other in-school factor.¹ Studies on teaching quality have found that high-quality teaching can diminish the impact of a student's low socio-economic background.² Additionally, consecutive years of access to high-quality teaching can boost higher-performing students to perform at even higher levels and accelerate lower-achieving students to catch up to their higher-performing peers.³ For these reasons, shifts in policy and practice related to teaching quality have the potential to minimize achievement gaps and yield large and sustainable improvements in student achievement levels. To maximize student access to high-quality teaching, it is important to have an accurate measure that can be used to determine a teacher's impact on students' academic growth.⁴

Until recently, there was little data used in teacher evaluations that allowed schools to distinguish between effective and ineffective teaching. In 2009, The New Teacher Project (TNTP) conducted a study, "The Widget Effect," analyzing teacher evaluation practices in four different states and twelve different school districts. This study found that districts often used simple rating

systems for teacher evaluation, labeling teachers as either effective or ineffective, or satisfactory or unsatisfactory. Within these systems, TNTP found that 94 to 99 percent of teachers received a positive rating amidst high student failure rates.⁵ These conflicting data indicate a failure to differentiate between effective and ineffective teaching, providing little information that could accurately inform decisions around teacher recruitment, teacher preparation, and teacher support and development.⁶

In the late 1980s, value-added measures were developed in an attempt to more accurately measure a teacher's impact on student growth.⁷ While previous measures focused on student achievement levels, value-added measures instead focus on the amount of academic growth a student makes from one year to the next. For example, if a student enters third grade reading on grade level, value-added measures attempt to determine how much progress that student makes toward reading at a fourth-grade level by the end of the school year. Over time, value-added measures were used more frequently in schools throughout the United States to inform hiring and retention practices, professional growth plans for teachers, and the improvement of teacher preparation programs. Value-

added measures, when employed in combination with other effective evaluation tools, offer schools the opportunity to assess and improve student access to high-quality teaching, maximizing students' potential for growth throughout their educational career.⁸

HISTORY OF TVAAS

In Tennessee, the Tennessee Value-Added Assessment System (TVAAS) was developed in an attempt to measure the impact teachers have on students' academic growth. TVAAS was created on the foundational belief that "society has a right to expect that schools will provide students with the opportunity for academic gain regardless of the level at which the students enter the educational venue."⁹ In other words, those schools or teachers labeled as most effective by a TVAAS measure should be those

who provide high-quality educational opportunities for all students.¹⁰

In the late 1980s, Dr. William L. Sanders and Dr. Robert A. McClean of the University of Tennessee used longitudinal data to measure the impact different teachers had on student outcomes, laying the foundation for the statistical model employed in TVAAS. Throughout the 1980s and 1990s, Tennessee passed several pieces of legislation that emphasized the importance of statewide assessment and accountability systems on the path toward Tennessee's education improvement goals.¹¹ TVAAS was one recognized measure that could be used to evaluate Tennessee's progress toward accomplishing its educational goals. This research and legislation laid the foundation for the use of TVAAS in Tennessee's education system today. Table 1 outlines the history of TVAAS in Tennessee:

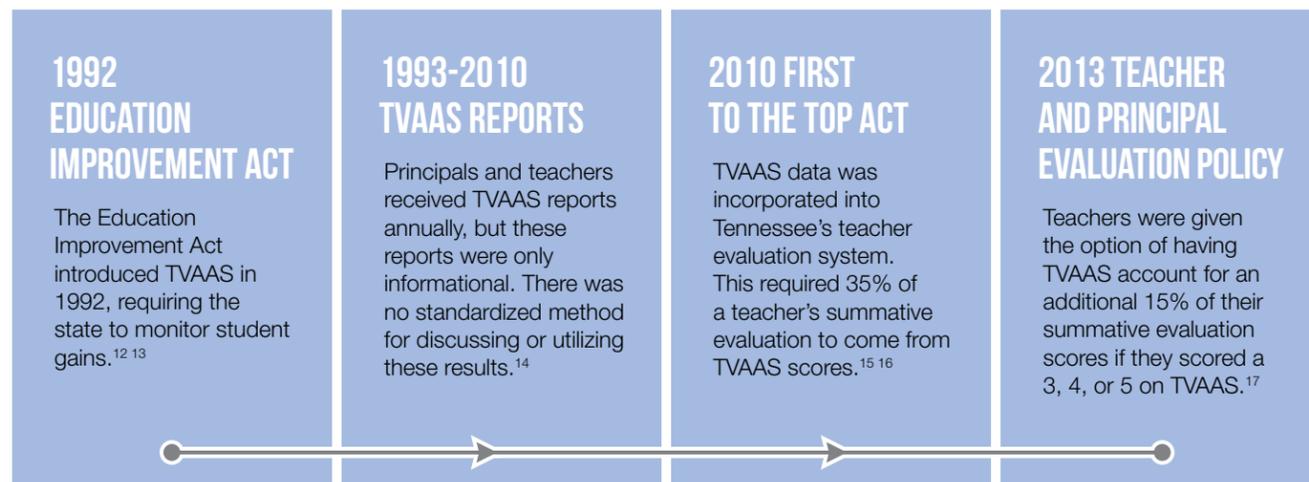


Table 1

TVAAS uses data from Tennessee's achievement tests to calculate yearly growth for all students in the state. To calculate yearly growth for students, TVAAS looks at a student's past testing data and predicts his or her growth based on the average growth of students statewide with similar initial levels of achievement. This component of the TVAAS model is meant to ensure that a student's initial achievement level will not affect the accuracy of the measure.¹⁸ While other growth

models explicitly adjust for students' background characteristics such as race, ethnicity, and poverty status, TVAAS uses students' prior achievement levels to account for these factors. A TVAAS score for a teacher is determined by looking at the amount of growth above, below, or just at expectations that each of the teacher's students make in a given school year. Each student's growth is compared to the growth they were predicted to make during that school year.

VALUE OF TVAAS MEASURES

Accurate TVAAS data has the potential to help stakeholders at all levels of the education system promote high-quality teaching and contribute to

improved achievement for all students. Tables 2-4 outline how teachers, principals, district leaders, and state policymakers can use TVAAS data to improve student achievement in Tennessee.

HOW DOES TVAAS HELP TEACHERS?

STUDENT SUPPORT

TVAAS data have the potential to facilitate meaningful conversations between teachers and students about a student's strengths and to set goals for students' academic growth during the school year. TVAAS data provide teachers with information that can help them identify students in need of early intervention and to group students based on their unique needs. These practices help teachers differentiate their instruction for different groups of students, improving students' potential for growth.

INSTRUCTIONAL IMPROVEMENT

TVAAS data allow teachers to reflect on their instruction, illuminating instructional strengths as well as opportunities for growth. This kind of data-driven self-reflection allows teachers to identify strengths and weaknesses in certain subject areas and with certain groups of students.¹⁹

TEACHER COLLABORATION

TVAAS data can also set the stage for more directed and effective collaboration between teachers. This data can help principals identify highly effective teachers who can serve as instructional leaders and mentors for newer teachers or teachers struggling with specific areas of instruction.²⁰

Table 2

TVAAS SHIFTS THE CONVERSATION FROM PROFICIENCY TO GROWTH: NORMAN SMITH ELEMENTARY

Norman Smith Elementary, a school serving over 600 students in grades pre-kindergarten to five in Middle Tennessee, has achieved high levels of growth over the last three years. If you ask school leaders at Norman Smith what makes them so successful, one of the things they point to is building the confidence of their students. Former principal Beth Unfried explains, "We have to provide opportunities for students to have success in school. Once they experience success, they want it even more."²¹ One of the things Norman Smith staff point to as a key to helping all students experience success is their continued focus on growth. Using TVAAS and other growth data, teachers at Norman Smith are able to set overall growth targets for students and incremental milestones along the way that help students build self-confidence and perseverance. Unfried cites TVAAS and other growth data as a game changer for students from low-income backgrounds. She emphasizes, "If students are never celebrated for their growth, then they feel defeated. It's not always about students making 100 percent on the test. For some students, going from a 20 percent to a 60 percent is just as important."²²

HOW DOES TVAAS HELP PRINCIPALS AND DISTRICT LEADERS?

TEACHER DISTRIBUTION

TVAAS data can be used at the district and school levels to ensure that high-quality teachers are distributed equitably between and within schools. This data could help administrators and districts create systemic incentives to attract and retain high-quality teachers in historically lower-performing, low-income schools. Additionally, TVAAS data provide insight into teachers' instructional strengths, whether in certain subject areas or with specific groups of students. For example, TVAAS data may indicate that a teacher is more effective teaching math than English language arts or that a teacher yields high levels of academic growth for higher-achieving students. School leaders can use this information to capitalize on teachers' strengths, placing them with groups of students or in subject areas where they are most effective instructionally.²³

STUDENT INSTRUCTIONAL INTERVENTIONS

TVAAS data also inform school and district leaders of individual students or groups of students that need targeted instructional interventions. This information can inform professional development opportunities for teachers, the implementation of before or after-school tutoring programs, or the hiring and distribution of instructional coaches.

TEACHER SUPPORT PRACTICES

One of the most important uses of TVAAS data occurs at the school level and informs principal practices around teacher support. When schools have instructional coaches or teacher leaders present, TVAAS data can guide these instructional leaders toward the teachers who need their help and support the most. In this way, TVAAS data can serve as foundational evidence for teacher improvement practices, gaining insight into teachers' opportunities for growth and providing them with the support they need to be successful.

Table 3

USING VALUE-ADDED DATA TO SUPPORT ALL TEACHERS: FRANK P. BROWN ELEMENTARY

At Frank P. Brown Elementary in Crossville, data are used to continually inform teacher support and improvement efforts. When TVAAS data indicate that a teacher is struggling in a certain subject area or with a certain group of students, school leaders will ask an instructional coach to spend time in the classroom with that teacher. Instructional coaches will observe, offer constructive feedback, collaborate on lesson planning, and model effective instruction for these teachers. Additionally, when value-added data show that a teacher is struggling in a particular subject or with a particular group of students, school leaders will pair them with a teacher who excels in the same area. The teacher will have a chance to spend a few days observing his or her colleague, learning from their instructional practices and classroom management style. At Frank P. Brown, teachers are given the opportunity to watch best practices in action and are provided with the resources they need to improve upon their own practices.²⁴

BUILDING SCHOOL LEADER CAPACITY TO USE DATA: MARYVILLE CITY SCHOOLS

Maryville City Schools serves approximately 4,900 students. Dr. Mike Winstead, Maryville's current Director of Schools, points to the time that Maryville spent working with school leaders as a key to the success the district has with data. Winstead says, "We've always had a good culture here in Maryville, but in recent years we've really invested time and energy into helping school leaders understand and effectively use data. We have at least one person on each building's leadership team who is truly a data expert."²⁵ Winstead and his team spent time working with school leaders to ensure they know what TVAAS data tell them and using that information to inform school-level decisions. School leaders use TVAAS and other data to ensure teachers are assigned to subjects and grade levels where they are most effective instructionally. In addition, school leaders carefully examine TVAAS data to gain a clear understanding of how the school is addressing the needs of all learners, from those in the top 25 percent to those in the bottom 25 percent. This information helps schools to understand if there are students who are not being served well by the school and to direct resources to those students.²⁶

HOW DOES TVAAS HELP STATE POLICYMAKERS?

PROFESSIONAL DEVELOPMENT

TVAAS measures provide states and districts with data that could inform investments in professional development opportunities that more effectively align with their teachers' greatest needs.²⁷ For example, the state's TVAAS data indicate that students in grades 3-8 made little growth in reading over the last few years.²⁸ For this reason in 2013-2014, the Tennessee Department of Education invested in professional development opportunities for teachers in reading intervention.

TEACHER PREPARATION

As TVAAS is more widely implemented, it can be used to track teacher preparation program graduates throughout their career. In 2007, the Tennessee General Assembly passed legislation that required the State Board of Education to create an assessment on the effectiveness of teacher preparation programs. This legislation requires that the assessment of the programs include TVAAS data, teacher placement and retention rates, and Praxis II scores.²⁹ This report card is currently used to help Tennessee identify best practices in teacher preparation and scale-up programs that consistently produce high-performing teachers.³⁰

Table 4

ASSESSMENT AND TVAAS

As noted before, TVAAS uses data from Tennessee's achievement tests to calculate students' yearly growth. These achievement tests include Tennessee Comprehensive Assessment Program (TCAP) for students in grades 3-8 and end of course (EOC) exams

for students in grades 8-12. Research has shown that in order for the TVAAS measure to be accurate, standardized tests must be a reliable measure of what students know and can do, produce similar results in different environments and at different times, be aligned with academic standards, and be designed to measure the progress of students with diverse ability

levels.³¹ A recent statement by the American Statistical Association emphasizes that “value-added measures are only as good as the data fed into them.”³²

Recent research on other states’ assessments calls into question whether current assessments accurately measure student learning.³³ These analyses have found gaps in alignment between state standards and state assessments, both in terms of the content covered as well as in the depth and rigor of testing items.³⁴ These analyses found that on average, state assessments cover around 19 percent of the standards’ content in English language arts and reading and 27 percent of the standards’ content in math.³⁵ Additionally, these analyses found that 15 percent of items in math assessments and 26 percent of items in English language arts and reading are misaligned due to different levels of depth and rigor.³⁶ If state assessments are not reflective of the state standards teachers are required to teach in their classrooms, value-added measures could be an inaccurate reflection of a teachers’ ability to effectively create academic growth for their students.

While the quality of current state assessments indicates a cause for concern around the accuracy and utility of the TVAAS measure, it also presents an important opportunity to select a higher-quality, better aligned assessment to be implemented with Tennessee’s State Standards for English Language Arts and Mathematics. As Tennessee begins the assessment selection process, it should evaluate assessments for alignment to these standards both in terms of content and rigor. This shift to a new assessment provides the opportunity for improved accuracy in the TVAAS measure and, as a result, improved utility of the information it provides students, teachers, principals, and district and state leaders.

A MULTIPLE MEASURES APPROACH: TVAAS AND TEACHER EVALUATION

Prior to 2010, teacher evaluations in Tennessee relied only on information collected during formal and informal observations, which were not required for all teachers on an annual basis. From these observations, principals scored teachers on a rubric with general categories intended to indicate levels of teaching effectiveness.

While these classroom observations provided teachers with an opportunity to receive feedback, the quality of the rubrics used and the infrequency of observations limited their ability to truly inform teacher support and improvement practices. Additionally, prior to 2010, student growth and student achievement data were not included as components of the teacher evaluation.

With Tennessee’s passage of the First to the Top Act in 2010, multiple measures of teaching effectiveness were incorporated into the Tennessee teacher evaluation. While TVAAS serves as a foundational component of Tennessee’s teacher evaluation system, the evaluation incorporates additional measures of teaching effectiveness to improve the accuracy, reliability, and utility of the evaluation as a whole. Since 2010, new rubrics for classroom observations have been implemented that aim to provide teachers with more detailed and rigorous feedback on their practice. The teacher evaluation also requires teachers to be observed multiple times each year.³⁷

While TVAAS provides important information about teaching effectiveness and insight into what kinds of students teachers are most effective at teaching, TVAAS provides teachers with limited information on what they can do to improve. By balancing the weight of different measures, the teacher evaluation aims to prevent teachers from focusing too narrowly on one aspect of practice. Additionally, providing teachers with feedback on different areas of practice increases the usefulness of the evaluation and provides more effective data that can better inform professional growth opportunities.

For example, while value-added data allow teachers to identify strengths and opportunities for growth in certain subject areas or with certain groups of students, feedback from classroom observations allows teachers to identify strengths and opportunities for growth in classroom management, instructional practices, or lesson planning. When these measures are combined with additional measures of teaching effectiveness, teacher evaluations have the potential to provide more accurate, informative, and complete feedback to teachers. This information can inform the improvement and development of support systems for teachers and increase student access to high-quality teaching.³⁸

**MEMPHIS
TEACHER
EFFECTIVENESS
MEASURES**

In Memphis, as well as in other districts throughout Tennessee, the Tripod Student Perception Survey is implemented as a component of the teacher evaluation system. The Tripod Student Perception Survey was developed to measure students’ perceptions of different classroom characteristics.³⁹ Research has found that student survey results are predictive of student achievement gains and produce more consistent results than classroom observations or value-added measures.⁴⁰ In other words, results from student perception surveys are less likely to change from year to year or classroom to classroom than results from other evaluation measures. Another benefit of student perception surveys is that students are present in the classroom for about 180 days during the school year, while observers are often only present for three or four days of a teacher’s instruction. Finally, student surveys can provide useful feedback to teachers of subjects who don’t receive value-added scores. For these reasons, student perception surveys provide unique insight into instructional practices and complement the value-added measures and observations included in most teacher evaluation models. As Tennessee continues to evaluate and adapt its teacher evaluation model, these student perception surveys should be monitored and evaluated to better understand how they can be utilized to effectively improve instruction.

In Tennessee, local school districts are given guidelines to follow in their teacher evaluations, but also have the ability to customize the evaluation to better meet local needs. Listed below are the statewide requirements for evaluation measures and their respective weights in the overall calculation of teacher evaluation scores. As indicated in Table 5, the measures’ weights differ for teachers of traditionally tested subjects and grades and teachers of traditionally non-tested subjects and grades.

Since TVAAS can only be calculated with end-of-year assessment scores, Tennessee has worked to come up with innovative ways to create alternative growth measures for teachers of non-tested grades and subjects. For this reason, these alternative growth measures are different than TVAAS, but still measure the impact a teacher has on a student’s growth in their respective grade and subject.

MEASURE	TEACHERS WITH INDIVIDUAL GROWTH SCORES	TEACHERS WITHOUT INDIVIDUAL GROWTH SCORES
TVAAS	35%	25% (school-wide growth measures)
Other Student Achievement Data	15%	15%
Qualitative measures including teacher observations, student perception surveys, personal conferences, etc.	50%	60%

Table 5

RECENT POLICY CHANGES

Tennessee's First to the Top Act was passed with bipartisan support in 2010, laying the foundation for the state's successful Race to the Top application. As noted previously, a new teacher evaluation system was an integral component of the First to the Top

Act. Since early implementation of the new teacher evaluation system, the Tennessee Department of Education has continuously revised the teacher evaluation model based on feedback from teachers and principals.⁴¹ Table 6 outlines these revisions along with other policy developments related to TVAAS and the teacher evaluation:

RECENT POLICY CHANGES

INCLUSION OF STUDENTS WITH DISABILITIES

Initially, students with disabilities were not included in individual teacher growth scores on the evaluation. Recent research in Tennessee indicates that for 97 percent of teachers, the inclusion of students with disabilities in value-added measures does not yield significant change in teachers' overall scores. For this reason, legislation was changed to include students with disabilities in individual teacher growth scores, providing student growth measures for additional groups of teachers.⁴² This shift in legislation only applies to students who take end-of-year assessments based on their individualized education plans.

ALTERNATIVE FOR TEACHERS WITH HIGH VALUE-ADDED SCORES

Legislation passed in 2013 allows teachers who received a one-year score of 4 or 5 on TVAAS to use TVAAS to account for 100 percent of their evaluation if it would result in an overall increase in their evaluation score.⁴³

CLASSROOM OBSERVATION REQUIREMENTS FOR THE LOWEST-PERFORMING TEACHERS

After the first year of implementation, school leaders indicated they wanted to spend additional time with those teachers who needed greater support and assistance. For this reason, beginning in 2012, teachers who received a 1 on their evaluation were required to be observed a minimum of four times a year.⁴⁴

CUSTOMIZATION OPTIONS FOR DISTRICTS

Districts can utilize an approved alternative teacher evaluation model or submit customized evaluation plans to the state that more effectively align with local values and needs. These customized plans must align with the minimum requirements in state law, but provide districts with additional flexibility in the measures used in their teacher evaluations. About one-third of Tennessee's districts customized their evaluation systems.⁴⁵

VALUE-ADDED OPTIONS FOR TEACHERS IN NON-TESTED GRADES AND SUBJECTS

Tennessee approved alternative assessment options that qualify for student growth measures for teachers of traditionally non-tested grades and subjects. These options include portfolio models, alternative assessments, and more accurate school-wide measures. As a result, the population of teachers receiving individual growth scores increased from 30 percent to 50 percent.^{46,47}

DIFFERENTIATED PAY

In the 2007-2008 school year, the State Board of Education passed guidelines for districts to establish differentiated pay plans for their schools. A review of these guidelines, the law, and district policies in 2013 indicated that district differentiated pay plans were not updated and/or monitored on a consistent basis. For this reason in 2013, the Tennessee State Board of Education revised the initial guidelines around differentiated pay plans. The new differentiated pay guidelines focus on staffing of hard-to-fill subject areas and the recruitment and retention of high-quality teachers in Tennessee schools. These guidelines included a stipulation that any performance compensation should be based on approved effectiveness measures from the teacher evaluation. The revised guidelines also prohibited districts from implementing across the board pay raises based solely on years of experience or educational attainment.⁴⁸ In 2014, House Bill 1270/Senate Bill 1291 passed, which allows pay supplements based on experience and degrees to be maintained for educators who qualified for these supplements prior to 2013.⁴⁹

TEACHER TENURE

A revised tenure law passed in 2011 mandates that teachers entering the system after 2011 will be eligible for tenure only after they have taught for five years and received evaluation ratings of "above expectations" or "significantly above expectations" for their two most recent years of service. Additionally, if a tenured teacher receives two consecutive years of evaluation scores that are "below expectations" or "significantly below expectations," their tenure can be revoked. A teacher's tenure can be returned if the teacher again receives ratings of "above expectations" or "significantly above expectations" for two consecutive years on his or her teacher evaluation.⁵⁰

TEACHER LICENSURE

In the 2014 legislative session, House Bill 1375/Senate Bill 2240 passed, indicating that value-added data cannot be used to penalize teachers during the licensure process or to revoke a teacher's license.⁵¹ In addition, the State Board of Education passed policies in 2014 that give teachers the option of using their evaluation scores to demonstrate professional learning towards the advancement and renewal of their license.⁵²

Table 6

OPPORTUNITIES FOR IMPROVEMENT

While research shows that value-added measures are generally more accurate than other measures of teaching effectiveness, TVAAS still contains error both in terms of its stability from one year to the next as well as in its ability to account for the many variables that impact a student's performance on a test.⁵³ Studies looking at the stability of value-added measures from one year to the next have found that one-half to two-thirds of teachers in the top quintile or quartile of performance will fall below that category in subsequent years. These studies have also found a similar percentage of teachers in the bottom quintile or quartile of performance move into higher categories in subsequent years.⁵⁴ Research on value-added measures has found that instability

in the measure is due in part to actual differences in teaching practice over time and in part to error in the measure.⁵⁵ While this instability generally decreases with multiple years of data, low teacher retention rates and the tendency for teachers to teach different grade levels and subjects over the course of several years sometimes limit the availability of multiple years of data for many teachers.⁵⁶ Similar concerns around stability arise with other measures of teaching effectiveness, including observations and student survey data, further emphasizing the importance of using multiple measures in teacher evaluations.⁵⁷

The complex TVAAS statistical formula is meant to yield improved accuracy and precision in the measure. Even so, it is important to ensure that this complexity not limit transparent communications to teachers, principals, and district leaders about how TVAAS is

calculated. Since the TVAAS measure is an important component of Tennessee teacher evaluations and informs important decisions about teachers, it is crucial for teachers and principals to have the tools necessary to understand the measure and how it can inform instructional improvement in their classrooms.

Importantly, these concerns present the opportunity for the improved accuracy and application of TVAAS to foster improved outcomes for all Tennessee students. This section outlines the opportunities these concerns present for continued improvement in the accuracy and use of TVAAS data.

A multiple measures approach: As noted earlier, teacher evaluations employ a multiple measures approach to improve the accuracy and usefulness of the teacher evaluation as a whole. The use of formal and informal observations, student perception surveys, and personal conferences complement TVAAS, providing teachers with further insight into their instructional strengths and opportunities for growth.^{58 59} As the Tennessee Department of Education continues to develop and adapt its teacher evaluation system, it should take advantage of the opportunity to evaluate the accuracy of the multiple measures employed in different districts' teacher evaluations and to explore innovative measures used in other states.

NEW YORK CITY ADVANCE

New York City's teacher evaluation system, Advance, incorporates multiple measures into their evaluation of teacher practice. One unique component of their model is their use of teacher portfolios. Teacher portfolios include eight artifacts from a teacher's planning and instructional process. These artifacts could include lesson plans, unit plans, or curricula the teacher developed collaboratively or independently. Teacher portfolios, such as those used in New York City, provide unique insight into aspects of the teaching practice that other measures often miss.⁶⁰

TVAAS and high-performing schools or students: As noted earlier, TVAAS compares students' growth to other students' growth with similar prior test scores. This aspect of the model attempts to control for initially higher student achievement levels. Additionally, in order for the TVAAS model to be accurate for students of diverse ability levels, it requires the use of assessments that are appropriate for students performing at both very high and very low achievement levels.⁶¹ If an assessment does not contain items that are sufficiently difficult for students of high ability levels, it will be challenging for these students to illustrate growth on that assessment. Current improvement efforts in the quality of statewide assessments should focus on selecting an assessment that is appropriate for students at different levels of achievement, improving the accuracy of the TVAAS measure for diverse students.

Aligned assessments and TVAAS: As noted earlier, state assessments around the country were found to lack alignment to state standards both in terms of content and rigor.⁶² This has important implications for the accuracy and utility of the TVAAS measure. Tennessee's shift to a new statewide assessment presents an opportunity to select a test that will more accurately reflect Tennessee's State Standards. As the state works to select an assessment for Tennessee's State Standards in math and English language arts, it is important for these assessments to be evaluated for alignment to the standards both in terms of content and rigor. As stated earlier, it is also important for the selected test to be appropriate for students with diverse ability levels.

Growth measures for teachers of traditionally non-tested grades and subjects: Diverse stakeholders often voice concerns related to the use of TVAAS to measure teaching effectiveness in grades or subject areas that are traditionally not subject to end-of-year assessments. This is a valid concern that deserves continued attention, but it is also an area where Tennessee has made considerable progress. Since the implementation of the new teacher evaluation system, the Tennessee Department of Education has used portfolio-based assessments to develop innovative growth measures for teachers of creative arts, physical education, and world language classes.⁶³ While innovations such as portfolio-based assessments provide additional teachers with growth measures, these innovations should be continually monitored and evaluated for accuracy and reliability. Tennessee should also learn from the innovative assessment models other states have implemented for these grades and subjects, evaluating their utility and relevance in the Tennessee context.

Links to professional development and teacher support practices: The information the teacher evaluation system provides school leaders, districts, and state policymakers offers the opportunity to improve professional development and teacher support systems currently in place in Tennessee. Data from TVAAS could be linked to professional development practices, identifying teachers in the greatest need of support.⁶⁴ At the school level, school leaders have the opportunity to use TVAAS data to help to identify their most effective teachers to serve as instructional leaders. These teachers could provide targeted support to novice and struggling teachers in their efforts toward instructional improvement. Further, this data can inform professional learning communities at the school level, providing a forum for data-driven conversations across subjects and grade levels that are centered on the needs of students.

While the above concerns and opportunities necessitate continued research and improvement efforts around the TVAAS measure, its use as one of multiple measures of teaching effectiveness in Tennessee's teacher evaluation system should continue, unless research indicates that changes

to the measure and its uses will yield better outcomes for teachers and students. The state's current teacher evaluation system provides more in-depth and comprehensive information to teachers, principals, districts, and policymakers than was previously available, ensuring that decisions ranging from professional development supports to teacher placement can be made with a more robust set of data.

CONCLUSION

TVAAS measures in combination with improved observations, innovative student perception surveys, and other measures of teaching effectiveness provide teachers, school leaders, district leaders, and state policymakers with valuable information about the state of teaching in Tennessee. While none of these measures are perfect on their own, they provide individuals at diverse levels of the education system with information that improves their ability to support effective teaching and improve outcomes for students. As outlined in this report, TVAAS offers schools and school districts the opportunity to better understand teachers' impact on student outcomes. This understanding can help school leaders and policymakers make data-driven decisions that increase Tennessee student access to high-quality instruction and, in turn, improve student achievement levels statewide.

1 Rivkin, Steven G., Hanushek, Eric A., and Kain, John F. (2005). Teachers, Schools, and Academic Achievement. Retrieved April 8, 2014 from <http://www.econ.ucsb.edu/~j-kain/Econ230C/HanushekRivkin.pdf>.

2 Rivkin, Steven G., Hanushek, Eric A., and Kain, John F. (2005). Teachers, Schools, and Academic Achievement. Retrieved April 8, 2014 from <http://www.econ.ucsb.edu/~j-kain/Econ230C/HanushekRivkin.pdf>.

3 Hanushek, Eric A., and Rivkin, Steven G. (2004). How to Improve the Supply of High-Quality Teachers. Retrieved April 4, 2014 from <http://hanushek.stanford.edu/sites/default/files/publications/hanushek%20Rivkin%202004%20BroPapEd.pdf>.

4 Education Trust. (2004). *The Real Value of Teachers: If good teachers matter, why don't we act like it?*. Retrieved April 3, 2014 from <http://www.cgp.upenn.edu/pdf/Ed%20Trust.pdf>.

5 The New Teacher Project. (2009). *The Widget Effect: Our National Failure to Acknowledge and Act on Differences in Teacher Effectiveness*. Retrieved April 14, 2014 from <http://widgeteffect.org/downloads/TheWidgetEffect.pdf>.

6 Hanushek, Eric A., and Rivkin, Steven G. (2010). Generalizations About Using Value-Added Measures of Teacher Quality. Retrieved March 31, 2014 from <http://hanushek.stanford.edu/sites/default/files/publications/Hanushek%20Rivkin%202010%20AER%201002.pdf>.

7 Sanders, William L., and Hom, Sandra P. (1994). The Tennessee Value-Added Assessment System (TVAAS): Mixed-Model Methodology in Educational Assessment. Retrieved April 3, 2014 from <http://addingvalue.wceruw.org/Related%20Bibliography/Articles/Sanders%20%26%20Hom.pdf>.

8 The Bill & Melinda Gates Foundation. (2012). *Ensuring Fair and Reliable Measures of Effective Teaching*. Retrieved April 8, 2014 from http://www.metproject.org/downloads/MET_Ensuring_Fair_and_Reliable_Measures_Practitioner_Brief.pdf.

9 Sanders, William L. (1994). *The Tennessee Value-Added Assessment System (TVAAS): Mixed Methodology in Educational Assessment*. Retrieved April 28, 2014 from <http://addingvalue.wceruw.org/Related%20Bibliography/Articles/Sanders%20%26%20Hom.pdf>.

10 Sanders, William L. (1994). *The Tennessee Value-Added Assessment System (TVAAS): Mixed Methodology in Educational Assessment*. Retrieved April 28, 2014 from <http://addingvalue.wceruw.org/Related%20Bibliography/Articles/Sanders%20%26%20Hom.pdf>.

11 Sanders, William L. (1994). *The Tennessee Value-Added Assessment System (TVAAS): Mixed Methodology in Educational Assessment*. Retrieved April 28, 2014 from <http://addingvalue.wceruw.org/Related%20Bibliography/Articles/Sanders%20%26%20Hom.pdf>.

12 Knox County Board of Education. (2014). Use of TVAAS in Teacher Evaluation. Retrieved April 3, 2014 from http://agenda.knoxschools.org/docs/2014/MID/20140121_269/2196_BOE%20Value%20Added%201%2021%2014%20Final%20b.pdf.

13 Sanders, William L., and Hom, Sandra P. (1994). The Tennessee Value-Added Assessment System (TVAAS): Mixed-Model Methodology in Educational Assessment. Retrieved April 3, 2014 from <http://addingvalue.wceruw.org/Related%20Bibliography/Articles/Sanders%20%26%20Hom.pdf>.

14 Knox County Board of Education. (2014). Use of TVAAS in Teacher Evaluation. Retrieved April 3, 2014 from http://agenda.knoxschools.org/docs/2014/MID/20140121_269/2196_BOE%20Value%20Added%201%2021%2014%20Final%20b.pdf.

15 Tennessee First to the Top. (2011). *The power of Using Value-Added Analysis to Improve Student Learning: A Guide for Educators*. Retrieved April 4, 2014 from http://team-tn.org/assets/educator-resources/Power_of_Using_VA.pdf.

16 State of Tennessee. (2010). *First to the Top Act*. Retrieved April 28, 2014 from <http://www.tn.gov/firsttothetop/docs/First%20to%20the%20Top%20Act%20of%202010.pdf>.

17 Tennessee State Board of Education. (2013). *Teacher and Principal Evaluation Policy*. Retrieved August 26, 2014 from http://www.tn.gov/sbe/Policies/5.201_Teacher_and_Principal_Evaluation_Policy_11-5-13.pdf.

18 SAS EVAAS. *Misconceptions about Value-Added Reporting in Tennessee*. Retrieved April 3, 2014 from http://www.tn.gov/education/doc/TN%20Misconceptions_About_TVAAAS.pdf.

19 Education Trust. (2004). *The Real Value of Teachers: If good teachers matter, why don't we act like it?*. Retrieved April 3, 2014 from <http://www.cgp.upenn.edu/pdf/Ed%20Trust.pdf>.

20 Education Trust. (2004). *The Real Value of Teachers: If good teachers matter, why don't we act like it?*. Retrieved April 3, 2014 from <http://www.cgp.upenn.edu/pdf/Ed%20Trust.pdf>.

21 Unfried, Beth. (April 23, 2014). Telephone Interview.

22 Unfried, Beth. (April 23, 2014). Telephone Interview.

23 Education Trust. (2004). *The Real Value of Teachers: If good teachers matter, why don't we act like it?*. Retrieved April 3, 2014 from <http://www.cgp.upenn.edu/pdf/Ed%20Trust.pdf>.

24 Thompson, Christie. (April 21, 2014). Telephone Interview.

25 Winstead, Mike. (May 7, 2014). Telephone Interview.

26 Winstead, Mike. (May 7, 2014). Telephone Interview.

27 Education Trust. (2004). *The Real Value of Teachers: If good teachers matter, why don't we act like it?*. Retrieved April 3, 2014 from <http://www.cgp.upenn.edu/pdf/Ed%20Trust.pdf>.

28 Tennessee Department of Education. (2013). *2013 Report Card*. Retrieved August 6, 2014 from http://tn.gov/education/data/report_card/2013.shtml.

29 Tennessee Higher Education Commission. (2013). *2013 Report Card on the Effectiveness of Teacher Training Programs*. Retrieved April 28, 2014 from http://www.tn.gov/thec/Divisions/ftt/13report_card/1_Report%20Card%20on%20the%20Effectiveness%20of%20Teacher%20Training%20Programs.pdf.

30 Education Trust. (2004). *The Real Value of Teachers: If good teachers matter, why don't we act like it?*. Retrieved April 3, 2014 from <http://www.cgp.upenn.edu/pdf/Ed%20Trust.pdf>.

31 The Bill & Melinda Gates Foundation. (2012). *Ensuring Fair and Reliable Measures of Effective Teaching*. Retrieved April 8, 2014 from http://www.metproject.org/downloads/MET_Ensuring_Fair_and_Reliable_Measures_Practitioner_Brief.pdf.

32 American Statistical Association. (2014). *ASA Statement on Using Value-Added Models for Educational Assessment*. Retrieved May 28, 2014 from http://www.amstat.org/policy/pdfs/ASA_VAM_Statement.pdf.

33 Darling-Hammond, Linda and Adamson, Frank. (2013). *Developing Assessments of Deeper Learning: The Costs and Benefits of Using Tests that Help Students Learn*. Retrieved April 2, 2014 from https://edpolicy.stanford.edu/sites/default/files/publications/developing-assessments-deeper-learning-costs-and-benefits-using-tests-help-students-learn_1.pdf.

34 Polikoff, Morgan S., Porter, Andrew C., and Smithson, John. (2011). *How Well Aligned Are State Assessments of Student Achievement With State Content Standards?* Retrieved May 28, 2014 from http://www.uscrossier.org/ceg/wp-content/uploads/publications/state_assessments_polikoff.pdf.

35 Polikoff, Morgan S., Porter, Andrew C., and Smithson, John. (2011). *How Well Aligned Are State Assessments of Student Achievement With State Content Standards?* Retrieved May 28, 2014 from http://www.uscrossier.org/ceg/wp-content/uploads/publications/state_assessments_polikoff.pdf.

36 Polikoff, Morgan S., Porter, Andrew C., and Smithson, John. (2011). *How Well Aligned Are State Assessments of Student Achievement With State Content Standards?* Retrieved May 28, 2014 from http://www.uscrossier.org/ceg/wp-content/uploads/publications/state_assessments_polikoff.pdf.

37 State of Tennessee. (2010). *First to the Top Act*. Retrieved April 28, 2014 from <http://www.tn.gov/firsttothetop/docs/First%20to%20the%20Top%20Act%20of%202010.pdf>.

38 The Bill & Melinda Gates Foundation. (2012). *Ensuring Fair and Reliable Measures of Effective Teaching*. Retrieved April 8, 2014 from http://www.metproject.org/downloads/MET_Ensuring_Fair_and_Reliable_Measures_Practitioner_Brief.pdf.

39 Bill & Melinda Gates Foundation. (2012). *Gathering Feedback for Teaching*. Retrieved April 9, 2014 from http://www.metproject.org/downloads/MET_Gathering_Feedback_Research_Paper.pdf.

40 Bill & Melinda Gates Foundation. (2012). *Asking Students About Teaching: Student Perception Surveys and their Implementation*. Accessed on April 9, 2014 from http://www.metproject.org/downloads/Asking_Students_Summary_Doc.pdf.

41 Tennessee Department of Education. (2014). *Teacher Evaluation in Tennessee: A Report on Year 2 Implementation*. Retrieved April 9, 2014 from http://team-tn.org/wp-content/uploads/2013/08/yr_2_tchr_eval_rpt.pdf.

42 Tennessee Department of Education. (2014). *Teacher Evaluation in Tennessee: A Report on Year 2 Implementation*. Retrieved April 9, 2014 from http://team-tn.org/wp-content/uploads/2013/08/yr_2_tchr_eval_rpt.pdf.

43 Tennessee Department of Education. (2014). *Teacher Evaluation in Tennessee: A Report on Year 2 Implementation*. Retrieved April 9, 2014 from http://team-tn.org/wp-content/uploads/2013/08/yr_2_tchr_eval_rpt.pdf.

44 Tennessee Department of Education. (2014). *Teacher Evaluation in Tennessee: A Report on Year 2 Implementation*. Retrieved April 9, 2014 from http://team-tn.org/wp-content/uploads/2013/08/yr_2_tchr_eval_rpt.pdf.

45 Tennessee Department of Education. (2014). *Teacher Evaluation in Tennessee: A Report on Year 2 Implementation*. Retrieved April 9, 2014 from http://team-tn.org/wp-content/uploads/2013/08/yr_2_tchr_eval_rpt.pdf.

46 Tennessee Department of Education. (2014). *Fine Arts Portfolio Model: A new path to measuring growth in traditionally non-tested grades and subjects*. Retrieved April 3, 2014 from <http://team-tn.org/wp-content/uploads/2014/04/Fine-Arts-Presentation.pdf>.

47 Tennessee Department of Education. (2014). *Teacher Evaluation in Tennessee: A Report on Year 2 Implementation*. Retrieved April 9, 2014 from http://team-tn.org/wp-content/uploads/2013/08/yr_2_tchr_eval_rpt.pdf.

48 Tennessee State Board of Education. (2013). *Differentiated Pay Plan Guidelines*. Retrieved April 29, 2014 from http://www.tn.gov/sbe/2013_documents/June2013_Board_Meeting/III_C_Differentiated_Pay_Plan_Cover_Sheet.pdf.

49 Tennessee General Assembly. (2014). *House Bill 1270/Senate Bill 1291*. Retrieved May 12, 2014 from <http://wapp.capitol.tn.gov/apps/billinfo/BillSummaryArchive.aspx?BillNumber=HB1270&ga=108>.

50 Tennessee Department of Education. (2011). *New Tenure Law: Frequently Asked Questions*. Retrieved April 29, 2014 from <http://www.tn.gov/education/doc/NewTenureLawFAQs.27.11.pdf>.

51 Tennessee General Assembly. (2014). *House Bill 1375/Senate Bill 2240*. Retrieved April 29, 2014 from <http://wapp.capitol.tn.gov/apps/BillInfo/default.aspx?BillNumber=HB1375&ga=108>.

52 Tennessee State Board of Education. (2014). *Educator Licensure Policy*. Retrieved August 15, 2014 from http://www.state.tn.us/sbe/2014_documents/July_Board_Meeting/III_Educator_Licensure_Policy_Attachment.pdf.

53 Ballou, D. (2005). *Value-Added Assessment: Lessons from Tennessee*. Retrieved May 28, 2005 from <http://dpi.state.nc.us/docs/superintendents/quarterly/2010-11/20100928/ballou-lessons.pdf>. Koedel, C. and Betts, J. (2007). *Re-Examining the Role of Teacher Quality in the Educational Production Function*. Retrieved May 29, 2014 from http://economics.missouri.edu/working-papers/2007/wp0708_koedel.pdf. Goldhaber, D., and Hansen, M. (2008). *Is It Just a Bad Class? Assessing the Stability of Measured Teacher Performance*. Retrieved May 28, 2014 from [http://cedr.us/papers/working/CEDR%20WP%202010-3_Bad%20Class%20Stability%20\(8-23-10\).pdf](http://cedr.us/papers/working/CEDR%20WP%202010-3_Bad%20Class%20Stability%20(8-23-10).pdf). McCaffrey, D., Lockwood, J.R., Koretz, D.M., and Hamilton, L.S. (2003). *Evaluating Value-Added Models for Teacher Accountability*. Retrieved May 28, 2014 from http://www.rand.org/content/dam/rand/pubs/monographs/2004/RAND_MG158.pdf.

54 Ballou, D. (2005). *Value-Added Assessment: Lessons from Tennessee*. Retrieved May 28, 2005 from <http://dpi.state.nc.us/docs/superintendents/quarterly/2010-11/20100928/ballou-lessons.pdf>. Koedel, C. and Betts, J. (2007). *Re-Examining the Role of Teacher Quality in the Educational Production Function*. Retrieved May 29, 2014 from http://economics.missouri.edu/working-papers/2007/wp0708_koedel.pdf. Goldhaber, D., and Hansen, M. (2008). *Is It Just a Bad Class? Assessing the Stability of Measured Teacher Performance*. Retrieved May 28, 2014 from [http://cedr.us/papers/working/CEDR%20WP%202010-3_Bad%20Class%20Stability%20\(8-23-10\).pdf](http://cedr.us/papers/working/CEDR%20WP%202010-3_Bad%20Class%20Stability%20(8-23-10).pdf). McCaffrey, D., Lockwood, J.R., Koretz, D., and Hamilton, L. (2003). *Evaluating Value-Added Models for Teacher Accountability*. Retrieved May 28, 2014 from http://www.rand.org/content/dam/rand/pubs/monographs/2004/RAND_MG158.pdf.

55 Schochet, Peter Z., and Chiang, Hanley S. (2010). *Error Rates in Measuring Teacher and School Performance Based on Student Test Score Gains*. Retrieved April 3, 2014 from <http://ies.ed.gov/ncee/pubs/20104004/pdf/20104004.pdf>.

56 Schochet, Peter Z., and Chiang, Hanley S. (2010). *Error Rates in Measuring Teacher and School Performance Based on Student Test Score Gains*. Retrieved April 3, 2014 from <http://ies.ed.gov/ncee/pubs/20104004/pdf/20104004.pdf>. Ballou, D. (2005). *Value-Added Assessment: Lessons from Tennessee*. Retrieved May 28, 2005 from <http://dpi.state.nc.us/docs/superintendents/quarterly/2010-11/20100928/ballou-lessons.pdf>. Goldhaber, D., and Hansen, M. (2008). *Is It Just a Bad Class? Assessing the Stability of Measured Teacher Performance*. Retrieved May 28, 2014 from [http://cedr.us/papers/working/CEDR%20WP%202010-3_Bad%20Class%20Stability%20\(8-23-10\).pdf](http://cedr.us/papers/working/CEDR%20WP%202010-3_Bad%20Class%20Stability%20(8-23-10).pdf).

57 Whitehurst, Grover J., Chingos, Matthew M., and Lindquist, Katharine M. (2014). *Evaluating Teachers with Classroom Observations: Lessons Learned in Four Districts*. Retrieved August 1, 2014 from <http://www.brookings.edu/~media/research/files/reports/2014/05/13%20teacher%20evaluation/evaluating%20teachers%20with%20classroom%20observations>.

58 Tennessee Department of Education. (2014). *Tennessee Educator Acceleration Model*. Retrieved April 8, 2014 from <http://team-tn.org/evaluation/overview/>.

59 The Bill & Melinda Gates Foundation. (2012). *Ensuring Fair and Reliable Measures of Effective Teaching*. Retrieved April 8, 2014 from http://www.metproject.org/downloads/MET_Ensuring_Fair_and_Reliable_Measures_Practitioner_Brief.pdf.

60 New York City Department of Education. (2014). *Advance*. Retrieved April 8, 2014 from <http://schools.nyc.gov/Offices/advance/About+Advance/Overview/default.htm>.

61 SAS EVAAS. *Misconceptions about Value-Added Reporting in Tennessee*. Retrieved April 3, 2014 from http://www.tn.gov/education/doc/TN%20Misconceptions_About_TVAAAS.pdf.

62 Darling-Hammond, Linda, and Adamson, Frank. (2013). *Developing Assessments of Deeper Learning: The Costs and Benefits of Using Tests that Help Students Learn*. Retrieved April 2, 2014 from https://edpolicy.stanford.edu/sites/default/files/publications/developing-assessments-deeper-learning-costs-and-benefits-using-tests-help-students-learn_1.pdf.

63 Tennessee Department of Education. (2014). *Fine Arts Portfolio Model: A new path to measuring growth in traditionally non-tested grades and subjects*. Retrieved April 3, 2014 from <http://team-tn.org/wp-content/uploads/2014/04/Fine-Arts-Presentation.pdf>.

64 Education Trust. (2004). *The Real Value of Teachers: If good teachers matter, why don't we act like it?*. Retrieved April 3, 2014 from <http://www.cgp.upenn.edu/pdf/Ed%20Trust.pdf>.

