

TVAAS FAQs

How are index scores converted into levels?

The index scores are calculated by dividing the effect score or NCE gain by the standard error. The index score is then converted into a level based on this table.

Index	<-2	-2 to -1	-1 to 1	1 to 2	>2
Level	1	2	3	4	5

What subjects are included in a teacher-effect composite?

Subjects taught in the current year, and those subjects taught in the current year that also have been taught in the previous two years regardless of the grade level.

Year	Subjects Taught		
2009-10	7 th grade math	8 th grade math	8 th grade science
2010-11	7 th grade math	8 th grade math	6 th grade math
2011-12	7 th grade math	8 th grade math	US History

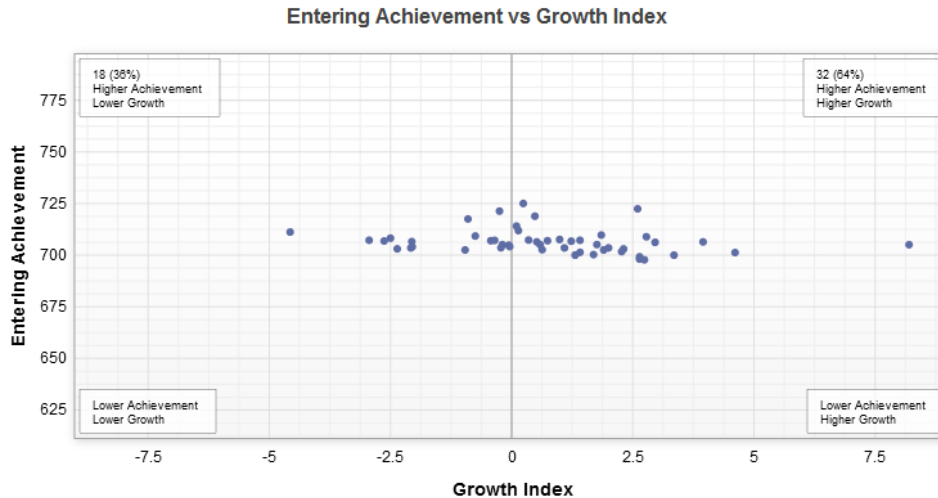
In 2009-10, Mrs. Hamilton would have received a TVAAS score for 7th grade math, 8th grade math, and 8th grade science individually. This year Mrs. Hamilton's composite score will be calculated including the past 3 years of data in both 7th grade and 8th grade math, highlighted in yellow, because she is teaching these subjects this year. Her 6th grade math score, highlighted in blue, from 2010-11 would also be included because it is the same **subject** as one she is currently teaching. US History, highlighted in green, will be included in the composite calculation because she teaches it in the current year.

What teachers have individual teacher-effect scores?

Those teachers teaching a tested subject in the current year may have an individual teacher-effect score. Additionally, there are minimum student requirements. For TCAP, a teacher must have at least 6 full time equivalent students to have an individual teacher-effect score. For End of Course assessments, a teacher must have at least 6 full time equivalent students and at least 10 overall students with sufficient data, at least 3 prior test scores, to be included in the analysis.

Can teachers in districts with high student achievement levels have high growth as measured by TVAAS?

Report: Scatterplot Report Test/Subject: EOC/AYP English II
 Year: 2011

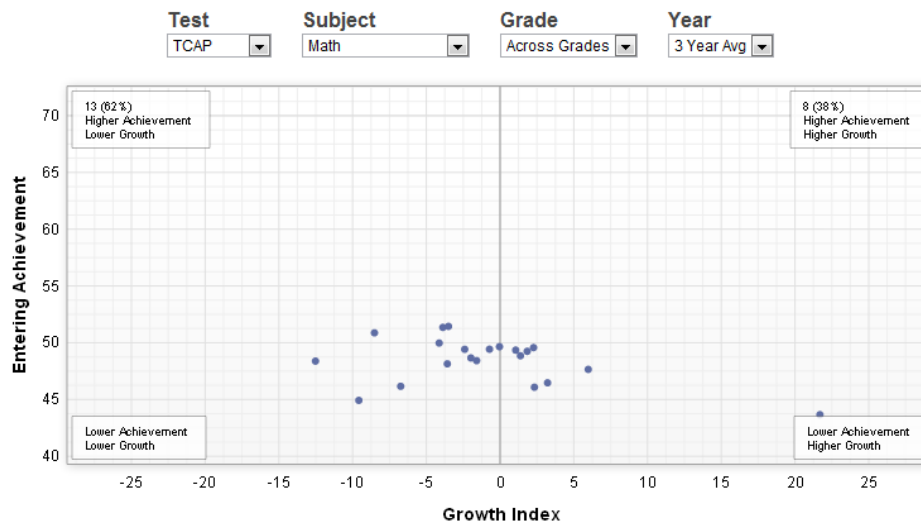


In this scatter plot, each dot represents a district. On the y-axis on the left, students' entering achievement is shown. On the bottom, the x-axis represents the growth index. Expected growth is represented by the vertical line at 0.0. Those dots to the right of this line represent districts where students made higher than expected growth. In districts with more than 60% of students tested rated as proficient or advanced on the English II end of course assessment, there is a range of growth results. This data shows that there are districts in Tennessee that are making high levels of growth while serving large populations of high achieving students.

Can teachers in districts with low student achievement levels have high growth as measured by TVAAS?

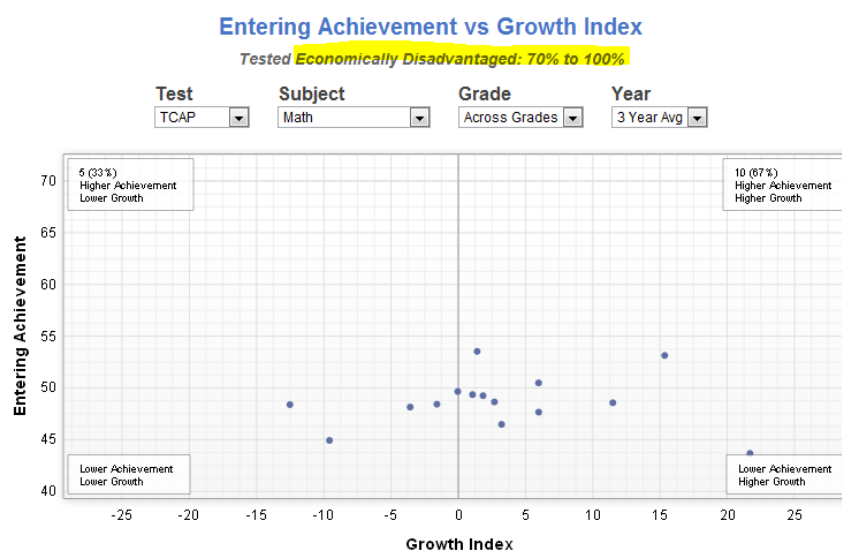
Entering Achievement vs Growth Index

Tested Proficient or Advanced: 0% to 30%



In this scatter plot, each dot represents a district. On the y-axis on the left, students' entering achievement is shown. On the bottom, the x-axis represents the growth index. Expected growth is represented by the vertical line at 0.0. Those dots to the right of this line represent districts where students made higher than expected growth and those to the left, lower than expected. This chart shows the achievement and growth of districts in Tennessee with 0-30% of students scoring proficient or advanced across grades in TCAP math using the 3 year average. As you can see from the chart, although entering achievement may be low, growth ranges from about -13 to about positive 22 with multiple districts between. This data shows that there are districts in Tennessee that are making high levels of growth while serving students with low levels of entering achievement.

Can teachers who work with large numbers of students who are economically disadvantaged show growth?



In this scatter plot, each dot represents a district. On the y-axis on the left, students' entering achievement is shown. On the bottom, the x-axis represents the growth index. Expected growth is represented by the vertical line at 0.0. Those dots to the right of this line represent districts where students made higher than expected growth and those to the left lower than expected. This chart shows the achievement and growth of districts in Tennessee with more than 70% of students classified as economically disadvantaged in TCAP math using the 3 year average. As you can see from the chart, although entering achievement may be low, growth ranges from about -13 to slightly above positive 22 with multiple districts between. This data shows that there are districts in Tennessee that are making high levels of growth while serving high percentages of economically disadvantaged students.

How are a teacher's scores combined if he or she teaches classes with a TCAP assessment and another with an End of Course assessment?

A middle school math teacher would be an example of this if he or she teaches both 8th grade math and Algebra I. Composites are calculated separately for the TCAP and EOC tests and then weighted and

combined. Let's look at an example: If Mr. Davidson teaches sections of 8th grade math and sections of Algebra I. 8th grade math for all 3 years, highlighted in yellow, would be included in the composite with Algebra I in 2009-10 and 2011-12, highlighted in blue,. Because he is not teaching 8th grade science in the current school year, 2011-12, that score is not included in the composite calculation. For Mr. Davidson's composite, the TCAP index would be calculated by combining all the information from 8th grade math, highlighted in yellow, and then multiplied by 3/5 since the TCAP index represents 3 of the 5 teacher-effect scores included in the final composite. This is then added to the EOC index, highlighted in blue, multiplied by 2/5. This new average index for the combined TCAP and EOC is then divided by a new standard error to find the index and converted to a level.

2011-2012	8 th grade math	Algebra I
2010-2011	8 th grade math	8 th grade Science
2009-2010	8 th grade math	Algebra I

If a teacher teaches multiple subjects, are the teacher-effect scores weighted in the composite?

In a single year, the teacher-effect scores are not weighted for different subjects, but this is accounted for within the standard error calculation. The size of the standard error is affected by the quantity and quality of the data available for the effect calculation. For example, if Ms. Jones teaches 4 sections of English I with 30 students each and 1 section of US History with 25 students, the standard error is likely to be lower for English I because the teacher-effect is based on more students. The NCE gain (for TCAP) or Effect score (for EOC) is divided by the standard error to find the index score, which is then converted into a performance level. In this way the varying number of students taught and other factors are taken into account.

When is a student's score excluded from teacher-effect calculations?

There are multiple reasons a student's score may be excluded from a teacher-effect calculation. By state law, any student who is eligible for special education instruction is not included in individual teacher-effect scores, but these students' scores are included in school and district scores. Additionally, a student must meet minimum instructional availability requirements for scores to be included. For yearlong courses the minimum is 150 days and 75 for semester courses.

As an additional protection for teachers, when a student's score is dramatically out of line with the rest of the student's testing history, that score is flagged as an outlier and removed from the data prior to analysis. The formulas for identifying outliers are more likely to flag and remove a score that is too low than one that is too high compared to the rest of the student's test scores. In this way, teachers are protected from data irregularities that may significantly affect the calculation of the teacher value-added measures.

How is the 3 year average standard error calculated?

The calculation for the average standard error is slightly more complicated than a simple mean. To find the average standard error, each standard error must be squared, then take the square root of the sum and divide by the number of standard errors included in the average. It's not quite as complicated as it sounds.

This example uses the teacher effect report shown in the video series. Here are the reported standard errors. The first step is to square each of the standard errors.

Year	Standard Error	Squared
2011	2.9	8.41
2010	3.0	9.0
2009	2.9	8.41

Once each of the standard error values is squared, the square root of the sum is taken.

$$8.41 + 9.0 + 8.41 = 25.82$$

$$\sqrt{25.82} = 5.081$$

Then, the square root is divided by the number of standard errors included in the average. Which, in this case, is 3.

$$5.081 \div 3 = 1.69$$

So, the average standard error is 1.69. This formula works for a single grade and subject average standard error. However, if multiple subjects or years are combined an additional value, called covariance, is factored into the average standard error calculation. If an elementary school teacher is self-contained, a single student may be represented in their teacher-effect data up to 4 times for the four subjects, math, reading/language arts, science, and social studies. How well a student does on a reading test is often related to how they do on tests in science or social studies, for example. In order to control for this statistically, covariance is calculated and included in the average standard error calculation. If the students in the class are the same or their scores are related, the covariance would be a positive number from 0 to 1. No relationship would result in a 0 for the covariance and the above formula for calculating the average standard error would apply.

How does the RANDA claiming process work?

In the spring, shortly after the conclusion of state testing, teachers will claim students taught during the school year, and their claiming rosters, once approved at the school and district levels, will be provided to SAS to calculate teacher-effect scores. As you know, teacher-effect scores are used for a number of diagnostic and evaluative purposes including teacher evaluations, the teacher preparation program report card, and in the near future, evaluations of professional development programs. The process of teacher claiming is key to ensuring that we have accurate data by which to help determine the effectiveness of educator preparation, development and practice.

For each student, a teacher is required to claim two categories of information – *instructional time and instructional availability*. SAS will aggregate the claiming information and exclude any outliers based on testing history.

Instructional Time

Instructional time is defined as the percentage of time a teacher spent as the primary classroom instructor for each student. For example, if a teacher is solely responsible for a student's classroom instruction for the duration of the instructional period, the teacher claims 100% instructional time. If the teacher splits that responsibility *equally* with another teacher, each would claim 50%. If a teacher is absent from teaching for a period of time, the appropriate percentage of instructional time must be determined *per local policy*.

Instructional Availability

Instructional availability is determined by the number of days a student is available for instruction, *as defined by local policy*, during the *entire* instructional period. Instructional availability is reported on TCAP Achievement (3-8) and End of Course answer documents as follows:

Traditional Schedule (approximately 180 days):

Full – F (150 days or more)

Partial – P (75-149 days)

Excluded – (74 days or fewer)

Modified Schedule (approximately 90 days):

Full – F (75 days or more)

Partial – P (38-74 days)

Excluded – (37 days or fewer)

According to TCA 49-1-606 (a), only students claimed as F count towards a teacher's teacher-effect calculation. In isolated situations, teachers will be required to calculate students' anticipated availability from the date of claiming through the end of the instructional period based upon student availability prior to claiming. An example is below:

A teacher claims her students in the RANDA (EdTools) application with 10 days remaining on her district's instructional calendar. On the day she claims, one of her students has been available for instruction 145 days. The teacher must determine whether the student will reach the 150 day threshold. Districts should issue guidance to teachers and principals on how to address these types of situations.

Full time equivalent students are established based on the percentage of instructional time a teacher claims for that student. For TCAP Achievement (3-8), if a teacher has a minimum of *six full time equivalent* students claimed for a particular subject and grade, he/she will receive a teacher effect score. For End of Course, if a teacher has a minimum of *six full time equivalent* students claimed for a particular subject, *and a*

minimum of *ten overall* students with *at least three prior test scores* claimed for that subject, he/she will receive a teacher-effect score. Two examples are below:

A 4th grade Mathematics teacher claims 25 students. Five students are claimed as P instructional availability – those students will not be included in the teacher’s teacher-effect calculation. The other 20 students are claimed at F instructional availability and 30% instructional time - the teacher will have *six* ($20 \times .30$) *full time equivalent* students. Thus, because TCAP Achievement (3-8) teachers must have *six full time equivalent students*, the teacher will receive a teacher effect score.

A Biology I teacher claims nine students. All nine students are claimed as F instructional availability and 100% instructional time and have *at least three prior test scores*. Thus because End of Course teachers must have *six full time equivalent students* and *10 overall students with at least three prior test scores*, the teacher will not receive a teacher effect score.

Note: Students who are eligible for special education services under federal law will be excluded from teacher effect calculations per TCA 49-1-606 (a), but not from school and district level value-added calculations. A special education student is a student who is eligible for *any* number of hours of special education instruction during each school week.