



FREQUENTLY ASKED QUESTIONS— COMPARATIVE GROWTH

1. **What is Comparative Growth?**

Comparative Growth measures the progress of a teacher's students on a given assessment compared to all other students within the same school district who start at the same test-score level. Comparative Growth relies on the use of standardized assessments in certain grades and subjects, and is computed using two consecutive years of students' scores, where applicable.

A Comparative Growth model has been used since 2011-2012 for select grades and subjects where a Norm-Referenced Test (NRT) and/or TELPAS assessments are administered. From 2011-2012 through 2013-2014, the NRTs used were Stanford and Aprenda. For the 2014-2015 school year, the Iowa and Logoramos were the NRTs used for Comparative Growth analyses. Comparative Growth is applied district-wide and produced by HISD's Department of Research and Accountability.

2. **What is an NRT (Norm-Referenced Test)?**

Norm-referenced tests report whether test takers performed better or worse than a hypothetical average student, which is determined by comparing scores against the performance results of statistically selected group of test takers, typically of the same age or grade level, who have already taken the exam. This type of test identifies whether the test taker performed better or worse than other test takers, not whether the test taker knows either more or less material than is necessary for a given purpose.

The NRT that has been used within Houston ISD has been the Stanford (English version) or Aprenda (Spanish version). For the 2014-2015 school year, Houston ISD administered the Iowa (English version) or Logoramos (Spanish version), and has discontinued the Stanford or Aprenda. All of these tests are norm-referenced tests.

3. **How will changing the NRT exam affect Comparative Growth analysis?**

Changing the NRT exam will not affect Comparative Growth analyses. Since students are placed into cohorts from the prior year (in this case, 2013-2014 when the Stanford/Aprenda was administered), all students can be placed into appropriate cohorts based on their Stanford or Aprenda scores. Students who were in the same cohort for the prior year are then rank-ordered by their current year's scores (in this case, 2014-2015, when the Iowa/Logoramos was administered). No changes are necessary to the NRT Comparative Growth analysis because of a new exam type.

4. What are the benefits of the Comparative Growth model? Why is it used?

There are many benefits to the Comparative Growth model, including fairness, accuracy, clarity of impact, and accessibility. Additionally, the model is research based. Specifically, the Comparative Growth model provides:

Fairness: Measures growth, not attainment, which takes into consideration where students start and how far teachers help them grow.

Accuracy: Relies on two years of data from common, district-wide assessments. Still, it is less statistically rigorous than value-added analysis (e.g., EVAAS®).

Clarity of Impact: Identifies teachers' impact on student learning relative to other teachers with students who performed similarly the previous year.

Accessibility: Is straightforward and does not require appraiser time or training to calculate.

Research-Based: Is based on the work of Gadi Barlevy and Derek Neal, who influenced the Colorado Growth Model.

5. Which teachers will receive Comparative Growth as a measure?

Comparative Growth will be calculated using the NRT in certain subjects in grades 2-8, and on TELPAS scale scores in grades 3-8. For the NRT model, it will specifically apply to teachers where the following assessments are administered:

- Reading—Grades 2, 3, 4, 5, 6, 7, 8
- Math—Grades 2, 3, 4, 5, 6, 7, 8
- Language—Grade 2
- Science—Grades 5 & 8
- Social Studies—Grade 8

Any teacher in an applicable grade and subject will have Comparative Growth as a measure. It is important to note that teachers will receive separate Comparative Growth scores for each subject where Comparative Growth applies. For example, an elementary teacher who teaches grade 2 reading, language, and math will receive separate Comparative Growth scores for each of those subjects.

6. How is NRT Comparative Growth calculated?

Calculating Comparative Growth involves a number of steps and processes, which are described below.

A. For each subject and grade level of the assessment, students are grouped by language of the tests they took. This grouping process yields three groups of students—those who took:

- English version NRT in the previous year and English version NRT in the current year,
- Spanish version NRT in the previous year and Spanish version NRT in the current year, and
- Spanish version NRT in the previous year and English version NRT in the current year.

B. After being placed in groups based on test language over two years, students are placed in cohorts based on their prior year's testing performance. For example, all students who took the English version of the NRT in both years and received a Normal Curve Equivalent (NCE) score of 52 on the previous year's test will be placed in the same cohort. Prior-year NCE is considered the student's starting point, and students are only compared to other students in the district with the same starting point.

C. Within cohorts, students are percentile-ranked using the current year's test scores. This Percentile Rank becomes the student's District Percentile Ranking or growth score.

D. Finally, teacher Comparative Growth is calculated by taking the Median Growth Score of all students in the class. A teacher's Median Growth Scores are translated into a performance level using the scale below. These levels have been established based on actual NRT results in prior years. Cut scores are different for elementary and secondary.

Elementary Performance Levels		Secondary Performance Levels	
Comparative Growth <u>Elementary</u> Teacher Median	Comparative Growth Performance Level	Comparative Growth <u>Secondary</u> Teacher Median	Comparative Growth Performance Level
< 28	1	< 33	1
28-47	2	33-49	2
48-68	3	50-64	3
> 68	4	> 64	4

7. How will the TELPAS assessment be used to calculate Comparative Growth?

Comparative Growth will be used as a measure based on the TELPAS reading assessment for English Language Learners (ELLs) in grades 3-8. The process for calculating the TELPAS Comparative Growth score is similar to the calculations for NRT Comparative Growth. However, rather than using NCEs (Normal Curve Equivalents) or the state English language proficiency levels (Beginning, Intermediate, Advanced, Advanced High), scale scores are used because they allow teachers to show growth with students within proficiency levels.

District-wide comparison groups are formed based on a prior year scale score. All students with the same or similar scale scores (depending on the number of students) on the previous year's TELPAS reading assessment form one subgroup and are percentile-ranked based on the current year's results. Comparative Growth on TELPAS reading can only be calculated using two consecutive years of TELPAS scores **within the district**. If a student is missing one or both years' scores, the student would not be included in the teacher's Comparative Growth calculation for that year. Students new to the district in the current school year will not be included in the Comparative Growth calculation for TELPAS.

The Teacher Median-Percentiles to Performance-Level conversions for TELPAS are as follows:

Comparative Growth Teacher Median on <u>TELPAS (Grades 3-8)</u>	Comparative Growth Performance Level
< 28	1
28-46	2
47-66	3
>66	4

8. Why might a comparison group for TELPAS include students with slightly different scale scores on the previous year's assessment?

Comparison groups for TELPAS are formed using scale scores instead of NCEs. If there are enough students (minimum of 25) with the same scale score within a grade level, then only that one scale score will be used to form the group. However, fewer students take the TELPAS than the NRT, so forming a group based on one scale score is much more difficult. In addition, the range of the scale for TELPAS scores is much larger than the 100 point NCE scale used for Stanford/Aprena. This also means that "similar" scale scores are much closer together, in terms of performance. In instances where there are not at least 25 students with the same scale score to form a group, students with the next highest or lowest scores will be added to the group until it reaches the minimum cohort size of 25. In this way, all students with consecutive years of TELPAS scores with the same or very similar starting scores and within the same grade level can be included in the measure.

9. How can I get additional information about how Comparative Growth is calculated and reported?

The ASPIRE portal contains several documents that are designed to help to understand Comparative Growth better. Documents that explain Comparative Growth are available via the password-protected section of the ASPIRE portal, [here](#).

Comparative Growth Resources:

- **Comparative Growth Teacher Report Guide: Norm-Referenced Tests (NRT)** – explains how these reports are organized and explains terminology
- **Comparative Growth Teacher Report Guide: TELPAS** – explains how these reports are organized and explains terminology
- **Comparative Growth Model Overview: Norm-Referenced Tests (NRT)** – includes the detailed steps involved in the calculation for NRT Comparative Growth.
- **Comparative Growth Model Overview: TELPAS** – includes the detailed steps involved in the calculation for TELPAS Comparative Growth.
- **Comparative Growth Frequently Asked Questions (FAQ's): Norm-Referenced Test (NRT) and TELPAS** – covers both Comparative Growth models, and includes questions regarding the new Iowa and Logoramos NRT tests.
- **Comparative Growth Model Analysis** – answers five research questions and explains results of an analysis conducted to evaluate the Comparative Growth model.

10. What reports are available for Comparative Growth, and what information do they contain?

NRT Comparative Growth Teacher Reports and TELPAS Comparative Growth Teacher Reports have been produced. Comparative Growth Campus-Level Reports for both the NRT and TELPAS have also been produced.

Teacher Report: This report lists each student on a teacher's roster for that subject, with student ID, name, previous year's score on the assessment, current year's score, and District Percentile Rank for that student within his/her comparison group. It also lists students whose test results were not used in the Comparative Growth calculation. This report will be made available to each teacher and the principal at that teacher's campus.

Campus Report: This report lists each teacher within the campus with the teacher's Comparative Growth Median Percentiles, by subject and grade. This will be made available to the campus principal.

11. Why weren't some of my students used to calculate my Comparative Growth?

Comparative Growth will not be calculated for students who:

- Are missing one of the two test scores.
- Are linked less than 30 percent to a teacher's roster.*
- For NRT, fall into comparison groups with **fewer than 25 students**. Groups smaller than 25 are not large enough to have a broad distribution of scores, and percentile rankings are not meaningful. For TELPAS, see [FAQ #8](#).

*Please note: if you linked a student for at least 30 percent time, that student will show on your report even if they did not test at your campus. Students are not weighted by percent time and instruction for Comparative Growth analysis; they either meet the threshold for inclusion or do not.

12. I teach students who took the NRT or TELPAS. Why didn't I receive a Comparative Growth report?

Comparative Growth will not be calculated for teachers who:

- Have fewer than seven students with Comparative Growth analysis. These teachers will not have enough student Comparative Growth scores to calculate a teacher Comparative Growth rating.
- Have greater than 40 percent of students identified as having special needs. These teachers would be disadvantaged in this model.

13. Are students being compared to their own growth or compared to other similar students?

Under this model, the growth an individual student makes from one year to the next is compared to the growth of students who took the same test and had the same/similar score on that test in the previous year. A teacher's Comparative Growth score is the median of all of his/her students' Comparative Growth scores.

14. What is a "Hazen formula?"

The Hazen formula is a way of calculating a percentile that takes into consideration the tails of the normal distribution. It is used in the Comparative Growth Model to calculate a student's District Percentile Rank. Percentile calculations can be made from the tails in or from the center out, and the Hazen is a compromise between the two methods. For additional details, [click here](#).

15. How would the district calculate Comparative Growth for a student who came from another district who did not use NRT or TELPAS and does not have results from that assessment the previous year?

Comparative Growth can only be calculated using two years' worth of NRT or TELPAS scores **in this district**. If a student is missing one or both years' scores, the student would not be included in the teacher's Comparative Growth score for that year. Even if the student was tested using an NRT or TELPAS in another district, those scores are not transferred to HISD.

16. Will special education students be grouped with general students' performance for Comparative Growth? If so, where will they be grouped?

Special education status is not taken into account for Comparative Growth. Therefore, special education students are included with the general population of students in determining student percentile ranks. However, if a teacher has more than 40 percent of the students assigned to him/her identified as special education, Comparative Growth will not be calculated for that teacher.

- 17. If there are two median scores for the teacher Comparative Growth score (i.e., teacher's roster has an even number of students), is the average of those two taken?**

Yes. If there is an even number of student scores, the two medians are averaged to generate the teacher's Comparative Growth Median Percentile. That Median Percentile is then translated to a Performance Level (1–4) for Comparative Growth.

In probability theory and statistics, median is described as the numerical value separating the higher half of a sample, a population, or a probability distribution, from the lower half. The median of a finite list of numbers can be found by arranging all of the observations from the lowest value to highest value and picking the middle one. If there is an even number of observations, then there is no single middle value. The median is then usually defined to be the mean of the two middle values.

- 18. Why use the "median" instead of the "mean" for teacher ratings?**

For Comparative Growth, the median is used rather than the mean to control for outliers. The few students who score way above or way below other students may represent an anomaly in the teacher's data. Taking the median rather than the mean reduces the chance of extreme data points swaying the teacher's performance level way up or way down.

- 19. How can the median of all of my students be indicative of my performance, especially when they are all coming from different academic starting points?**

A teacher's Comparative Growth Performance Level is not simply the median of all his/her students' scores on the assessment. If it were, the measure would not take into account students' starting points. These starting points, however, are built into the Comparative Growth model. Only students who earned the same score on the previous year's assessment—a proxy for their starting points—are compared to each other. A teacher's performance, as measured by Comparative Growth on a district-wide assessment, is an indicator of how much progress his/her students made individually and collectively, given where they started.

- 20. What does a Comparative Growth score mean in terms of teacher impact on student learning? If a teacher receives a Comparative Growth score of 50, does that mean the teacher made average (one year's worth of) growth with students?**

Performance Levels for Comparative Growth indicate the extent to which a teacher had success helping his/her students progress in a particular subject, relative to other teachers in the district with students at similar starting points on the same assessment. A teacher with a Comparative Growth Level of 3 (score of 50-64 at the secondary school level), for example, helped students show average to more-than-average growth within the district.

- 21. Is the Comparative Growth model fair to a teacher who has students with low scores?**

For students who had a low NCE on the NRT or a low scale score on TELPAS, a teacher could make more progress with those students in a particular subject this year, relative to other students in their district-wide comparison group. In this case, the teacher helped the students show above average growth. These students' District Percentile Rankings would all be above 50 and some may be closer to 99. The median of those students' scores would translate into a high Comparative Growth Performance Level for their teacher.

- 22. All of my students scored high on the STAAR exam. Why is my Comparative Growth median score so low?**

The Comparative Growth model does not use the STAAR assessment. The Comparative Growth model uses the NRT or the TELPAS to calculate teacher medians.

23. My students are high-achieving. How does the Comparative Growth model control for a ceiling effect?

For teachers with a large number of previously very high-achieving students, there may be concern that teachers may not be able to show sufficient growth with these students. To account for this in NRT Comparative Growth, the Department of Research and Accountability makes an adjustment for students who score an NCE of 99 on the NRT last year, then score either 99 or 98 the following year. (On NRTs, Normal Curve Equivalent (NCE) scores are used in the calculation of Comparative Growth, and range from 1-99). Their scores will be "locked in" at 99 and 98 respectively the second year so that they do not receive a low Comparative Growth Percentile in their comparison group, which consists of all students scoring an NCE of 99 the previous year.

For TELPAS, this concern about such a "ceiling effect" is addressed by the use of scale scores. The TELPAS scale is very large and Comparative Growth is only calculated for grades 3-8. This ensures there is plenty of room for growth for the district's highest achieving students.

24. What is the difference between value-added and Comparative Growth?

Comparative Growth and value-added (EVAAS[®]) are both growth-based measures. Despite being less statistically rigorous than EVAAS[®], which takes students' entire testing histories into account, Comparative Growth is more accurate than a simple growth measure or an attainment measure. Comparative Growth relies on two consecutive years of data from standardized assessments that are used district-wide. Comparative Growth relates a student's progress on one of these assessments to that of students with similar starting points, and then takes the median of all of the scores of one teacher's students. Value-added growth compares projected student scores utilizing all of a student's available testing history to actual scores earned after a year of instruction with a particular teacher.

25. How do teachers interpret their scores if they are in different performance levels according to EVAAS[®] and Comparative Growth on Stanford or Aprenda?

Multiple measures provide the most accurate picture possible of true teacher performance. Analysis by the Department of Research and Accountability has shown that, in most cases, value-added and Comparative Growth Performance Levels are directionally aligned. In cases where they are not, this indicates that a teacher's students performed one way on one assessment (STAAR) and differently on the other type of assessment (NRTs such as Stanford/Aprenda and Iowa/Logramos). These multiple data points provide valuable information on a teacher's overall impact on student learning.

26. Will Comparative Growth be used as part of my ASPIRE Award?

The ASPIRE award uses second grade campus-level Reading and Math NRT Comparative Growth data to award core foundation teachers of students in grades PK-2. For more information, please see the [ASPIRE Award Model Diagram](#). No individual teacher's Comparative Growth medians or performance levels are used for ASPIRE Awards.

TELPAS Comparative Growth scores are not used for the ASPIRE Award.

27. Can a teacher opt out of Comparative Growth?

No. While there are cases in which Comparative Growth will not be calculated for a teacher (see [FAQ #12](#)), if this measure is available for a subject and grade a teacher teaches, a report will be produced.

28. How do I raise my Comparative Growth score?

In order for a teacher to increase his/her Comparative Growth Performance Level, his/her students need to increase their scores. If a teacher's students perform better this year relative to their "academic peers" (to whom they are compared), the teacher's students will receive a higher ranking, and the teacher will receive a higher median percentile. As with value-added, attention to students at all prior performance levels is what matters, not just attention to those who are near a particular threshold. The median performing student could stem from any prior-performance level.

29. How can using Comparative Growth information help educators improve teaching and learning?

One of the benefits of Comparative Growth data is that it can support teachers' instructional practice. Specifically, once teachers have the score reports, which they will generally receive in the fall of the following year, teachers can use the Comparative Growth measure to reflect on their own success in helping students progress relative to similarly-performing students the previous year.