A Teacher's Guide to Interpreting State-Provided Growth Scores for Grades 4–8 in 2015–16

Understanding the 2015–16 State-Provided Growth Scores for Use in Annual Professional Performance Reviews

The Role of Growth Scores in Annual Performance Reviews

As part of the Annual Professional Performance Review (APPR) process pursuant to Education Law §§3012-c and 3012-d, New York State teachers of mathematics and English language arts (ELA) in Grades 4–8 and their principals will receive State-provided growth scores based on 2015–16 State tests **for advisory purposes only** pursuant to Sections 30-2.14 and 30-3.17 of the Rules of the Board of Regents. These growth scores describe how much students are growing academically in mathematics and ELA (as measured by the New York State tests) compared to similar students statewide.

During the 2015–16 through 2018–19 school years, teachers and principals who receive a State-provided growth score (i.e., Grades 4–8 ELA and mathematics teachers and principals of schools that include Grades 4–8 or all of Grades 9–12) will receive two sets of scores and ratings: original scores and ratings and transition scores and ratings. The State-provided growth score shall be excluded from the scores and ratings used to calculate the transition score and rating. Only the transition score and rating will be used for purposes of employment decisions, including tenure determinations and for purposes of proceedings under Education Law §§ 3020-a and 3020-b and teacher and principal improvement plans and the individual's employment record.

State-provided growth scores are just **one** of the **multiple** measures that make up the annual performance reviews. For APPRs completed pursuant to Education Law §3012-c, State-provided growth scores count for 20 percent of an informational evaluation score for the 2015–16 school year. For APPRs completed pursuant to Education Law §3012-d, the informational composite rating is determined using a matrix that combines one or more measures of student growth as well as teacher observations.

Development of Growth Measures

The Regents Task Force on Teacher and Principal Effectiveness—comprising representatives from key stakeholder groups, including **educators**, **educator unions**, and **educator professional organizations**—provided input into the development of APPR regulations and the design of the current State-provided growth scores. In addition, a technical advisory committee of leading experts in the nation reviewed the technical accuracy and utility of the statistical methodology used to calculate scores.[1] Revisions to the State-provided growth model will be considered during the 2016–17 school year.

WHERE AND WHEN WILL DATA BE AVAILABLE?

State-provided growth scores for 2015–16 were distributed to districts in August 2016.

WHERE CAN I GET MORE INFORMATION?

Visit http://www.engageny.org for detailed information on State-provided growth scores.

Visit https://www.engageny.org/resource/appr-3012-c for additional information on APPR plans under Education Law §3012-c, https://www.engageny.org/resource/appr-3012-d   for additional information on APPR plans under Education Law §3012-d, and a detailed guidance document located here: http://www.engageny.org/resource/guidance-on-new-york-s-annual-professional-performance-review-law-and-regulations/

Teachers should contact their district/BOCES leaders for additional information about APPR or the calculation of State-provided growth scores.

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[1] For a list of task force members and technical advisory committee members, visit http://www.engageny.org/resource/resources-about-state-growth-measures

Background

Why Growth?

Students enter teachers' classrooms at differing levels of proficiency or academic achievement. By measuring academic growth rather than proficiency only, we can identify strengths and gaps in student progress and help teachers better support students who have a wide range of academic needs.

> *Student Growth Percentile (SGP):*
>
> A measure of a student's academic growth compared to similar students

How Is Student Growth Measured?

The simplest way to measure growth would be to subtract a student's test score in a prior year from his or her test score in the current year. However, New York State's tests are not designed to allow for this kind of calculation, nor would this approach account for a student's starting point—it would just determine the amount of growth. We therefore take a different approach to measuring growth for the State-provided growth measures. The approach New York State uses compares the current year scores of *similar* students—that is, of students who had the same prior test scores and other characteristics—in order to measure growth while accounting for students' starting levels of achievement.[2] This method is illustrated in Figure 1, which shows Student A with an ELA score of 320 in 2015.[3] Compared to other students who also had a score of 320 in 2015, Student A's 2016 ELA test score was in the middle range. We can describe Student A's growth in relative terms as a "student growth percentile" (SGP). In this example, because Student A's SGP is 45, it means that this student performed as well as or better than 45 percent of other similar students (those with the same starting point and characteristics). **SGPs range from 1–99** and they always tell you where a student stands in a distribution of similar students (specifically, what share of students he or she performed the same as or better than). In New York State's evaluation system, SGPs are calculated separately by subject and grade.

Figure 1. Measuring Student Growth Compared to Similar Students

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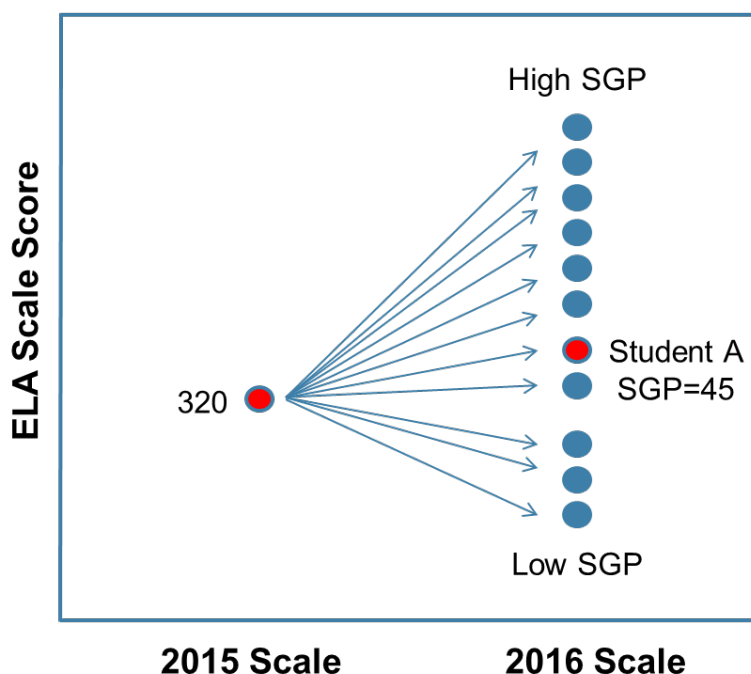
[2] This "comparison" is done through a regression modeling approach (see the Technical Report for more details).
[3] Note that the sample scaled scores are for illustrative purposes only.

Factors Used to Define "Similar Students" in the Growth Model for 2015–16

For educator evaluation, we further refine the definition of *similar students* to include additional factors known to impact student performance in order to better isolate the impact of a student's teacher on his or her performance. In the State growth model, the term "similar students" means not only students with the same academic history, but also ones with the same English language learner (ELL), economic disadvantage, or disability statuses. Figure 2 displays specific factors for each of these categories. We account for whether a student is an ELL, for example; we also account for the percentage of ELL students in a student's ELA or mathematics course. This type of factor is intended to address *peer effects*, acknowledging that it may be a different experience for a student to be in a class or course with many ELL students (and a different job for an educator with many ELL students) than it is to be in a course with fewer ELL students.

Figure 2. Characteristics of Similar Students

Grade 4–8 Teachers	Similar Student Characteristics Used in 2015–16*
Academic History	• Up to three years of student State exam scores, same subject • Prior-year test score, different subject • Retained in grade • Average prior achievement and range around average prior score in student's course (same subject) • New to school in a nonarticulation year (e.g., entered middle school as an eighth grader)
English Language Learners	• New York State English as a Second Language Achievement Test (NYSESLAT) scores • Percentage of ELLs in student's course • ELL status (yes or no)
Economic Disadvantage	• Percentage of economically disadvantaged students in student's course • Student economic disadvantage status (yes or no)
Students with Disabilities	• Student with disabilities spending less than 40 percent of time in general education setting • Percentage of students with disabilities in student's course • Student with disabilities status (yes or no)

*In future, additional characteristics may be added or other changes may be made to the growth model as approved by the Board of Regents.

How Is Student Growth Used for Teacher Evaluation?

A teacher's State-provided growth rating (the HEDI rating) and growth points (0–20) are based on his or her mean growth percentile (MGP), the aggregate measure of his or her students' growth. An MGP is calculated by finding the weighted average of all the SGPs for students attributed to a teacher, across grades and subjects.

> *Mean Growth Percentile (MGP):*
>
> The weighted average of all SGPs linked to a teacher

Each student's SGP is weighted in the teacher's MGP based on the amount of time that the student was enrolled and attended the course (based on teacher-student data linkage [TSDL] data reported to the State by districts, Boards of Cooperative Education (BOCES), and charter schools, which teachers have an opportunity to verify). Figure 3 illustrates how a weighted MGP is calculated. Students who are enrolled for less than 60 percent of a course's duration are not included in a teacher's MGP. Students with course enrollment of 60 percent or more are included in a teacher's MGP and are weighted based upon the percentage of time the student is enrolled in and attends the course. SGPs for students who were in a teacher's course for longer periods of time and who attended the class more regularly count more heavily in a teacher's MGP than those who were enrolled and attended for less time.

Figure 3. Example of Calculation of Teacher's MGP Based on Weighted SGPs[4]

Ms. Smith's Class				
	SGP	Enrollment Duration	Attendance	Enrollment x Attendance
Student A	45	80%	90%	.72
Student B	40	100%	95%	.95
Student C	70	50%	80%	N/A
Student D	60	100%	90%	.90
Student E	40	100%	75%	.75

To measure teacher performance, we find the MGP for his or her students, which is the weighted average of the SGPs. In this case, the calculations would be as follows:

Step 1: $(0.72 \times 45) + (0.95 \times 40) + (0.90 \times 60) + (0.75 \times 40) = 154.4$

Step 2: $0.72 + 0.95 + 0.90 + 0.75 = 3.32$

Step 3: $154.4/3.32 = 46.5$

Ms. Smith's MGP is 46.5, meaning that, on average, her students performed as well as or better than about 47 percent of similar students.

For purposes of teacher evaluation, we calculate each teacher's MGP based on the weighted average of all SGPs in our definition of similar students (including academic history, English-language proficiency, economic disadvantage, and disability status). We refer to this MGP as the *adjusted* MGP. **Adjusted MGPs are used to determine growth ratings (HEDIs) and scores.** Unadjusted MGPs take into account only students' prior achievement and are reported for informational purposes only.

MGPs are reported by subject and grade and then an overall MGP for a teacher is calculated that combines SGPs for all students across grades and subjects (if applicable for the teacher). Teacher MGPs are based only on students who had test scores from the current and immediate prior school year and who met the State's minimum enrollment requirement (enrolled for at least 60 percent of the course duration) in the current school year. **Also, an MGP is reported only if it is based on at least 16 SGPs.**

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[4] For purposes of illustration, this example includes fewer than 16 SGPs. MGPs are reported **only when at least 16 SGPs are available.**

In addition, MGPs are reported with an upper and a lower limit that represents a 95-percent confidence range (see Figure 4).

Figure 4. MGP and Confidence Range
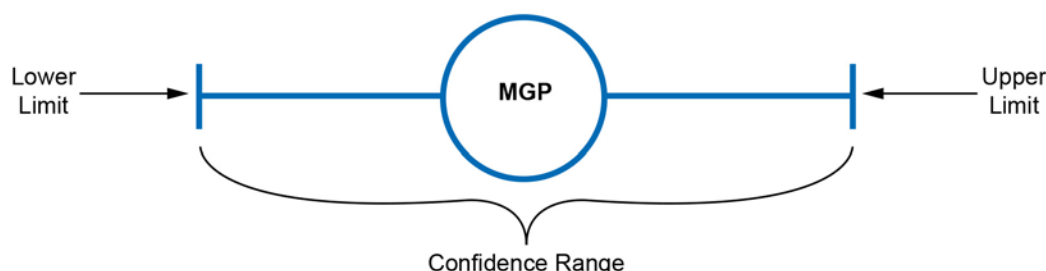
All statistical calculations contain some uncertainty. Although the reported MGP is the best estimate for any teacher, we also can quantify a range wherein we can expect that the *true* answer lies. The upper- and lower-limit MGPs define a set of scores wherein an educator's true MGP lies 95 percent of the time. Reporting upper- and lower-limit MGPs is similar to the way we are used to seeing results from other statistical calculations such as political polls reported, in which a candidate can be ahead in the polls by six points plus or minus three points. The width of the confidence range (that is, the distance between the upper and lower limits) is affected by such factors as the number of students included in generating the score, the spread of student scores, and characteristics of the tests students take.
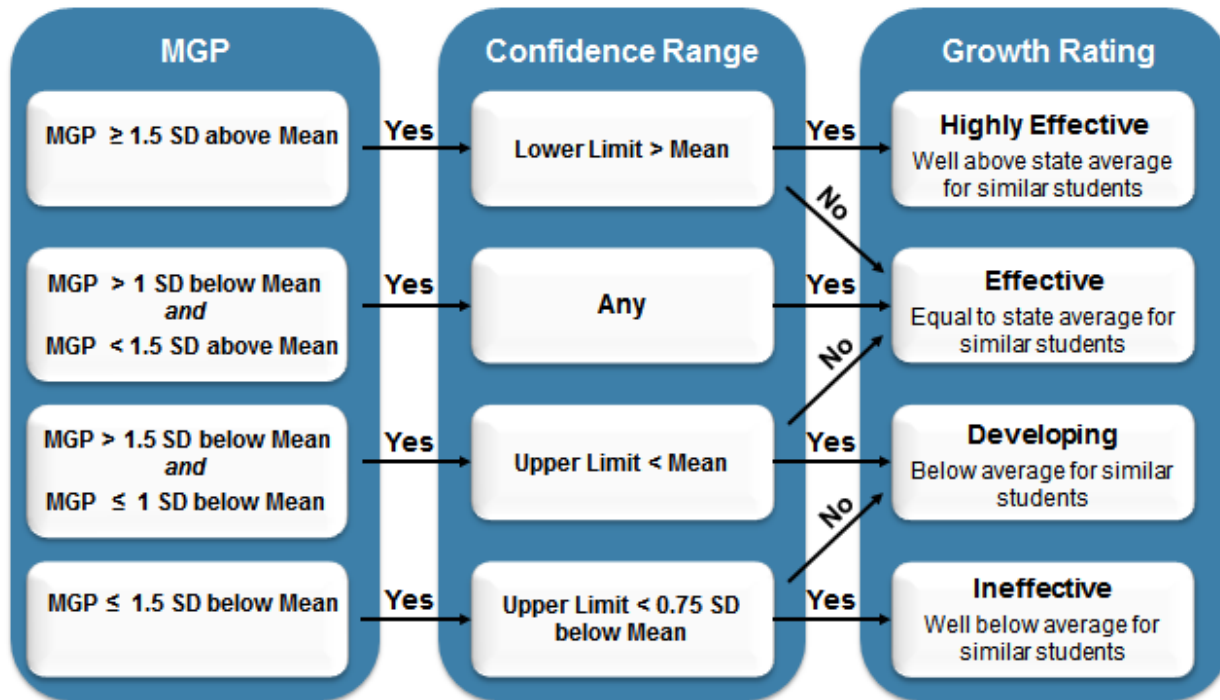
We report the upper- and lower-limit MGPs because we want to be transparent about the data. We also use upper- and lower-limit MGPs to assign educator ratings in a way that fairly takes uncertainty in MGPs into account.

We use a teacher's overall adjusted MGP (that is, the MGP that combines information across all applicable grade levels and subjects that the teacher teaches) and upper- and lower-limit MGPs to determine his or her growth rating, as shown in Figure 5.

A growth score of 0–20 points is then assigned to each teacher based on his or her overall MGP within each growth rating category using the scoring bands for implementation of Education Law §3012-c or §3012-d as appropriate for the district. Higher MGPs within each growth rating category receive more points).[5]

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[5] Based on the arguments presented in the New York City arbitration proceeding held on May 30 and 31, 2013, and pursuant to his authority in Education Law §3012-c(2)(a), the Commissioner imposed different scoring ranges for use in New York City for the 2013–14, 2014–15, 2015–16, and 2016–17 school years than in the rest of the state. See the following link for a description of these scoring ranges: http://usny.nysed.gov/rttt/teachers-leaders/plans/docs/new-york-city/new-york-city-appr-plan-060113.pdf.

Figure 5. Determining Teacher Growth Ratings

Notes: SD = Standard Deviation
Values are rounded to the nearest whole number.

Information Available in District Files

State-provided growth scores are made available to districts prior to September 1 of each school year or as soon as practicable thereafter. These files contain the following information:

Number of Student Scores: The number of SGPs included in a teacher's MGP.

Percent of Students Above the State Median: Percentage of students above the State median MGP in the relevant subject and grade, using adjusted student SGPs.

Unadjusted MGP: The weighted mean of the SGPs for students who are attributed to a teacher that are based on prior achievement scores for similar students only, without taking into consideration a student's ELL, student with disabilities, or economically disadvantaged status. The weighted mean is calculated based on the amount of time students were enrolled in and attended a course with a teacher.

Adjusted MGP: The weighted mean of the SGPs for students attributed to a teacher that are based on academic history and a student's ELL, student with disabilities, and economically disadvantaged status, compared to similar students. This MGP is used to determine a teacher's State-provided growth score and growth rating.

Upper Limit and Lower Limit: Highest and lowest MGP for a 95-percent confidence range.

Growth Rating: Based on an overall MGP for a teacher across grades and subjects, the growth rating describes the teacher's performance category (HEDI) on the State-provided growth subcomponent.

Growth Score: Using scoring bands for implementation of Education Law §3012-c or §3012-d as appropriate for the district, a growth score of 0 to 20 points is assigned to each teacher based on his or her overall MGP within each growth rating category.

MGPs disaggregated by grade and subject are also provided. Districts are also provided with student roster files. These files show which students were included in a teacher's MGP along with information about each student. These rosters display information about students who were linked to teachers but were not included in the calculation of the teacher's MGP. Students who do not meet the minimum enrollment requirements will have a detailed exclusion reason, and those who do meet the minimum enrollment requirements to be included in educators' MGPs will have an exclusion reason of "NA." For students who were included in a teacher's growth score (exclusion reason of "NA"), the following information will be provided:

- Year, which indicates the end of the school year to which the information applies

- District, school, and teacher name and ID

- Student name and ID

- Assessment subject and grade ("Item Description")

- Enrollment duration (percent)

- SGP weight in teacher MGP [enrollment duration x attendance (percent)]

- Student background characteristics:

    - Disability: Students identified as having disabilities, based on district, BOCES, or charter school-provided information

    - ELL: Students who have been identified as English language learners in accordance with Part 154 of the Commissioner's Regulations, based on district, BOCES, or charter school provided information[6]

    - Economic disadvantage: Students whose families participate in economic assistance programs such as free or reduced-priced lunch programs, Social Security Insurance, food stamps, foster care, refugee assistance, earned income tax credit, the Home Energy Assistance Program, Safety net Assistance, the Bureau of Indian Affairs, or Temporary Assistance for Needy Families, based on district, BOCES, or charter school provided information

    - Students with disabilities spending less than 40 percent of time in general education settings

    - NYSESLAT form and score

    - New to school

    - Retained in grade

- 2016 State test score and prior year(s) State test score(s)

- SGP (unadjusted and adjusted)

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[6] See Part 154 of the Commissioner's Regulations here: http://www.p12.nysed.gov/biling/docs/CRPart154.pdf.

Questions for Consideration

Following are some questions for teachers to consider in reviewing State-provided growth score information*:*

- How much did my students grow, on average, compared to similar students? Is this higher, lower, or about what I would have expected? Why?

- How does this information about student growth align with information about my instructional practice received through observations or other measures? Why might this be?

- **For teachers with MGPs in both mathematics and ELA:** How do my MGPs in these subjects compare? Why might they be similar or different?

- **For teachers with MGPs across grade levels:** How do my MGPs compare across grade levels? Why might they be similar or different?

Information or Additional Questions

If you have questions about your data, what the scores are used for, or why you received the score that you did, please contact your school's principal, superintendent, or district data personnel for assistance. If unable to obtain answers to questions, contact educatoreval@nysed.gov.

Disclaimer

If any discrepancies exist between the language in these materials and the Statute, Regulations, or APPR Guidance, the Statute, Regulations, or APPR Guidance prevail.