Methods of Combining SGPs

The Georgia Student Growth Model (GSGM) utilizes Student Growth Percentiles (SGPs), which describe students' academic progress relative to academically-similar students – other students from across Georgia with the same achievement history. While SGPs are produced for individual students, there are multiple ways of combining SGPs within a content area (ELA or Mathematics) to summarize the growth of a group of students, such as for a classroom, school, or system.

Median SGP (MGP)

One method of combining SGPs for a group of students is to utilize a median. A median is the numerical value separating the higher half of the data from the lower half. In other words, it is the middle value in an ordered list. To obtain the median, one would order all students' SGPs in a group from low to high and select the middle value. If there is an even number of values, the median is the average of the middle two values. A median is useful because it is straightforward to interpret – half of the students demonstrated growth above the median, and half of the students demonstrated growth below the median. **Median Growth Percentiles are utilized in the Public and SLDS Growth Model Visualization Tools.**

Mean SGP (MeanGP)

A second method of combining SGPs for a group of students is to utilize a mean, or average. A mean is the sum of the values divided by the number of values, and the mean SGP for a group of students describes the "average" growth of that group of students. The mean is useful, especially for high-stakes purposes, because means are more statistically reliable than medians. This is particularly true for groups with small numbers of students. **Mean Growth Percentiles are utilized in the Teacher and Leader Effectiveness Systems (TKES and LKES).**

Progress Score

A third method of combining SGPs for a group of students is to utilize a progress score. SGPs are classified into 4 levels and these levels are used to calculate the progress score. Specifically, the percent of students at each SGP level is multiplied times the points earned for each level, where SGPs of 1-29 earn 0 points, SGPs of 30-40 earn 0.5 points, SGPs of 41-65 earn 1 point, and SGPs of 66-99 earn 1.5 points. The sum is a progress score between 0 and 100. **Progress Scores are utilized in the College and Career Ready Performance Index (CCRPI) Progress component calculation.**

All three summary methods – median, mean, and progress score – reflect valid ways of combining SGPs, and because each method provides different information, they are best suited for different applications. The median and mean both quantify the "middle" of a collection of values. The median is well suited for instructional purposes like improvement planning because it is straightforward to interpret. The mean is well suited for teacher and leader effectiveness because it has more robust statistical properties. The progress score is well suited for CCRPI because it incentivizes moving students from one growth level to the next, and it is a weighted score similar to the weighted performance levels for the Content Mastery component within CCRPI.

An example of the calculation steps for each method is provided below.

Example

A collection of numbers – for example, student growth percentiles…

$$\{46, 28, 62, 34, 51, 64, 58, 21, 88\}$$

Median

lowest - highest

21 28 34 46 51 58 62 64 88

The median is the
middle number

Half of the values are above and half
of the values are below the median

Mean

$$\frac{46 + 28 + 62 + 34 + 51 + 64 + 58 + 21 + 88}{9}$$

$$= \frac{452}{9} = 50.22$$

The mean is also called
the average

The median and the mean both quantify
the "middle" of a collection of numbers

Progress Score

21 28 34 46 51 58 62 64 88

SGP	Points	Count	Percent	Points x Percent
1-29	0.0	2/9	22.22	0
30-40	0.5	1/9	11.11	5.56
41-65	1.0	5/9	55.56	55.56
66-99	1.5	1/9	11.11	16.67

$$0 + 5.56 + 55.56 + 16.67 = 77.79$$