Student Growth Percentile
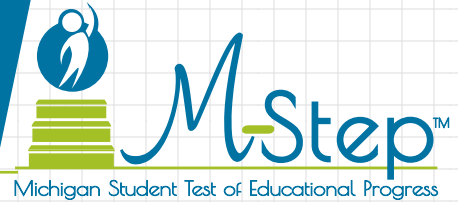
M-Step™
Michigan Student Test of Educational Progress

State of Michigan Student Growth Percentile Policy Brief

↗ For Michigan, recent federal and state policy initiatives have highlighted the need to add robust measures of student growth to the state's assessment and accountability toolbox. While assessment-driven achievement data provides a snapshot of student performance and learning levels at a given point in time, growth measures can provide additional valuable information about how individual students are learning over time, and how that growth varies from classroom to classroom, school to school, and district to district.

Background

In the past, Michigan has not had a measure of individual student learning for all subject areas; instead, we have used a mix of measures. Where adjacent-grade assessments were available, we used measures of individual student learning; and where adjacent grade assessments were not available, we used schoolwide measures of improvement from one cohort of students to the next. This combination of measures is apparent at various places in the Michigan accountability system. It is used in the Top to Bottom (TTB) rankings as one of three component indices in the overall ranking and in calculating Performance Based Bonuses (PBB) for districts. In the past, we have used Performance Level Change (PLC) for grades 3-8, which looks at how students' performance level (on the 1-4 scale) changes from year to year. Because students are not assessed multiple times on high school learning outcomes, we have used a slope calculation to estimate the annual improvement rate in proficiency at the same grade level over the most recent four years.

This approach has worked while the assessments remained stable. However, Michigan is in the middle of an assessment transition that will likely last multiple years. Students will be tested on new standards. Also, the tests will be based on somewhat different content, and will be measured on different scales and proficiency cutoffs. Therefore, a new approach to measuring improvement over time is needed. This new approach must be able to perform well even during an assessment transition. Ideally, it should also be able to replace the cohort-to-cohort, slope-based improvement measures with a measure of individual student growth to avoid potential issues with unknown differences between cohorts.

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Student Growth Percentiles (SGPs) represent one powerful way to quantify the learning of individual students over one or more years. Conceptually, SGPS communicate the degree to which a student has learned in a particular domain, compared to a group of academic peers who had a comparable score on the previous test (or multiple previous tests) in that subject. In order to calculate SGPs, students are grouped with academic peers throughout the state who had comparable score patterns on past tests. Students in each academic peer group are then ordered based on their score on the current year test. Each student then receives a percentile rank, compared to their academic peers.

Like other percentile scores, SGPs range from 0-99, where a SGP of 50 indicates that the student demonstrated growth in the content area equal or greater to half of students with comparable score histories on that subject-matter test. Higher SGPs represent greater learning relative to academic peers and lower SGPs represent lesser learning relative to academic peers.

In Michigan, students will get SGPs for each subject in which (1) the student tests and (2) there is at least one previous Michigan test score for that student. This gives Michigan considerable flexibility to use SGPs for accountability purposes within the already established accountability framework.

Additionally, the use of SGPs unifies the measurement for K-8 and 9-12 students and eliminates the need to use slope calculations. SGPs are valid even when tests are not vertically scaled and can be reasonably used even across an assessment transition with significant changes to the test blueprint, so long as the scores on the new test are reasonably strongly correlated to scores on the old test. This makes SGPs a valuable tool for accountability purposes during Michigan's assessment transition.

Mean Growth Percentiles

One major advantage of SGPs is that they can easily be used to provide information about student learning patterns in individual classrooms, schools, or even school districts. By examining the mean SGP (MGP) for a group of students, educational leaders and policy makers can begin to compare student progress rates to other comparable groups, and to state averages.

Leveling the Playing Field with SGPs

SGPs are computed by comparing student's achievement to that of peers with comparable test score histories. Using SGPs and mean SGP can level the playing field for institutions that have predominantly low achieving students relative to institutions with predominantly high achieving students.

Using SGPs is fairer than calculating gain scores on a vertical scale. This is because typical gain scores can be quite different depending on students' prior test scores, creating an advantage or disadvantage for schools serving students with predominantly lower or higher prior test scores. This is not the case for SGPs. By using SGPs and mean SGPs, we can acknowledge and account for the unique challenges of working with student populations with different ability levels.

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