# RESTART & RECOVERY:
## COVID-19: IMPLICATIONS FOR MEASURING STUDENT ACADEMIC GROWTH

We are grateful to our partners at the National Center for the Improvement of Educational Assessment for their help in developing this guide.

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COVID-19 is having far reaching-effects on our lives in virtually every sphere. The impact on U.S. public education includes school closures and a 2020-2021 school year that likely will look quite different for many students than before the pandemic. This paper reflects on how changes in the administration of states' summative assessments may affect state efforts to measure student academic growth, for both the current academic year and those that follow.

States are committed to ensuring equitable education opportunities for every student. Student growth analyses can assist state leaders in identifying the educational impact of COVID-19 disruptions and help them to develop responsive supports.

The pandemic impacted spring 2020 testing in several ways. Most prominent was the cancellation of the state summative tests in English language arts and mathematics for primary, middle, and (in some states) high school students. Given the resulting lack of student assessment data for the 2019-2020 academic year, it was not possible for states to generate comprehensive school and other education accountability data as they had in previous years. Looking ahead to the 2020-2021 school year: as of September 2020, state education agencies (SEA) are contemplating the pandemic-related complexities involved with administering assessments in spring 2021.

With the cancellation of state assessments in spring 2020 came the inability to calculate the usual, derived quantities associated with assessment data, including student growth and student attainment (e.g., percentage of students found to be proficient). As of July 2020, the calculation of student academic growth from state summative assessments is widespread; as of July 2020, 48 states typically include some form of a student-level academic growth measure as part of their federal accountability systems. States employ various growth methodologies, such as student growth percentiles (SGPs), value-tables, growth-to-standard models, value-added models, and gain-score models (Data Quality Campaign, 2019). Each of these models were impacted by the lack of SY2019-2020 assessment data.

With regard to student academic growth, the primary concern in SY2020-2021 is the inability to calculate student growth due to the absence of SY2019-2020 test scores. For some states, student growth comprises as much as 50 percent or more of an accountability rating; the absence of this data will have severe consequences for state accountability systems. As states grapple with assessment and accountability contingency plans for the 2020-2021 academic year, the most frequent questions asked by state accountability directors are:

Can we compute **skip-year growth** (i.e., SY2018-2019 to SY2020-2021)?

If so, can we use this datum in lieu of **annual growth**, as part of the state's accountability system?

This paper shall address these two questions in the following sections.

## GENERAL CONSIDERATIONS FOR THE COMPUTATION OF SKIP-YEAR STUDENT ACADEMIC GROWTH

Annual student growth within a single content area is the most frequently conducted student-growth analysis, but many states calculate student growth in another way. For example:

- Several states calculate skip-year student academic growth that spans a timeframe that is greater than one year (e.g., growth from grade 8 to grade 10), due to the absence of testing in certain grades.
- Several states participating in the New England Common Assessment Program gave assessments in fall 2013; then, as members of the Partnership for Assessment of Readiness for College and Careers, the same states gave assessments in spring 2015. This resulted in a student-growth calculation based on a gap of 1½ years.
- States administering end-of-course assessments often find that students do not take assessments in consecutive years, resulting in growth calculations that span two or more years.
- If they have changed their testing program, many states choose to calculate student growth based on assessments which reflect different testing formats—and sometimes different content standards.

For nearly a decade, calculating skip-year growth has been the status quo in many states; from a computational perspective, it is not difficult to calculate the quantities. However, there are several considerations associated with some of the different growth models:

**VALUE TABLES** will require establishing points associated with two-year transitions instead of the normal one-year transitions.

**NORM-REFERENCED** models (e.g., SGPs and Value-added models) can obscure poor performance due to their norm-referenced nature.

**GROWTH-TO-STANDARD** models (either SGP or gain-score) can be calculated but will require ancillary information to conduct.

None of these considerations are insurmountable challenges, but they will require state accountability and assessment directors to conduct due diligence to ensure that their student academic growth results are meaningful.

There is one general requirement for all growth models that may prove difficult to achieve, given current pandemic-related impacts: test results must be comparable across different administration modes. For example, if states opt to allow remote test administration, it will be necessary that the resulting scores are not systematically biased and thus incomparable with scores derived from assessments conducted through standard administration. Systematic bias in results would undermine assessment results for both status and growth.

## GENERAL CONSIDERATIONS FOR THE USE OF STUDENT ACADEMIC GROWTH FOR ACCOUNTABILITY

While computing skip-year growth is a fairly straightforward endeavor, the use of skip-year growth in place of one-year growth in a state's accountability system is anything but. Doing so requires validating the use of skip-year growth in place of one-year growth. States are encouraged to conduct a thorough investigation to determine whether it would be appropriate to use such data—especially for high-stakes decisions.

One way to begin this investigation is to conduct skip-year and annual analyses using historical data. For example, a state could calculate skip-year growth from SY2016-2017 to SY2018-2019 and compare those results (at both the individual and aggregate level) to one-year growth results from SY2017-2018 to SY2018-2019. Disparate results would be strong evidence that the proposed approach is inconsistent with the state's standard approach.

Several states conducting these analyses during the summer of 2020 found, in general, high correlations (0.9 to 0.95) between one-year and skip-year SGPs at both the individual and school level. Despite the high correlation, though, there were a non-trivial number of cases in which the difference in growth result was large enough to lead to a different interpretation (for example, with regard to the quality of the school). For example, a school's state assigned grade would change in several cases due to a switch to using skip-year growth in lieu of one-year growth.

Looking at the results from several states, it is clear that even during normal circumstances states need to carefully consider the use of skip-year growth in lieu of one-year growth data. Given that the current learning conditions are far from normal, it seems clear that the use of skip-year growth in lieu of one-year growth must be examined even more carefully to account for the increased complexity of the conditions in SY 2020-2021. If used, it will require a thorough investigation of skip-year growth analyses from SY2018-2019 to SY2020-2021, at a minimum, to determine whether the results align well with historical skip-year results. A "business as usual" approach to accountability is more difficult to justify in educational circumstances that deviate so far from usual.

## BEYOND ACCOUNTABILITY: USING STUDENT ACADEMIC GROWTH FOR RESEARCH PURPOSES TO INFORM POLICY

Though it may be difficult to justify the use of skip-year student academic growth in place of one-year student academic growth for education accountability in 2020-2021, that is not meant to imply that student academic growth should not be calculated. In fact, there has never been a more important time to test students and measure their academic growth. The importance of calculating student academic growth, if possible, is to help investigate the impact of the pandemic on the overall learning. It also is likely to uncover further findings about the differential impacts of COVID-19 on demographic student groups— inequities that need to be ameliorated.

COVID-19 disruptions likely will have a negative impact on student learning, which will likely be reflected in test scores. As of this paper's publication, school interruptions are continuing into the 2020-2021 school year, and it is not yet clear how long the disruptions to student education will last or how significant the impact will be on student learning. Thus, an essential step in ameliorating the effects of COVID-19 on student learning will be to assess its impact.

To this end, states leaders might:

- Establish historical, skip-year student academic growth expectations using SY2015-2016 to SY2017-2018 and SY2016-2017 to SY2018-2019 as base years. For example, more than a dozen states currently are creating historical, skip-year SGP norms to quantify student academic growth from SY2018-2019 to SY2020-2021 in relation to historical, skip-year student progress.
- Use historical, skip-year student growth rates to compare overall student growth from SY2018-2019 to SY2020-2021 to previous rates, by content area and grade. For example, historical median, skip-year, SGP growth rates will be, by definition, 50. Growth rates for SY2018-2019 to SY2020-2021 will likely be less than 50.[1]
- Use historical, skip-year student growth rates to consider SY2018-2019 to SY2020-2021 student growth rates by student demographic subgroups (including growth-rate gaps), as compared to what they were historically. For example, median SGPs for free-reduced lunch students usually are 45, as compared to 50 for non-free-reduced lunch students. Did the gap between these subgroups remain the same, increase, or decrease? Leaders could ask similar questions about student subgroups based upon ethnicity, special needs status, etc.
- Use historical, skip-year student growth rates to examine issues related to opportunity-to-learn associated with the COVID-19 pandemic. During the pandemic, students are being subjected to learning environments of widely differing types (remote, hybrid, in-person) and quality. It is highly unlikely that these modes of learning will prove to be equally effective for all students. Leaders can use historical, skip-year student growth to examine growth rates of students in these different learning environments. For example, one could calculate the median SGPs for remote, hybrid, in-person and other learning modes. Differences (especially large differences) in median SGPs are indicative of opportunity-to-learn disparities.
- Use historical, skip-year student growth rates to examine whether pandemic effects are geographically concentrated. That is, students in urban/suburban schools may be experiencing more widespread and long-lasting school closures than students in rural areas. For example, in order to examine the pandemic's differential impact based on geographic locale, one could consider median SGP differences between/among urban, suburban, and rural schools in SY2018-2019 to SY2020-2021, as compared to what the same differences have been historically.

Overall, an analysis of student academic growth data could help answer dozens of questions that are not necessarily associated with standard, accountability-focused issues. State leaders are encouraged to actively prepare to utilize such data by conducting due diligence early, so they can make student academic growth data available to stakeholders as quickly as possible following spring 2021 assessments. These data analyses could foster a better understanding of the pandemic's effects on student learning in ways which may prove to be critical for the development of interventions to offset negative impacts.

[1] For SGPs, a difference of 5 in the median SGP corresponds to an effect size of 0.18. Assuming COVID-19 is associated with a medium (0.5) or large effect size (0.8), we would expect median SGPs for states to be in approximately 35 or 25, respectively.

## RECOMMENDATIONS

The effects of COVID-19 disruptions on state assessments and accountability are likely to be significant and long-lasting. As of this writing (at the beginning of 2020-2021 school year), it is apparent that all schools are not returning to normal any time in the near future. This situation, along with the disruption of student testing in SY2019-2020, will have ripple effects on state accountability and testing systems for several years to come. Because any analysis of student academic growth conventionally takes account of prior years' assessment results, this data point is particularly impacted by the pandemic.

Despite this dilemma, states can and should calculate student academic growth rates for the 2020-2021 school year, if at all possible. There are simple and direct ways to accomplish this, by calculating skip-year student growth from SY2018-2019 to SY2020-2021. States are encouraged to apply this method as soon as data becomes available—and, if possible, relate the resulting student growth data to pre-COVID-19 skip-year student growth data.

Given historical, skip-year student growth findings obtained thus far from states performing due diligence for their anticipated skip-year analyses, state leaders will have to carefully consider whether these analyses will be valid for use in a business-as-usual approach to accountability. This issue is primarily due to the fact that student instruction at schools continues to be disrupted by the pandemic.

Nonetheless (and more importantly), student growth analyses can be used to inform policy and practice decisions that reach beyond just business-as -usual accountability. Educational equity likely will be a major concern as the pandemic progresses—and student growth analyses will play an important role in identifying the overall and differential educational impact of COVID-19 disruptions, thereby enabling state leaders to develop responsive policies using the best available data.

## BIBLIOGRAPHY

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