

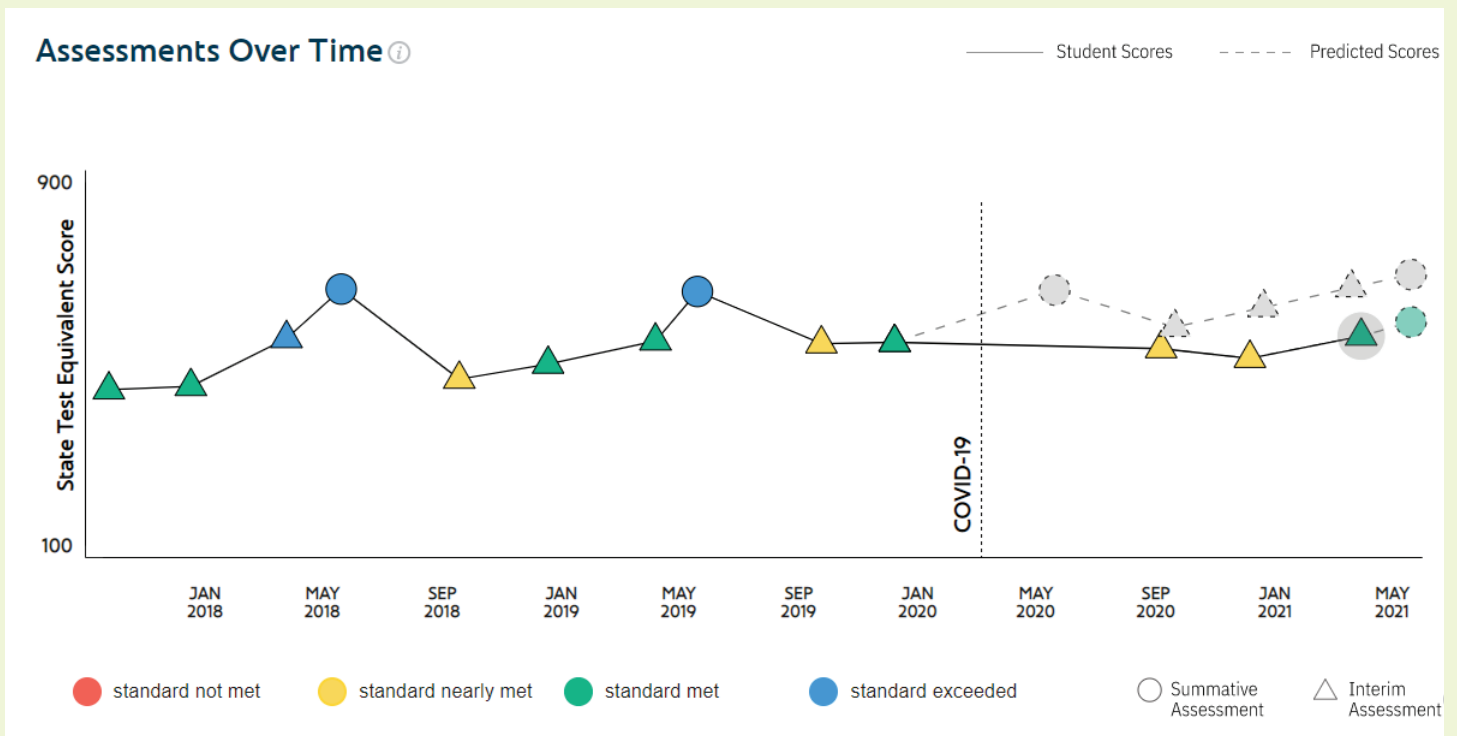


Using Interim Assessments to Understand the Impact of COVID-19 on Student Learning

Why use interim assessments to examine how COVID-19 affects learning?

School closures and remote learning as a result of COVID-19 have made it more critical than ever to gather high-quality data that shows educators where students are in their learning. Research reveals that many students have learned less since the pandemic began—especially those who are historically underserved by the education system. We need urgent and sustained action to address disparities in student progress, particularly among students from low-income backgrounds, students of color, English language learners, and students with disabilities. Teachers will be working in classrooms with students of the widest range of learning levels, which calls for different approaches to meet students where they are—and to accelerate learning.

EA's Rally Analytics Platform visualizes COVID-19 impact by displaying each student's current status compared to their expected trajectory in a typical year.

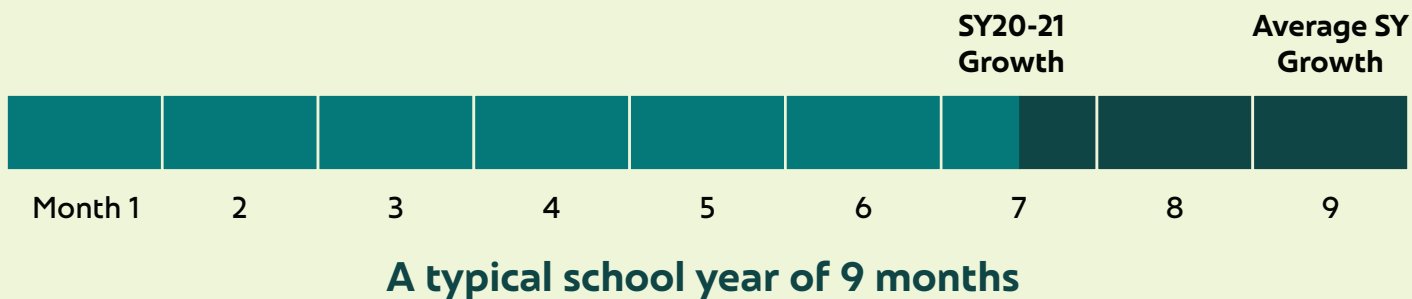


How can interims be used to measure COVID-19 impacts on learning?

Through formative, diagnostic, interim, and summative assessments, there are a variety of ways to interview, observe, and measure student learning to quickly identify what skills and knowledge students have yet to master and how best to support their progress. Given the lack of summative assessments in spring 2020, and some concerns about high rates of opting out of state summative assessments in spring 2021, state education agencies and local education agencies (LEAs) can use high-quality interim assessments to measure learning change since the beginning of the pandemic, and compare that with learning changes that took place before COVID-19.

Although the use of interims represents a departure from typical practice for many state education agencies, these assessments are the best large-scale data source available that shows what students learned throughout the pandemic. We can use the data to analyze learning status and growth across different time periods, which tells us whether students learned more, less, or the same amount since the beginning of the pandemic as compared to typical levels for that same amount of time.

After comparing growth on interim assessments in SY20-21 to the same period as earlier years, EA found approximately 2–2.5 months of learning lag on average for students in a sample of California and South Carolina districts.





Here are some of the tradeoffs and implications of using interim assessment data in lieu of summative assessments:

Interim assessments are shorter and do not reflect all of the learning standards that are expected to be met in a given school year.

Interim assessments were not explicitly designed to inform high-stakes education policy decisions.

Researchers have called for additional work to systematically evaluate differences among various interim assessments, and between interim and statewide summative assessments.

There are other sources of data that can be leveraged to understand the impact of COVID-19 on students (e.g., well-being surveys), but interim assessments provide the largest-scale data.

Interested in using interim assessments to analyze the impact of COVID-19 in the classroom? The following questions can be used to guide conversations about how to understand and address the challenge.

What key questions do we need to consider?

Where did students take the assessment, and where did students receive instruction?

For the first time, many students took interims at home during the pandemic, whereas they typically take the assessment in a more standardized school environment. As we know, there are many reasons why taking the assessment at home may lead to a different result for students than when they take it in school, including distractions, lack of reliable internet access, and possible access to outside resources (such as adults, other children, and the internet). Some research from EA and other organizations has found that students who took assessments at home scored higher in some cases than students who took assessments in school. Similarly, students in South Carolina who tested remotely over the winter of 2021 experienced greater learning lag. These factors all influence our analytics.

Furthermore, the location where students were assessed is related to where they receive instruction (i.e., students assessed remotely are more likely to have been receiving distance-only or hybrid instruction rather than in-person instruction). However, students who were assessed in similar locations may have experienced different amounts of distance versus in-person instruction, and therefore different impacts on their learning. Thus, in addition to data about where students were assessed, any data available about whether (and when) students received in-person instruction is important to include in an analysis.

RECOMMENDATIONS

If possible, include an indicator of where students took the assessment (at home or in school), or analyze results separately for students instructed and/or assessed at home versus in school.

If student-level indicators are not available, consider whether there are classroom- or school-level indicators related to whether, and for how long, students were learning in person, remotely, or in a hybrid setting.

What is important to consider when aggregating and reporting results?

COVID-19 has affected learning experiences for every student, but those effects are likely more severe for underserved students and schools. It's critical to isolate and examine specific characteristics of students or schools as they relate to COVID-19 outcomes. We found that students who are English learners, Black, Latinx, or economically disadvantaged exhibited greater learning lag compared to other students in a given grade or subject.

RECOMMENDATION

If plausible with available data, report learning lag metrics that highlight how COVID-19 affects equity. Ensure that analyses are disaggregated for different student groups so that stakeholders and decision-makers can adequately plan students' recovery.

When did students take the assessment?

There could be differences in the degree of learning lag experienced depending on when students took the assessment during COVID-19 (compared with prior to COVID-19). In recent EA research, we found that in a sample of students from 19 LEAs in California, the length of time between the pretest and posttest during COVID was about one month longer for the MAP in 2020-21 than in pre-COVID years. Additionally, there was a substantial increase in the number of students taking the winter assessment after break (nearly all) compared with pre-COVID-19 administrations (~20%). Ideally, we would want an equal amount of time between the two points for comparability purposes, but there are analytic approaches to account for the differences.

RECOMMENDATION

Include a control variable that accounts for the length of time between assessments.

Who took each of the assessment administrations?

For a variety of reasons, many students may not have taken interim assessments during the pandemic. EA research did not find many significant differences in our sample of students compared to past administrations, but some national assessment vendors have found substantial shifts in their assessment samples.

RECOMMENDATIONS

Compare the sample of students assessed in the COVID-19 period vs. pre-COVID-19 period to see if proportions and numbers change over time. Ideally, we would analyze this for several years prior to COVID-19 to determine whether the change in the sample was due to COVID-19 or whether it was gradually trending downward.

Compare the sample of students assessed with the students enrolled in the district (overall and by student characteristics) so we can determine who may be missing and understand whether that will impact the reliability and precision of our estimates for some student groups.

If the composition of schools and students tested during the COVID-19 period differs substantially from the composition during the pre-COVID-19 period, apply standard evaluation methods to control for these differences.

What data do we need?

NUMBER OF STUDENTS For regression-based approaches, we typically prefer at least 1,000 students per subject, grade, assessment, and year. For results by student subgroups, we would examine the number of students in each group to determine whether it's appropriate to include them in analysis and reporting.

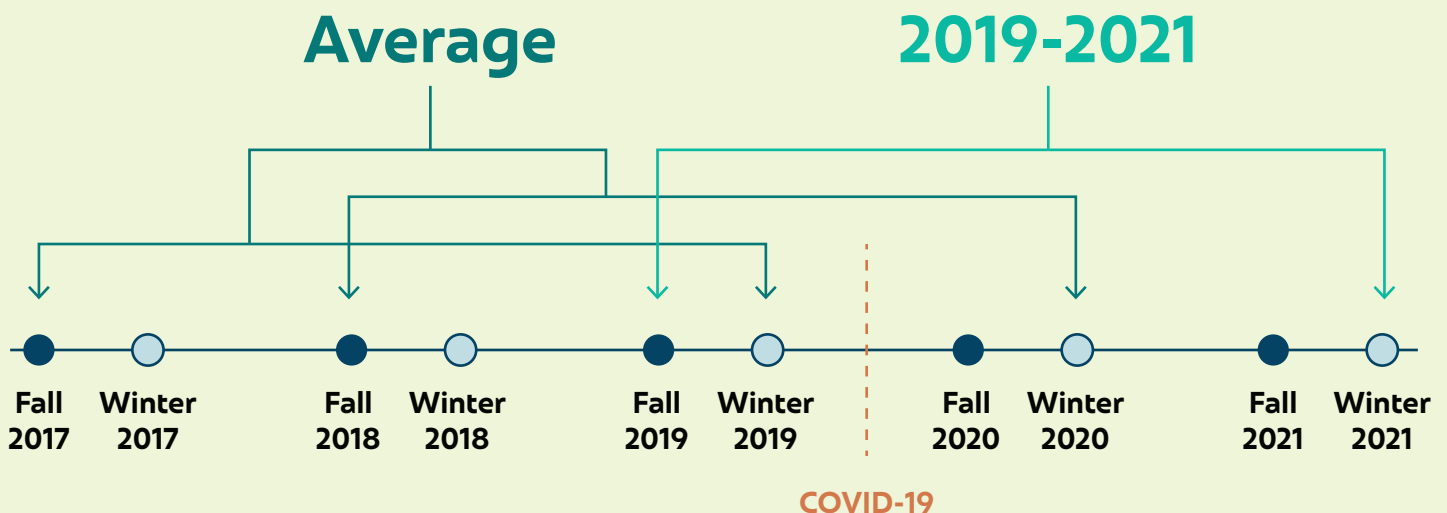
CONTINUITY OF ASSESSMENT Ideally, the same interim assessment will be used over the time periods being compared. However, there are approaches available if a district/state has changed assessments during that span. EA is capable of combining and summarizing results across different interim assessments, but this method may be outside the scope of what smaller LEAs can do independently.

TIME PERIOD An LEA needs interim assessment data to measure academic growth for a given grade, subject, and assessment type from:

- the most recent (COVID-19) growth year (e.g., fall 2019 pretest and winter 2021 posttest; winter 2020 pretest and winter 2021 posttest)
- at least one prior growth year over a comparable time interval (e.g., fall 2018 pretest and winter 2020 posttest; winter 2018 pretest and winter 2019 posttest)

Below is an example of what these time periods could look like in one analysis.

Example time periods for assessment data to measure academic growth



What other analytic approaches could we use?

Simple Gain Comparison

For an individual LEA, the simplest way to examine learning disruption is to compare student achievement gain in a COVID-19-affected year with similar achievement gain (e.g., fall-to-fall, fall-to-winter, winter-to-winter) in years not affected by COVID-19. This could include comparing average gain for each grade level in COVID-19 and non-COVID-19 years, as well as average gain for each student subgroup within a grade (if sample sizes allow).

Several limitations with this method (also discussed in the recommendations above) include:

- Timing of the test administrations in the COVID-19-affected year should be similar to the non-COVID-19 years (within 2-3 weeks), otherwise you should statistically control for the timing when calculating learning lag
- Gain analysis should be conducted separately by subject and grade, since a scale score point of growth can have different implications in different subjects and grades
- Sample composition should be addressed and controlled for if the composition of schools and students tested during the COVID-19-affected period differs substantially from the composition during the pre-COVID-19 period
- If possible, include an indicator of where students took the assessment (at home or in school) or analyze results separately for students instructed and/or assessed at home versus in school

What analytic approach can EA provide?

Our Expertise

We can go beyond the simple analysis described above. With our collections of national data and decades of experience analyzing student growth, we can offer more nuanced, rigorous, and actionable analysis than might be produced by an individual LEA. For example, our analysis would typically:

- Control for demographics at the student and school levels
- Correct for measurement error in assessments
- Control for student prior achievement and average prior achievement

- Enable comparison across multiple interim assessment types and state summative assessments
- Be reported in formats most useful for different types of stakeholders (e.g., aggregated statewide trends for policymakers, school-level reports for district administrators, or easy-to-use data platforms for school-level staff)

Our Approach in South Carolina and California

EA compared growth from fall 2019 to winter 2021 (the “COVID-19” period) to the average of growth from fall to next winter in the two prior school years (fall 2017–winter 2019 and fall 2018–winter 2020). To summarize learning disruption across assessments on different scales, we converted our results to a single “months of learning” metric that used either a typical amount of growth from one year to the next or the range of achievement scores within a given school year. We use this “months of learning” scale for intuitiveness and interpretability across different assessments, but this scale is an approximation that should not be literally interpreted to correspond to a specific number of months of instruction. The demographic composition of students in our sample shifted slightly over time; changes do not appear to be due to a dramatic shift in the students assessed in COVID-affected years compared to pre-COVID years, except for students with disabilities, who were underrepresented in the California sample in 2020-21.

For more details on this research, see edanalytics.org/resources/covid-19-impacts-on-learning-and-well-being

National Capacity

EA staff have decades of experience analyzing student-level assessment data. Our expertise in this field allows for 1) a more precise, statistically rigorous approach to analysis, 2) a stronger ability to diagnose and rectify data quality issues, and 3) knowledgeable support of stakeholders’ interpretation of results. This capability allows us to account for things like large concentrations of high or low achievers in a school or district, or different patterns in remote/hybrid learning across schools. We also are well-versed in the work needed to get data from disparate systems to properly “communicate” with one another (e.g., merging files with different student IDs).

We are well-practiced at unpacking the differences between achievement, growth, and learning change, and explaining what interpretations might be valuable from each type of analysis. Our national and longstanding experience enables us to conduct rigorous analysis that can also be compared to our work in other locales, allowing for easier communication and greater trust in analysis results.

Intrigued by our approach to analytics? Complete an interest form at edanalytics.org/contact/partnerships. We will follow up with more information about supporting interim assessment analytics in your state, district, or charter management organization.