

Technical Advisory Panel Meeting

October 22, 2020





- Welcome & New Member Introductions Elena & Dan
- Accountability Stakeholder Committee Updates & TAP
 Feedback Carol Eaton/Lisa Medler
- Baseline Growth Marie Huchton
- Future Items, Public Comments & Closing Elena & Dan



Welcome & Introductions



Welcome!

 The purpose of the TAP is to provide non-binding technical recommendations to CDE regarding the Colorado Growth Model, state accountability, and other topics as needed.

TAP Members Roll Call & Introductions

Meeting Logistics:

- Non-members please add your Name/Affiliation to the chat box.
- Everyone please mute your sound.
- We ask all non-TAP members to hold any comments until the end of the meeting. We do this to ensure we have sufficient time to address all meeting agenda items.





Accountability Stakeholder Committee Updates & TAP Feedback

Carol Eaton & Lisa Medler





Stakeholder Advisory Group



Pulled from C.R.S. 22-2-112. Commissioner Duties.

- Convene a stakeholder group to
 - Review the impact of the covid-19 pandemic and the resulting disruption of the 2019-20 school year, including student transition to remote learning and the cancellation of the state assessments, accountability, accreditation, and educator evaluation systems for the 2019-20 school year
 - Discuss how the cancellation of state assessments will impact accountability, accreditation, and educator evaluations during the 2020-21 school year and whether future modifications are needed regarding the accountability, accreditation, and educator evaluation systems as a result of, and in response to, the covid-19 pandemic and possible further disruptions
 - Make recommendations regarding whether and how to proceed with state assessments, accountability, accreditation, and educator evaluations during the 2020-211 school year and how the systems can continue to effectively measure student achievement and growth and provide an accurate, credible, and comparable assessment of the quality of the public education system throughout the state following the covid-19 pandemic
- —Web-page: http://www.cde.state.co.us/safeschools/covid-stakeholder-group



Current DRAFT Recommendations: Educator Effectiveness (Tentative consensus)

Because of the cancellation of state assessments and school disruptions due to COVID-19 in the spring 2020, educators' final evaluation ratings should be based 100% on their professional practice score for the 2020-21 school year only. This supports CDE's announcement in the summer of 2020 that they will not monitor or collect information from districts on Measures of Student Learning/Outcomes.



DRAFT Recommendations for Assessments: Social Studies and SAT Essay

CMAS/CoAlt Social Studies: CMAS/CoAlt Social Studies should not be administered in grades 4 and 7 in spring 2021.

CO SAT Essay: If the CO SAT is administered in spring 2021, the essay portion of the assessment should be an option for students to select as needed or desired.



DRAFT Recommendations for Assessment: PSAT/SAT (Not at consensus yet)

Consistent with current statute, the stakeholder committee recommends that districts and schools administer the CO PSAT/SAT (and associated CoAlt) assessments to Colorado public school students enrolled in grades 9 (PSAT 9/CoAlt), 10 (PSAT 10/CoAlt) and 11 (SAT/CoAlt) in the spring of 2021 to the extent COVID-19 conditions allow students to be at least partially inperson at the time of testing.



DRAFT Recommendations for Assessment: PSAT/SAT/CoAlt (cont.)

ADDITIONAL CONSIDERATIONS

In addition to addressing if and how to administer CO PSAT/SAT/CoAlt in spring 2021, the stakeholder group suggests that the following CO PSAT/SAT/CoAlt results be provided consistent with state law:

- A. Confidential individual student results to students and their guardians
- B. Confidential individual student results to schools and districts
- C. Confidential aggregated and disaggregated individual student results to schools and districts
- D. State, district, and school aggregated and disaggregated assessment results publicly.



DRAFT Recommendations for Assessment: CMAS/CoAlt ELA/Math (Not at consensus yet)

EMERGING RECOMMENDATION ON IF AND HOW TO ADMINISTER:

IN-PERSON ADMINISTRATION: Consistent with current legislation, the stakeholder committee recommends that districts and schools be required to administer the CMAS (and associated CoAlt) ELA and math assessments to Colorado public school students enrolled in grades 3-8 in the spring of 2021 to the extent COVID-19 conditions allow students to be at least partially in-person at the time of testing.

REMOTE ADMINISTRATION: Groups of students who are not attending school in-person during the assessment dates may have the option to take the test remotely from their homes.



DRAFT Recommendations for Assessment: CMAS/CoAlt ELA/Math (cont.)

ADDITIONAL CONSIDERATIONS:

In addition to addressing if and how to administer CMAS/CoAlt ELA and math in spring 2021, the stakeholder group suggests that the CMAS/CoAlt ELA and math results be provided, and consistent with state law, to the following:

- A. Confidential individual student results to students and their guardians
- B. Confidential individual student results to schools and districts
- C. Confidential aggregated and disaggregated individual student results to schools and districts
- D. Per 22.7.1006.3(7)(b), the department of education shall release to the public only those state, district, and school aggregated and disaggregated assessment results that the department deems valid.

DRAFT Recommendation for Assessment: CMAS/CoAlt Science (Not at consensus yet)

Requiring state statute change or executive action as well as federal approval, the stakeholder committee recommends that districts and schools should not administer the CMAS (and associated CoAlt) science assessments to Colorado public school students enrolled in grades 5, 8 and 11 in the spring of 2021.



Draft Recommendations for Accountability: Performance Framework Pause (Tentative consensus with additional work to be done on the accountability clock)

The Stakeholder Group recommends changes to statute, board rule and/or state practices to pause the calculation and publication of school and district level performance frameworks and state accountability ratings for the 2021-22 school year. A school or district's rating will roll-over from 2020. Note: 2020 ratings were rolled over from 2019 based upon the 2020 accountability pause.

[Amendment/Placeholder: Special consideration needs to be given to districts and schools on the accountability clock...]



Remaining Items for Potential Discussion



- Growth Reports (baseline and skip year growth)
 - Individual reports
 - Aggregated reports
- Accreditation
- Improvement Planning (e.g., UIP)





Break (10 minutes)









Baseline Growth

Marie Huchton





Baseline Growth Study



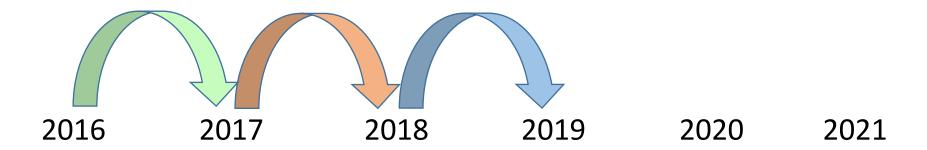
- Prior to COVID, the State Board of Education had expressed concern that the traditional cohort-based growth calculation re-normed every year and did not show state level growth trends over time.
- During the 2019-2020 school year, CDE contracted with the Center for Assessment, Design, Research and Evaluation (CADRE) at CU Boulder to investigate the technical characteristics of baseline growth and compare its student and school-level outcomes against traditional growth.
- CADRE is finalizing the write-up of these investigations to be released in the next few weeks, but we wanted to give you a quick overview and discuss the potential uses of baseline growth in our new mid-pandemic reality.



Traditional Cohort-Based SGPs



- In a normal year, growth calculations reflect the amount of progress a student has made from the prior year's summative assessment result (e.g. CMAS, PSAT and SAT) to the current year's result in comparison to their academic peer group
- The norming group of academic peers changes each year depending upon the performance of the current population, and the median state growth percentile is always about 50





Baseline SGPs



- Alternatively, baseline growth measures the amount of progress a student has made from the prior year's summative assessment result to the current year's result in comparison to a historical academic peer group
- Baseline SGPs apply historically established growth relationships to current year results, allowing us to meaningfully track changes in student growth outcomes over time.





Purposes of CADRE Study



- Compare and contrast the interpretation of baselinereferenced versus cohort-referenced SGPs.
- Evaluate empirically how much inferences about student or school-level growth results might differ if baseline-referenced SGPs were used in 2019 instead of cohort-referenced SGPs.
- Discuss issues to consider when comparing baseline and cohort-referenced SGPs.

Remember, all analyses were conducted prior to COVID-19



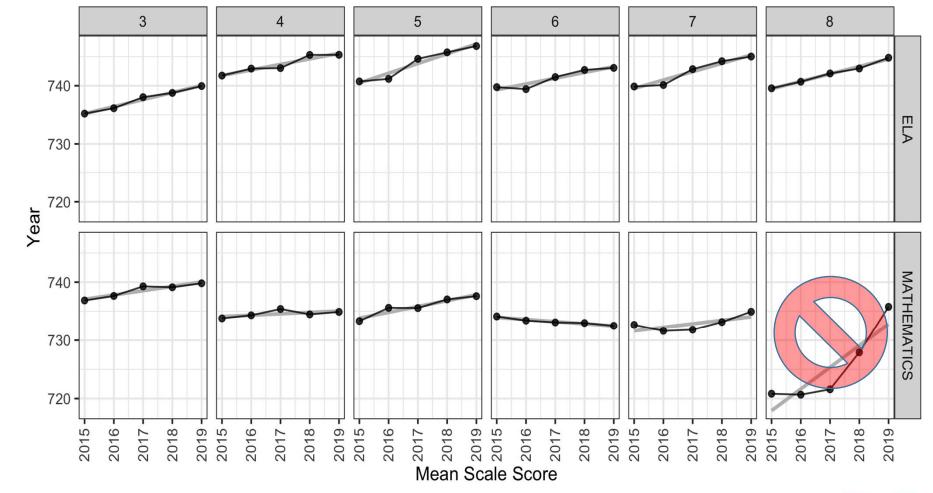
Data Details



- Study looked at CMAS g3-8 ELA and Mathematics student data from 2015 to 2019
- Two types of growth run for the 2019 cohort:
 - Cohort SGP: traditional current cohort-reference group using up to 2 prior year scale scores
 - **Baseline SGP**: historical baseline cohort as the reference group using up to 2 priors. The baseline cohort comprises all students who had both a valid current and prior year test score in 2016, 2017, or 2018.
- Changes to CMAS between 2015 and 2019 (e.g. removal of math pathways, shortened test form and shift from raw-score to item-pattern scoring, etc.) limit comparability between models for some grades/years

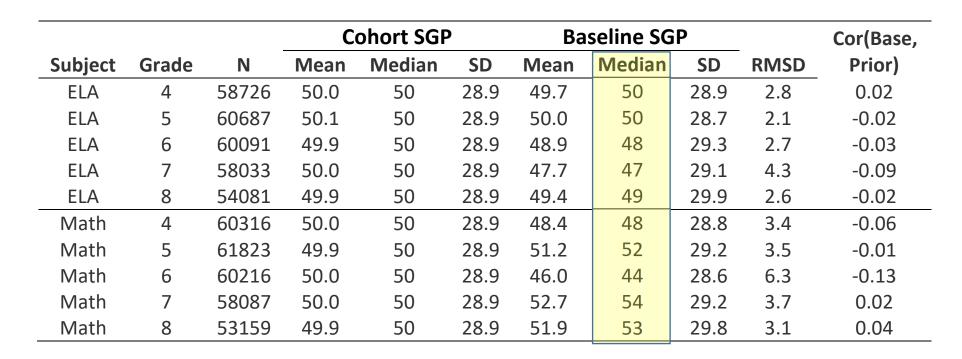


Average Scale Scores by Grade, Subject, and Year





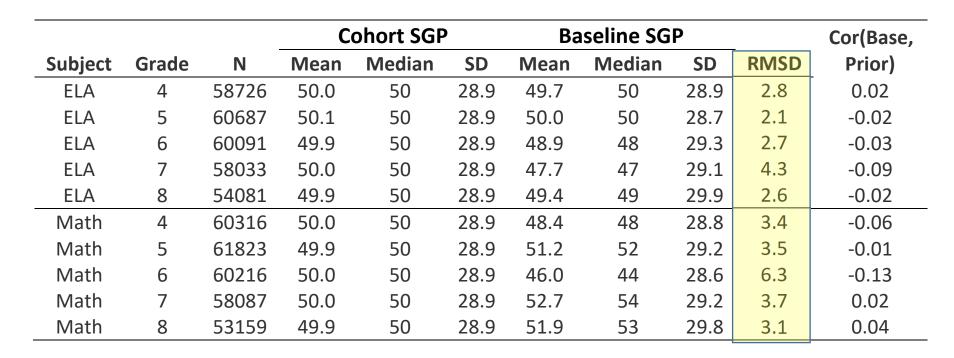
Summary Statistics for 2019 Cohort and Baseline SGPs, by Subject and Grade



- In ELA, students in 2019 made about the same or slightly less progress than students in the baseline cohort.
- Math results are mixed, 5th, 7th, and 8th grade show more progress than prior cohorts, whereas 4th and 6th grade show less progress



Summary Statistics for 2019 Cohort and Baseline SGPs, by Subject and Grade



- RMSD = root mean squared difference between cohort and baseline SGPs across students. Quantifies the average magnitude of the difference between cohort and baseline SGPs for each student.
- RMSD of 3 would indicate that each student's baseline-referenced SGP differs from the student's cohort SGP by 3 points, on average



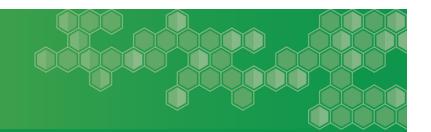
Summary Statistics for 2019 Cohort and Baseline SGPs, by Subject and Grade

			Cohort SGP		Baseline SGP			_	Cor(Base	
Subject	Grade	N	Mean	Median	SD	Mean	Median	SD	RMSD	Prior)
ELA	4	58726	50.0	50	28.9	49.7	50	28.9	2.8	0.02
ELA	5	60687	50.1	50	28.9	50.0	50	28.7	2.1	-0.02
ELA	6	60091	49.9	50	28.9	48.9	48	29.3	2.7	-0.03
ELA	7	58033	50.0	50	28.9	47.7	47	29.1	4.3	-0.09
ELA	8	54081	49.9	50	28.9	49.4	49	29.9	2.6	-0.02
Math	4	60316	50.0	50	28.9	48.4	48	28.8	3.4	-0.06
Math	5	61823	49.9	50	28.9	51.2	52	29.2	3.5	-0.01
Math	6	60216	50.0	50	28.9	46.0	44	28.6	6.3	-0.13
Math	7	58087	50.0	50	28.9	52.7	54	29.2	3.7	0.02
Math	8	53159	49.9	50	28.9	51.9	53	29.8	3.1	0.04

 Cor = correlation between each student's baseline SGP and the student's prior year scale score



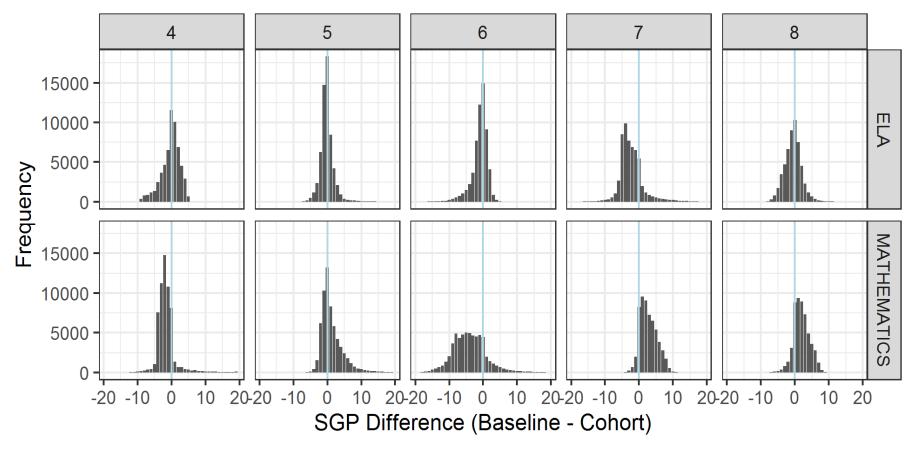
Individual Student Differences



- Correlation between cohort and baseline SGPs across students within grades is 0.99 or higher in every grade
- RMSD suggests that on average each student's SGP would differ by between 2 and 6 points depending upon which method was used.
- These differences are far smaller than the uncertainty in individual student SGPs; the average standard error of each student's cohort SGP is approximately 14-18 points, depending on the grade and subject.
- Cohort versus baseline SGP differences at the individual student level are generally not large enough to be meaningful.

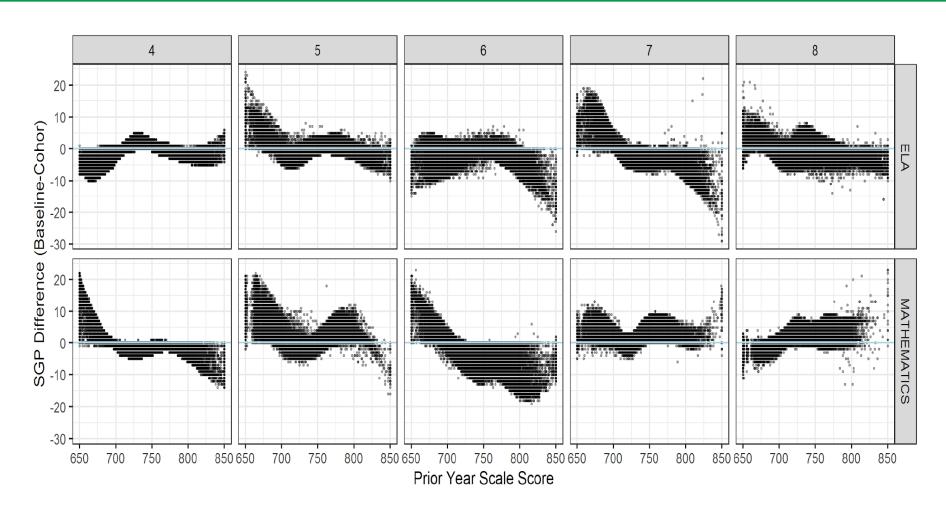


Histogram of Individual Baseline-Cohort SGP Differences, by Subject and Grade



Note: Blue vertical lines indicate X=0. Differences are computed by subtracting cohort SGPs from baseline SGPs.

Difference Between Individual Baseline and Cohort SGPs versus Prior Year Scale Score, by Grade and Subject





Subject	Level	N	Mean Diff.	RMSD	Cor 1	Cor 2	Cor 3	Cor 4
	4	1050	-0.22	2.00	0.99	0.22	0.24	0.15
	5	1059	-0.11	1.59	0.99	0.12	0.10	-0.21
ELA	6	639	-1.29	2.10	1.00	0.22	0.19	-0.24
	7	560	-2.85	3.73	0.99	0.20	0.09	-0.62
	8	559	-0.44	1.84	0.99	0.13	0.11	-0.10
	4	1050	-2.11	2.90	0.99	0.14	0.08	-0.52
	5	1059	1.52	2.70	0.99	0.04	0.04	0.04
Math	6	638	-5.24	6.17	0.98	0.14	-0.01	-0.70
	7	560	3.77	4.14	0.99	0.22	0.26	0.36
	8	559	2.42	3.00	0.99	0.19	0.23	0.48
	Е	1090	-0.13	1.54	0.99	0.31	0.31	-0.05
ELA	M	731	-1.52	2.20	0.99	0.32	0.28	-0.32
Math	E	1091	-0.19	2.05	0.99	0.24	0.18	-0.31
Math	M	730	-0.70	3.49	0.97	0.28	0.23	-0.24

- For ELA, average differences between cohort and baseline MGPs were negative and generally small, across all grades and E/M levels
- For Math, sometimes negative and sometimes positive depending on the grade



Subject	Level	N	Mean Diff.	RMSD	Cor 1	Cor 2	Cor 3	Cor 4
	4	1050	-0.22	2.00	0.99	0.22	0.24	0.15
	5	1059	-0.11	1.59	0.99	0.12	0.10	-0.21
ELA	6	639	-1.29	2.10	1.00	0.22	0.19	-0.24
	7	560	-2.85	3.73	0.99	0.20	0.09	-0.62
	8	559	-0.44	1.84	0.99	0.13	0.11	-0.10
	4	1050	-2.11	2.90	0.99	0.14	0.08	-0.52
	5	1059	1.52	2.70	0.99	0.04	0.04	0.04
Math	6	638	-5.24	6.17	0.98	0.14	-0.01	-0.70
	7	560	3.77	4.14	0.99	0.22	0.26	0.36
	8	559	2.42	3.00	0.99	0.19	0.23	0.48
ГІА	Е	1090	-0.13	1.54	0.99	0.31	0.31	-0.05
ELA	M	731	-1.52	2.20	0.99	0.32	0.28	-0.32
Math	E	1091	-0.19	2.05	0.99	0.24	0.18	-0.31
Math	M	730	-0.70	3.49	0.97	0.28	0.23	-0.24

- RMSDs of 1-3 points are small compared to average between-school MGP variability of 11 to 16 points
- 6 point difference for grade 6 math considered moderate



Subject	Level	N	Mean Diff.	RMSD	Cor 1	Cor 2	Cor 3	Cor 4
	4	1050	-0.22	2.00	0.99	0.22	0.24	0.15
	5	1059	-0.11	1.59	0.99	0.12	0.10	-0.21
ELA	6	639	-1.29	2.10	1.00	0.22	0.19	-0.24
	7	560	-2.85	3.73	0.99	0.20	0.09	-0.62
	8	559	-0.44	1.84	0.99	0.13	0.11	-0.10
	4	1050	-2.11	2.90	0.99	0.14	0.08	-0.52
	5	1059	1.52	2.70	0.99	0.04	0.04	0.04
Math	6	638	-5.24	6.17	0.98	0.14	-0.01	-0.70
	7	560	3.77	4.14	0.99	0.22	0.26	0.36
	8	559	2.42	3.00	0.99	0.19	0.23	0.48
ΓΙΛ	Е	1090	-0.13	1.54	0.99	0.31	0.31	-0.05
ELA	M	731	-1.52	2.20	0.99	0.32	0.28	-0.32
Math	E	1091	-0.19	2.05	0.99	0.24	0.18	-0.31
Math	М	730	-0.70	3.49	0.97	0.28	0.23	-0.24

 RMSDs of 1-3 points small compared to average between-year MGP variability of 15 to 16 points at the school by grade level, and approximately 13 points at the E/M level.

Subject	Level	N	Mean Diff.	RMSD	Cor 1	Cor 2	Cor 3	Cor 4
	4	1050	-0.22	2.00	0.99	0.22	0.24	0.15
	5	1059	-0.11	1.59	0.99	0.12	0.10	-0.21
ELA	6	639	-1.29	2.10	1.00	0.22	0.19	-0.24
	7	560	-2.85	3.73	0.99	0.20	0.09	-0.62
	8	559	-0.44	1.84	0.99	0.13	0.11	-0.10
	4	1050	-2.11	2.90	0.99	0.14	0.08	-0.52
	5	1059	1.52	2.70	0.99	0.04	0.04	0.04
Math	6	638	-5.24	6.17	0.98	0.14	-0.01	-0.70
	7	560	3.77	4.14	0.99	0.22	0.26	0.36
	8	559	2.42	3.00	0.99	0.19	0.23	0.48
ГІЛ	E	1090	-0.13	1.54	0.99	0.31	0.31	-0.05
ELA	M	731	-1.52	2.20	0.99	0.32	0.28	-0.32
Math	Е	1091	-0.19	2.05	0.99	0.24	0.18	-0.31
Math	M	730	-0.70	3.49	0.97	0.28	0.23	-0.24

- Cor 1 = correlation between the 2019 cohort and baseline MGPs
- 0.97 or higher, suggesting that the rank ordering of schools would remain very consistent regardless of SGP type

Subject	Level	N	Mean Diff.	RMSD	Cor 1	Cor 2	Cor 3	Cor 4
	4	1050	-0.22	2.00	0.99	0.22	0.24	0.15
	5	1059	-0.11	1.59	0.99	0.12	0.10	-0.21
ELA	6	639	-1.29	2.10	1.00	0.22	0.19	-0.24
	7	560	-2.85	3.73	0.99	0.20	0.09	-0.62
	8	559	-0.44	1.84	0.99	0.13	0.11	-0.10
	4	1050	-2.11	2.90	0.99	0.14	0.08	-0.52
	5	1059	1.52	2.70	0.99	0.04	0.04	0.04
Math	6	638	-5.24	6.17	0.98	0.14	-0.01	-0.70
	7	560	3.77	4.14	0.99	0.22	0.26	0.36
	8	559	2.42	3.00	0.99	0.19	0.23	0.48
	Е	1090	-0.13	1.54	0.99	0.31	0.31	-0.05
ELA	M	731	-1.52	2.20	0.99	0.32	0.28	-0.32
Math	E	1091	-0.19	2.05	0.99	0.24	0.18	-0.31
Math	M	730	-0.70	3.49	0.97	0.28	0.23	-0.24

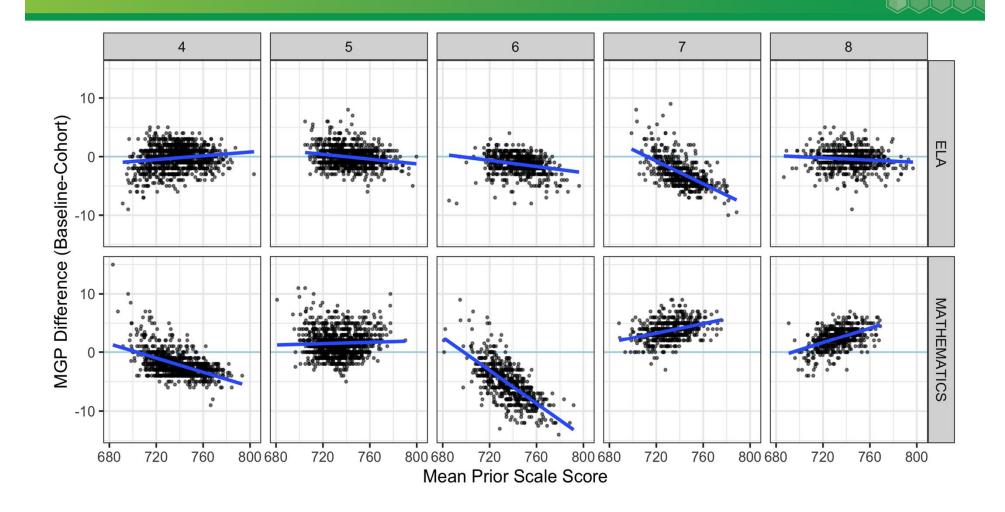
- Cor 2 & 3 = correlation between school MGP and average prior year scale score
- For both cohort (Cor 2) and baseline (Cor 3), schools with higher MGPs tend to have slightly higher prior year average test scores

Subject	Level	N	Mean Diff.	RMSD	Cor 1	Cor 2	Cor 3	Cor 4
	4	1050	-0.22	2.00	0.99	0.22	0.24	0.15
	5	1059	-0.11	1.59	0.99	0.12	0.10	-0.21
ELA	6	639	-1.29	2.10	1.00	0.22	0.19	-0.24
	7	560	-2.85	3.73	0.99	0.20	0.09	-0.62
	8	559	-0.44	1.84	0.99	0.13	0.11	-0.10
	4	1050	-2.11	2.90	0.99	0.14	0.08	-0.52
	5	1059	1.52	2.70	0.99	0.04	0.04	0.04
Math	6	638	-5.24	6.17	0.98	0.14	-0.01	-0.70
	7	560	3.77	4.14	0.99	0.22	0.26	0.36
	8	559	2.42	3.00	0.99	0.19	0.23	0.48
	E	1090	-0.13	1.54	0.99	0.31	0.31	-0.05
ELA	M	731	-1.52	2.20	0.99	0.32	0.28	-0.32
Math	E	1091	-0.19	2.05	0.99	0.24	0.18	-0.31
Math	M	730	-0.70	3.49	0.97	0.28	0.23	-0.24

- Cor 4 = correlation between baseline/cohort MGP difference and average prior year scale score
- No clear pattern

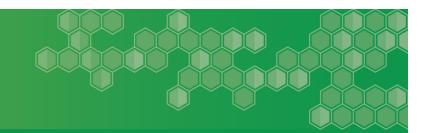


Scatterplots of Difference between School Cohort and Baseline Median Growth Percentiles and Mean Prior Year Scale Scores





Summary of Findings



- SGPs and MGPs were generally very similar and indicate consistency in 2019 cohort student growth compared to prior cohorts
- At the student level, SGPs between methodologies were very highly correlated, and the observed differences in SGPs were generally much smaller than the standard errors of each student's SGP
- At the school level, average differences between each school's cohort and baseline MGPs were smaller than the observed changes in cohort MGPs across years and the correlations between baseline and cohort MGPs were very high



Showing Student Growth during a Pandemic

- Given that CADRE's baseline study indicates that under "normal" circumstances baseline growth provides meaningful and consistent inferences about trends over time in comparison to cohort-referenced growth
- And the study from NCIEA we reviewed in September shows that under "normal" circumstances skip-year growth can be used in lieu of one-year growth
- We should be able to combine the two methodologies to estimate the observed growth from 2019 to 2021 during the COVID-19 pandemic in comparison to a historic academic peer group from normal years



Skip-year Baseline Growth During COVID

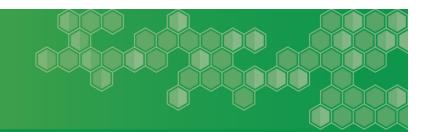


- Uses growth expectations established in past normal years to gauge the impact of the pandemic on student learning in the current atypical years
- Baseline growth could result in a state-level median student growth percentile (MGP) for 2021 that is less than 50, how much less would be an estimate of the average learning loss due to the pandemic.





Baseline Growth Considerations



- With this approach, the 85% participation threshold is not needed to calculate growth in 2021
- Since we are borrowing the historical norming group, we can estimate baseline growth for any number of students participating in 2021 state assessments
- Anticipate that tested students would more likely be receiving in-person instruction and may have fundamentally different characteristics (demographics and/or quality of available instruction during pandemic) than non-tested students
- This may limit possible inferences, but baseline growth data could provide useful learning loss estimates for some students, school/districts, disaggregated groups and state level testers



Uses for Baseline Growth Reporting



Types of Reporting	Level	Uses	Caveats
Student Reports	Student	Individual progress compared to peers in a normal school year	Training and communication necessary
Summary Reports	School, District, Demographic Groups	Group progress compared to peers in a normal school year	Low participation could skew actual student learning
State Performance Frameworks	n/a	n/a	Not appropriate for state accountability



Baseline Growth Next Steps



- CDE will first try running one-year baseline growth on the fall 2020 PSAT 10 and SAT results.
- CDE then plans to run skip-year baseline growth for whatever state content assessment data are available in 2021.
 - Note that high school may be more difficult because of the staggered implementation of assessments between 2017 and 2019.
- CDE will make sure to bring back analyses results for TAP discussion and guidance on communication with potential stakeholder groups



Additional Questions?



Contact

Marie Huchton

CDE, Accountability Analytics Supervisor

Huchton m@cde.state.co.us



Technical Advisory Panel



- Meeting Summary:
 - Suggested future analysis
 - TAP recommendations from this meeting
- Public Comment
- Close Meeting
 - Next Scheduled Meeting, Thursday, November 19th, 1-4.



Takeaways from Skip-year Growth



- Skip-year growth would indicate a student's progress over the last two years relative to their academic peers also experiencing disrupted instruction due to COVID-19.
- It may be possible to calculate skip-year growth from 2019 to 2021 (skipping 2020) if a to-be-determined proportion (maybe 85%) of students per grade/content area have valid scores on the state assessment.
- If/when 2021 assessment results become available, CDE will need to run additional analyses to determine if skip-year growth could be used in lieu of traditional one-year growth for state and federal accountability reporting.
- If available, skip-year growth results could be publicly released for schools, districts and disaggregated groups with caveats around interpretation.



Takeaways from Baseline Growth



- Baseline growth would indicate a student's progress over the last two years relative to their academic peers in a normal school year.
- If any students have state content assessment results, baseline growth can be calculated and released privately to students, parents, schools, and districts with caveats around interpretation compared to traditional growth.
- Baseline growth would not be appropriate for state or federal accountability reporting.
- If a enough students test (threshold TBD), results could be publicly released for schools, districts and disaggregated groups with appropriate caveats around interpretation compared to traditional growth.

