COLORADO
Department of Education

Technical Advisory Panel Meeting

August 12, 2021

Agenda

- **Welcome**
- **Meeting Organization (Info Items, format, vice-chair)**
  Marie Huchton/Dan Jorgensen
- **WIDA ACCESS Growth Results**
  Marie Huchton
- **CMAS Growth Results**
  Marie Huchton
- **Future Items, Public Comments & Closing**

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.

- **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.

- ***Thanks to Elena for serving as the chair and vice-chair during the past four years!***

Meeting Organization Item

(Formal Recommendation and Informal Feedback)

Request for Formal TAP Recommendation

- Do TAP members want to start having in-person meetings again this fall?

Discussion Item and Informal TAP feedback

- Types of items and requested feedback
  - Information item
  - Informal feedback
  - Formal recommendation

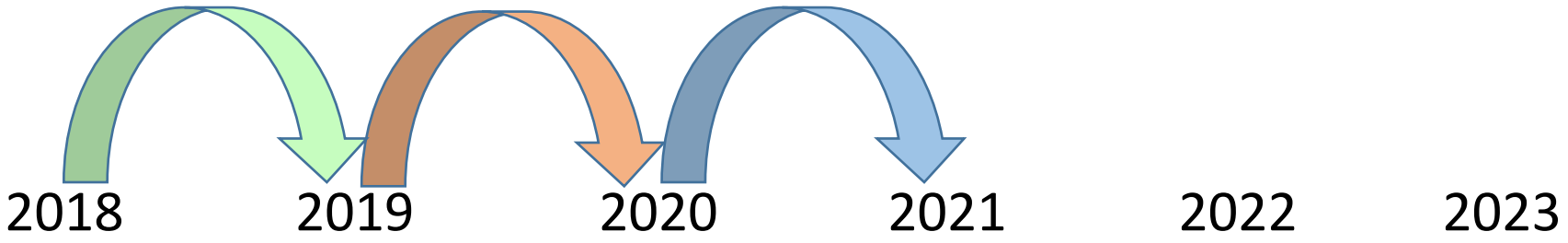
- CDE will try to more clearly communicate the type of items on each month's agenda and the feedback being requested during each item.

2021 WIDA ACCESS Growth Results Overview

(Information Item)

Traditional Cohort-Referenced Growth

- 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., WIDA ACCESS) to the current year's result in comparison to their cohort of academic peers.
- Student progress is measured sequentially from one year to the next- so 2019 to 2020 and now 2020 to 2021



Alternative Baseline-Referenced Methodology

- This new approach uses the growth expectations established in 2020 to gauge the impact of the pandemic on student learning in the current atypical year.
- Baseline growth could result in a state-level median student growth percentile (MGP) for 2021 that is less than 50. The difference from 50 provides an estimate of the average learning loss (or theoretical gain).

2018 2019 2020 2021 2022 2023

Notes on Test Participation

- Ensuring adequate representative student participation on the 2021 state assessments has been a major consideration this year.
- If participation is too low and/or certain types of students (e.g., students with IEPs) participated in the assessments at much lower rates than their grade-level peers, it would not be appropriate to use cohort-referenced growth.
- In 2021, about 80% of ELs enrolled in program had valid scores on WIDA ACCESS

Grade	Number Registered	Number Tested	% Tested
Kindergarten	8,618	7,665	88.9%
Grade 01	9,331	8,114	87.0%
Grade 02	9,512	8,231	86.5%
Grade 03	9,187	7,877	85.7%
Grade 04	8,411	7,052	83.8%
Grade 05	6,916	5,779	83.6%
Grade 06	5,720	4,448	77.8%
Grade 07	5,723	4,410	77.1%
Grade 08	5,441	4,226	77.7%
Grade 09	5,258	3,537	67.3%
Grade 10	4,284	2,851	66.5%
Grade 11	3,722	2,389	64.2%
Grade 12	3,398	1,961	57.7%
ALL GRADES	85,521	68,540	80.1%

2021 Demographic Representativeness- K-12 grades combined

Category	Student Group	Number Registered	Number Tested	% Tested	% of Total Registered	% of Total Tested	Difference: Test - Reg
ALL STUDENTS	ALL STUDENTS	85,521	68,540	80.1%	100.0%	100.0%	0.0%
ETHNICITY	Native American	345	269	78.0%	0.4%	0.4%	0.0%
ETHNICITY	Asian	6,050	5,058	83.6%	7.1%	7.4%	0.3%
ETHNICITY	Black	4,362	3,507	80.4%	5.1%	5.1%	0.0%
ETHNICITY	Hispanic	69,468	55,340	79.7%	81.3%	80.8%	-0.5%
ETHNICITY	White	4,219	3,515	83.3%	4.9%	5.1%	0.2%
ETHNICITY	Pacific Islander	503	344	68.4%	0.6%	0.5%	-0.1%
ETHNICITY	Two or More	536	472	88.1%	0.6%	0.7%	0.1%
FRL STATUS	FRL- No	27,199	21,533	79.2%	31.8%	31.4%	-0.4%
FRL STATUS	FRL- Yes	58,322	47,007	80.6%	68.2%	68.6%	0.4%
GENDER	Female	39,197	31,221	79.7%	45.8%	45.6%	-0.2%
GENDER	Male	46,307	37,302	80.6%	54.2%	54.4%	0.2%
IEP STATUS	IEP- No	71,624	57,364	80.1%	83.8%	83.7%	-0.1%
IEP STATUS	IEP- Yes	13,897	11,176	80.4%	16.2%	16.3%	0.1%

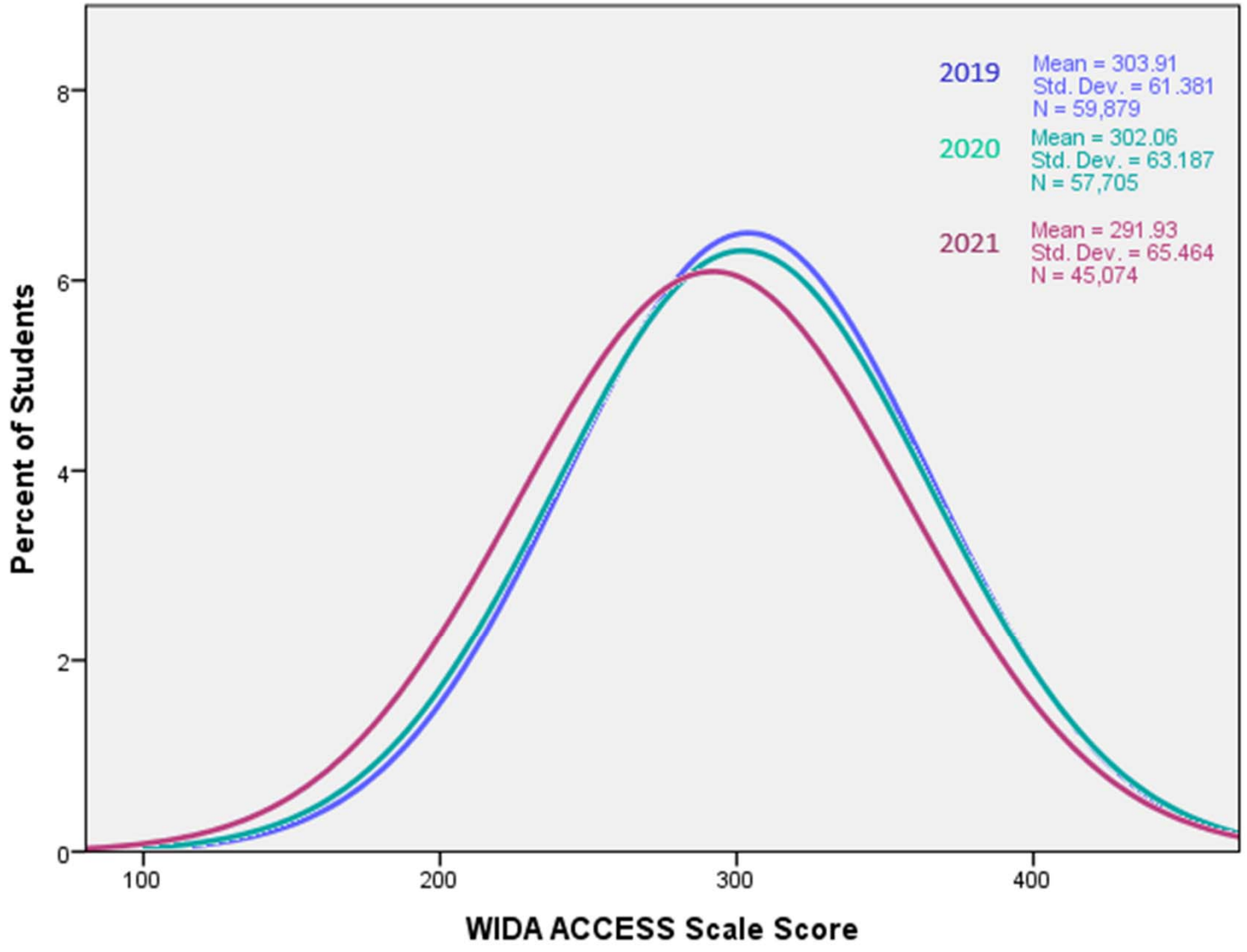
Notes on Test Participation (continued)

- State-level comparisons of tested ELs against the total enrolled EL population did not show any significant differences in demographic representativeness.
- This means 2021 WIDA ACCESS results are likely representative of the overall state EL population and can be meaningfully compared to previous year's results and used to calculate cohort-referenced as well as baseline growth.

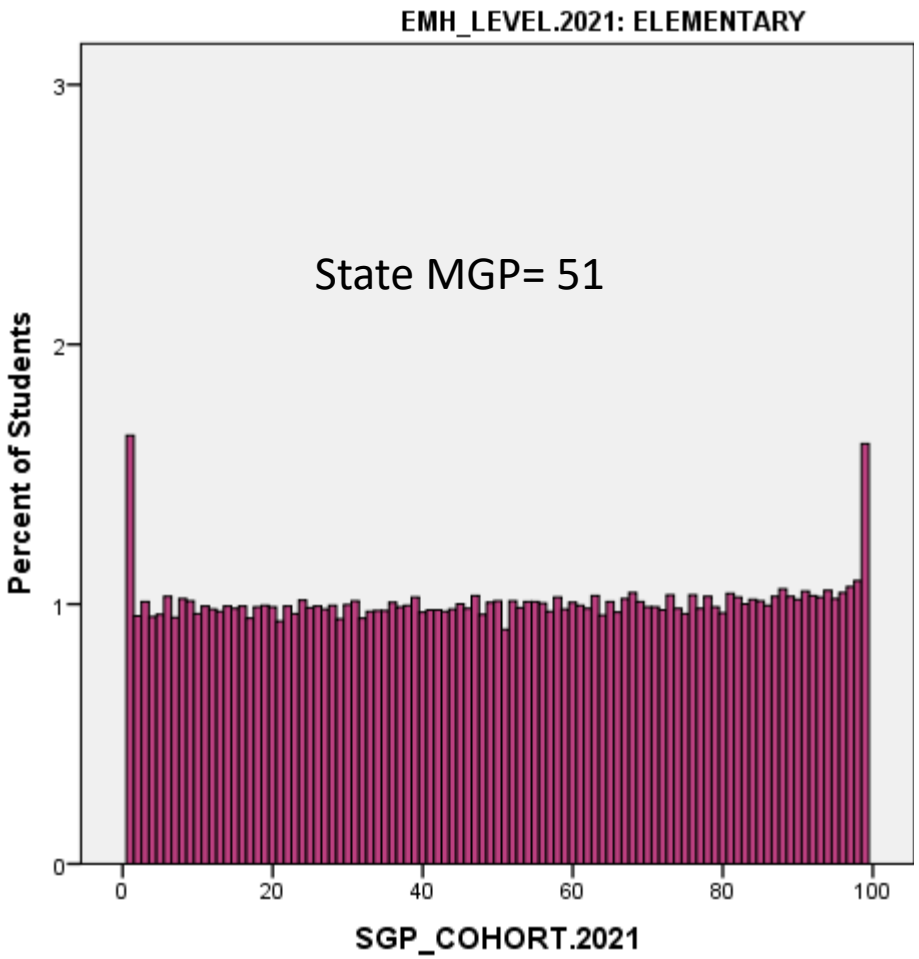
Matched Historical Sample

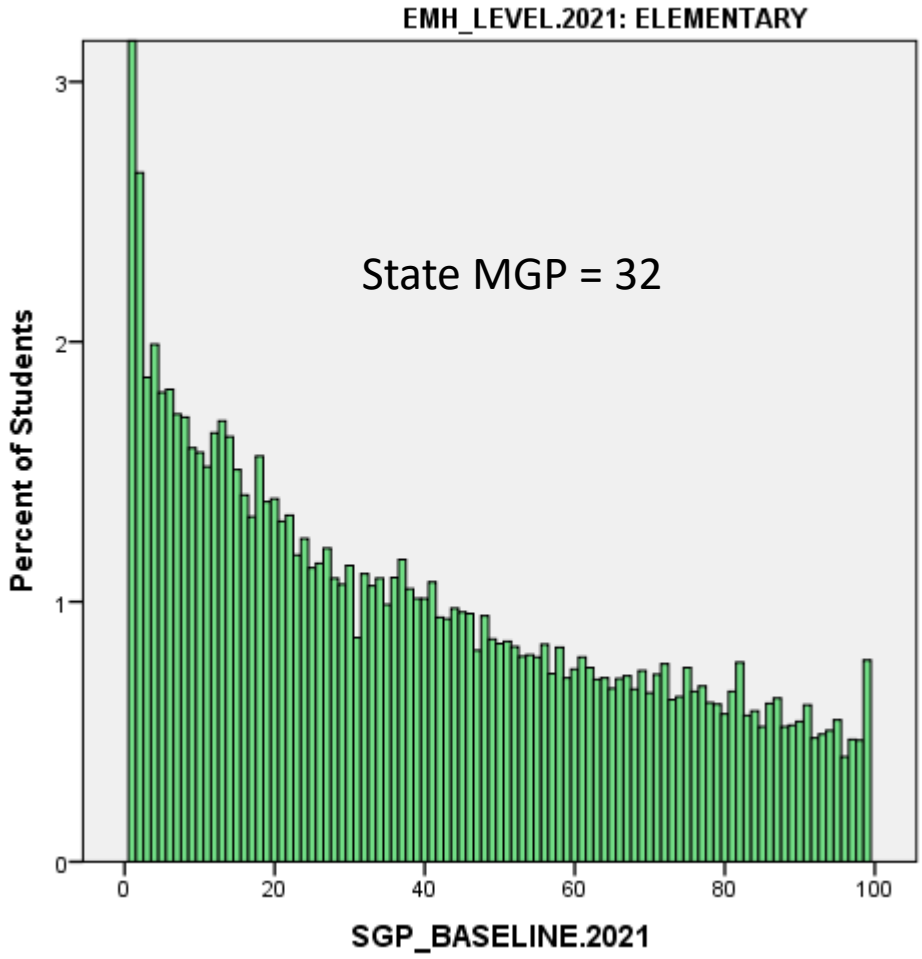
- Created matched sample of 2019 students who mirrored the 2021 tested population demographics
- Matched on Grade, Gender, Ethncity, IEP status and highest proficiency level ever obtained
- Tried a version including FRL, but coding issues from pandemic direct certification appeared to skew the results
- Compared scale score and growth results for matched 2019 sample against original full 2019 population
- No significant differences in student results, supports inference that 2021 results are likely representative of all ELs.

Student Scale Score Trends Over Time- Elementary

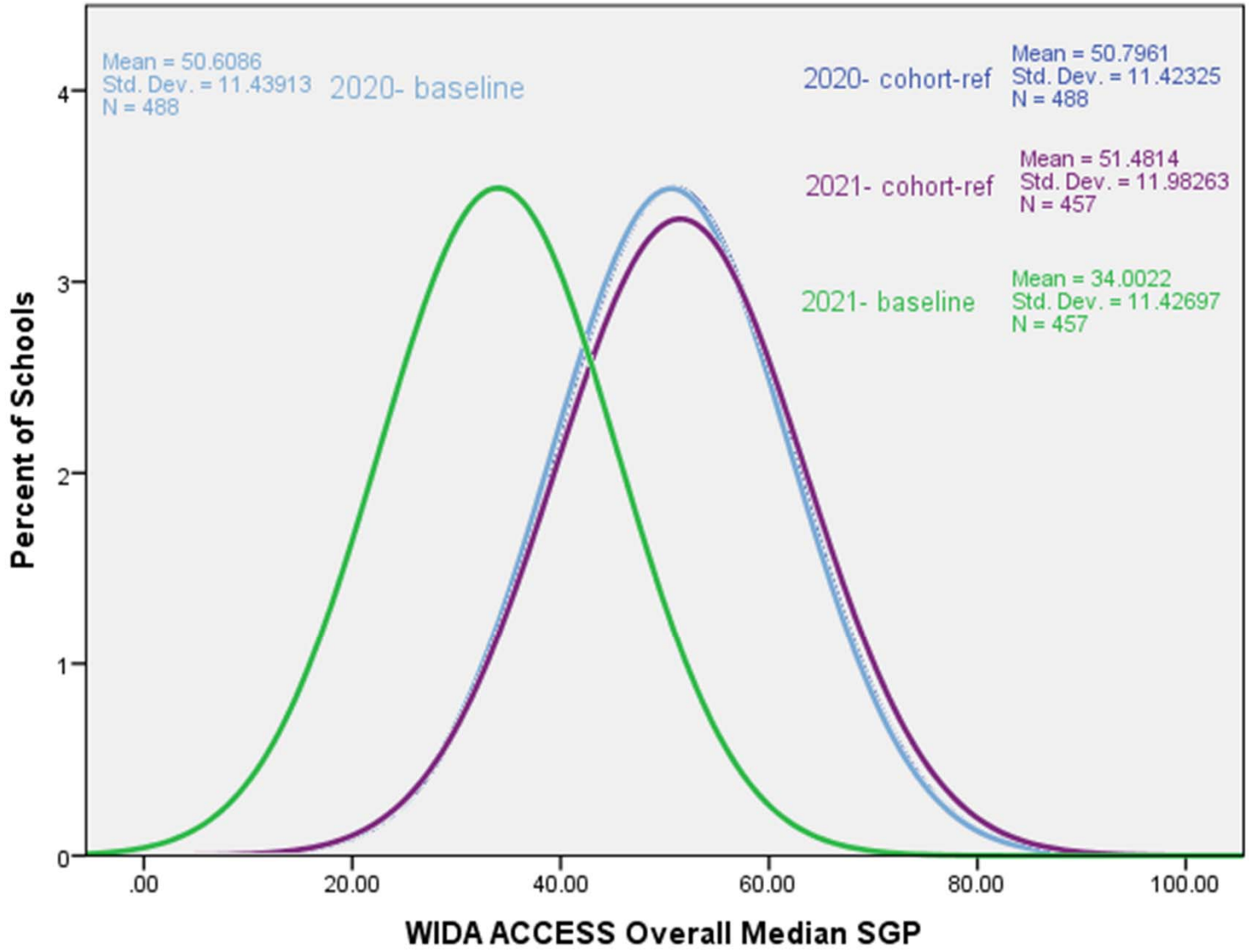


2021 Student Growth Percentile Distributions: Cohort v. Baseline – Elementary (N=34,676)

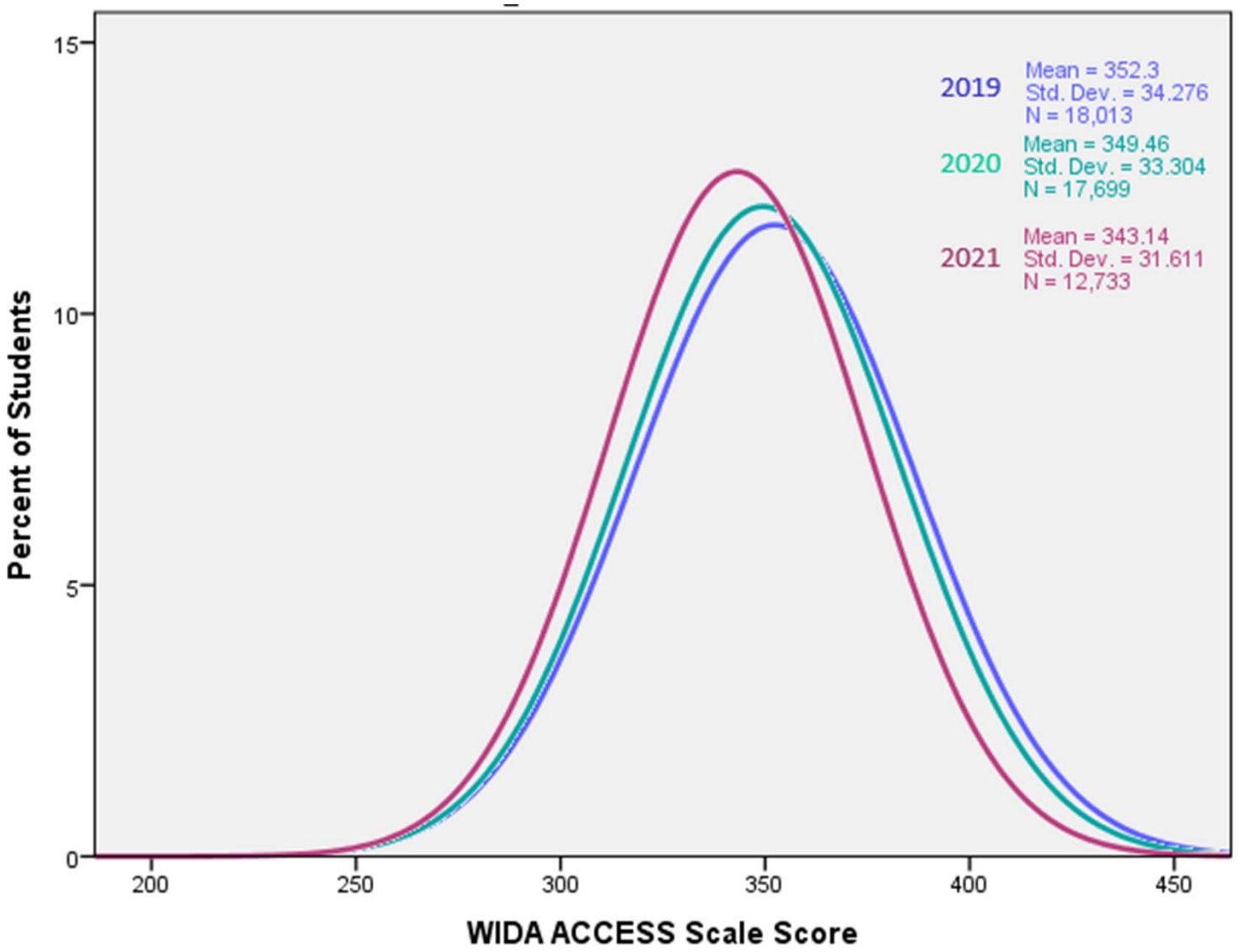




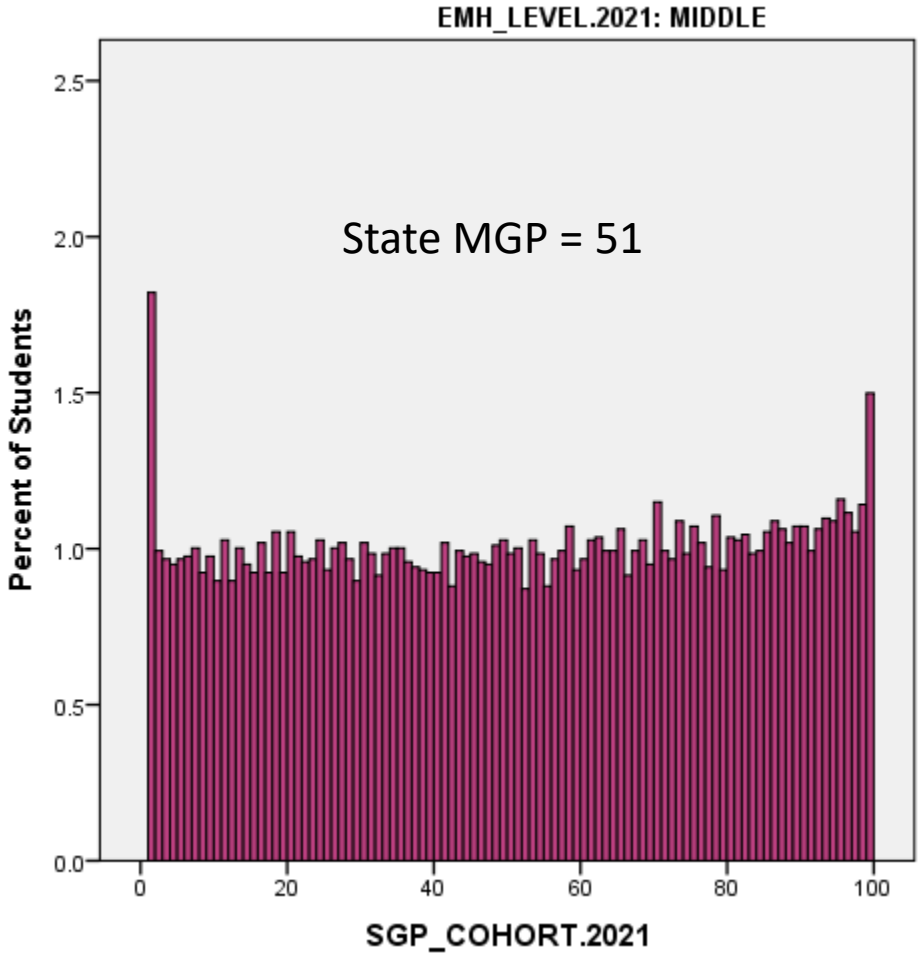
School-level MGP Distributions by Year & Reference Group (min N ≥ 20) - Elementary

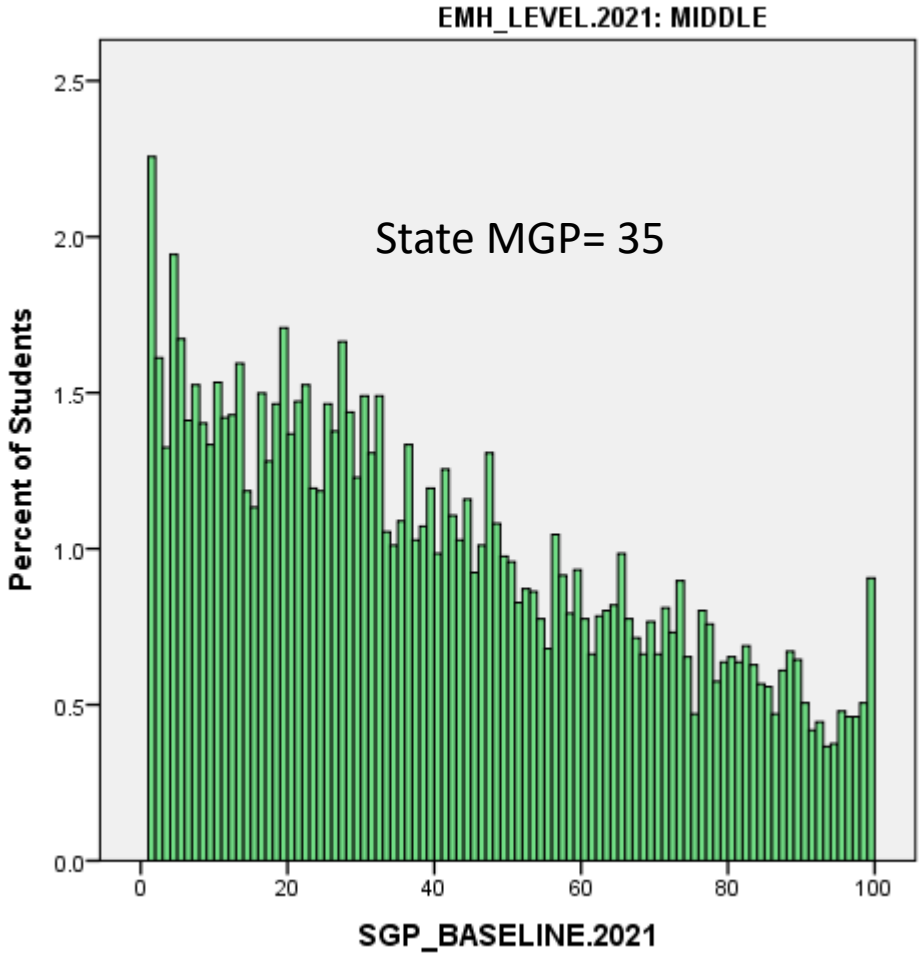


Student Scale Score Trends Over Time- Middle School

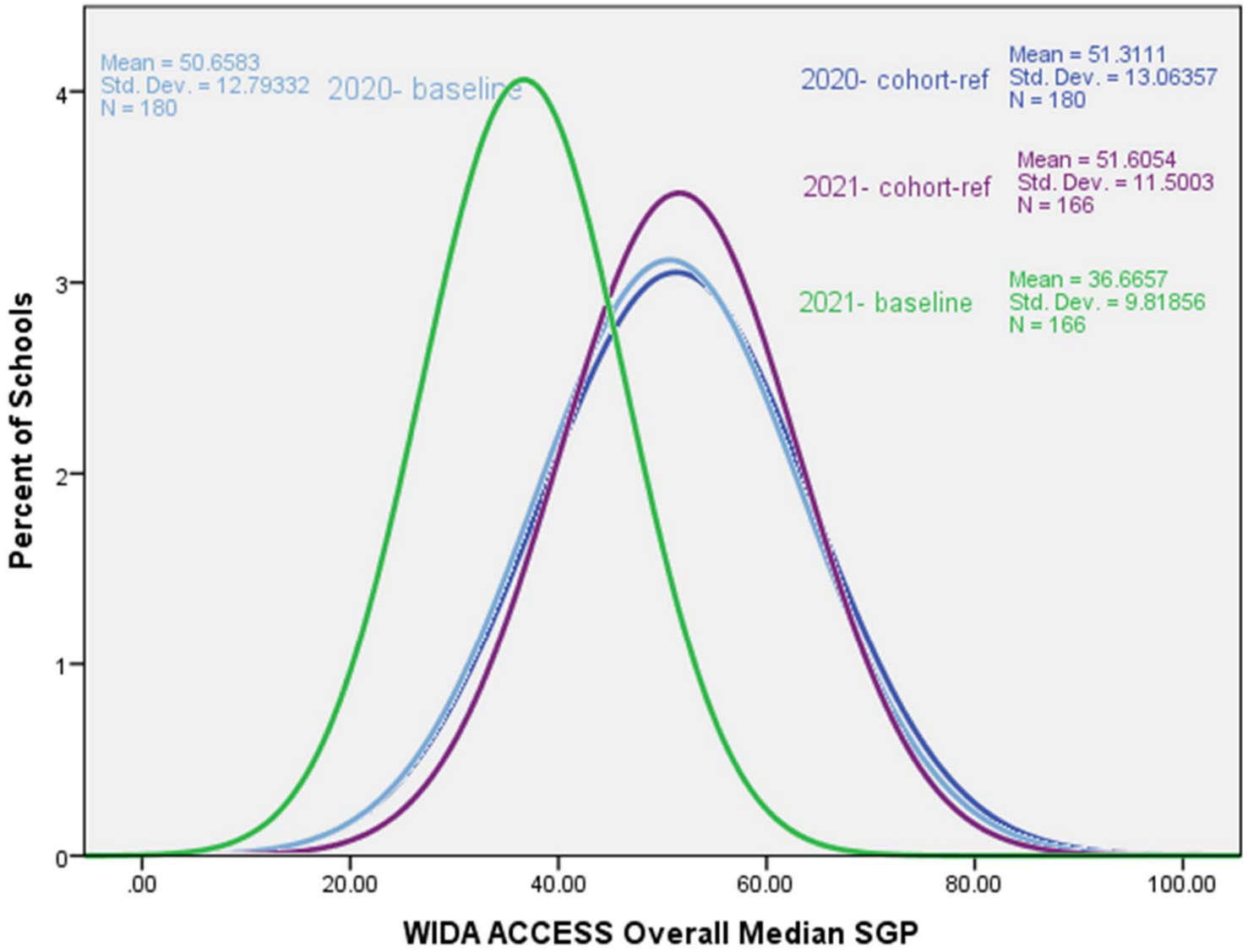


2021 Student Growth Percentile Distributions: Cohort v. Baseline – Middle School (N=11,476)

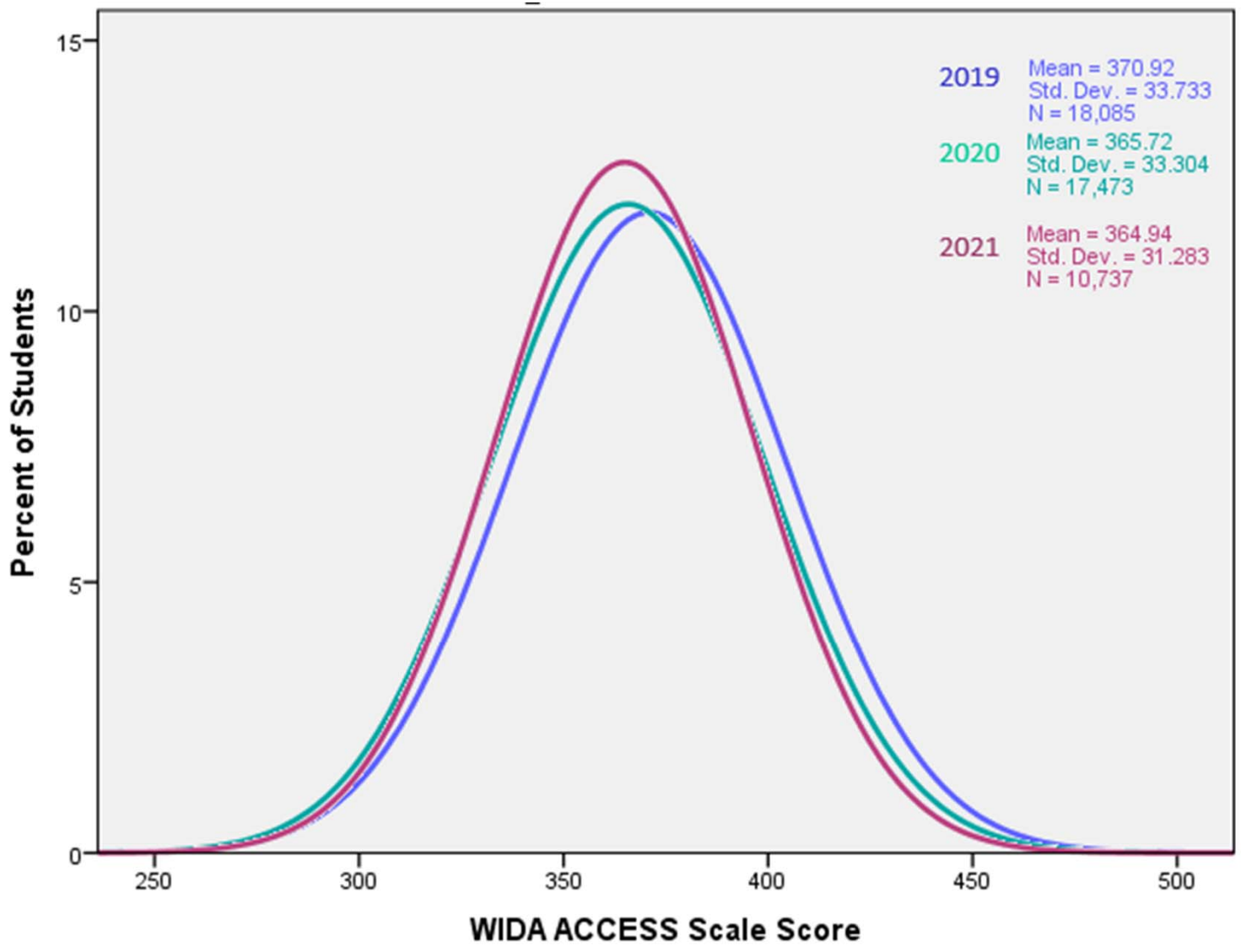




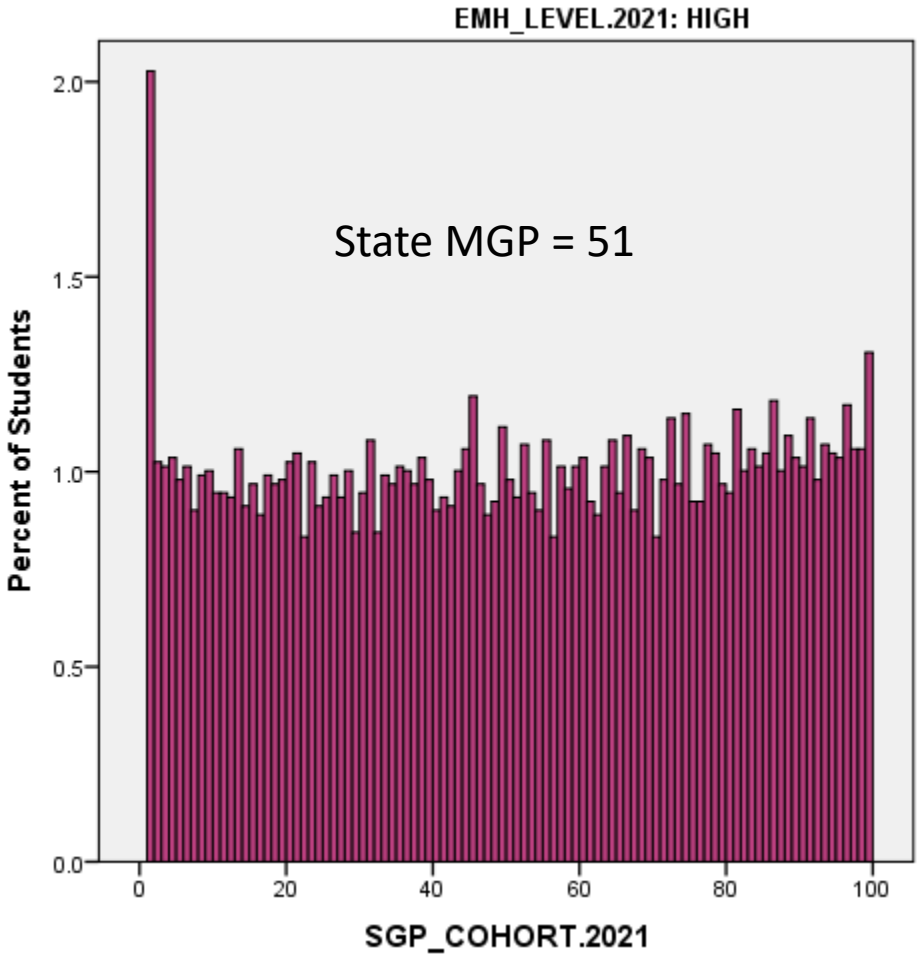
School-level MGP Distributions by Year & Reference Group (min N ≥ 20) – Middle School

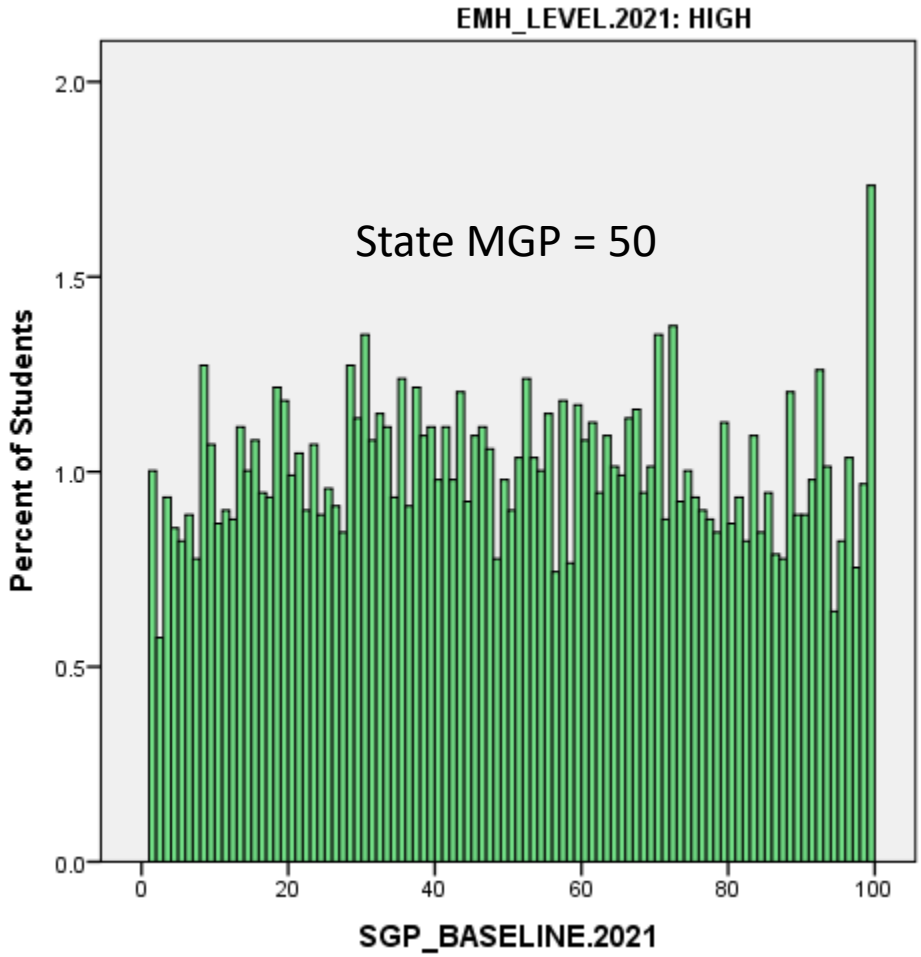


Student Scale Score Trends Over Time- High School

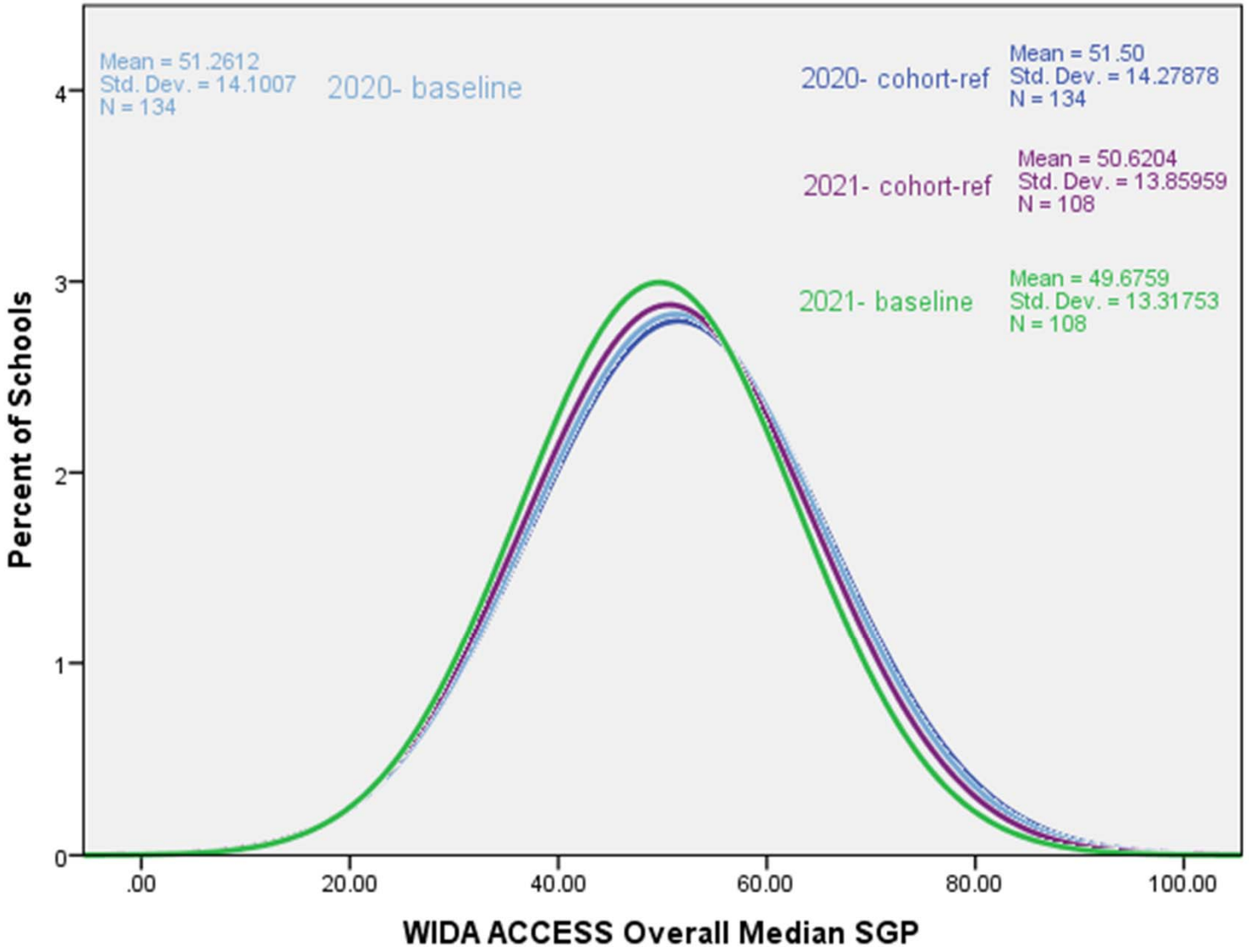


2021 Student Growth Percentile Distributions : Cohort v. Baseline – High School (N=8,879)





School-level MGP Distributions by Year & Reference Group (min N ≥ 20) – High School



Rough Impact Estimates for State Growth Results

- NCIEA provided us with some guidance for interpreting baseline growth percentiles as estimates of the pandemic's impact on learning
- Using the trajectories of our historical peer group, baseline results can be used to estimate how much progress a particular student would need to make in coming years to get back to an SGP of 50.
  - For example, a student has a baseline-referenced, 2-year (i.e., skip-year) SGP of 30, then in order for them to get back to a trajectory representing 50th percentile growth, they'd need to have a 2-year SGP (in the coming two years) of 70.

Rough Impact Estimates for State Growth Results

- Extends to larger groups of students as well.
  - For example, when a group of students (e.g., the whole grade in a state) has a median SGP of 30, then for those students to get back to a trajectory of 50, they are going to need a 2-year year SGP of 70 (that translates to having, annual, consecutive 63rd percentile growth). Or it would take about 75th percentile growth to make up that gap in a single year.
- We know, based upon looking at the best schools and districts over the last decade, that having 75th percentile growth is not common and at the state level would be unprecedented.
- For a large population of students to make up this much ground will likely require a significant amount of time and the addition of extensive wraparound supports.

Rough Impact Estimates for State Growth Results

- This table shows NCIEA's estimated learning impact and recovery timelines based upon 2021 baseline median growth percentile (MGP) ranges.

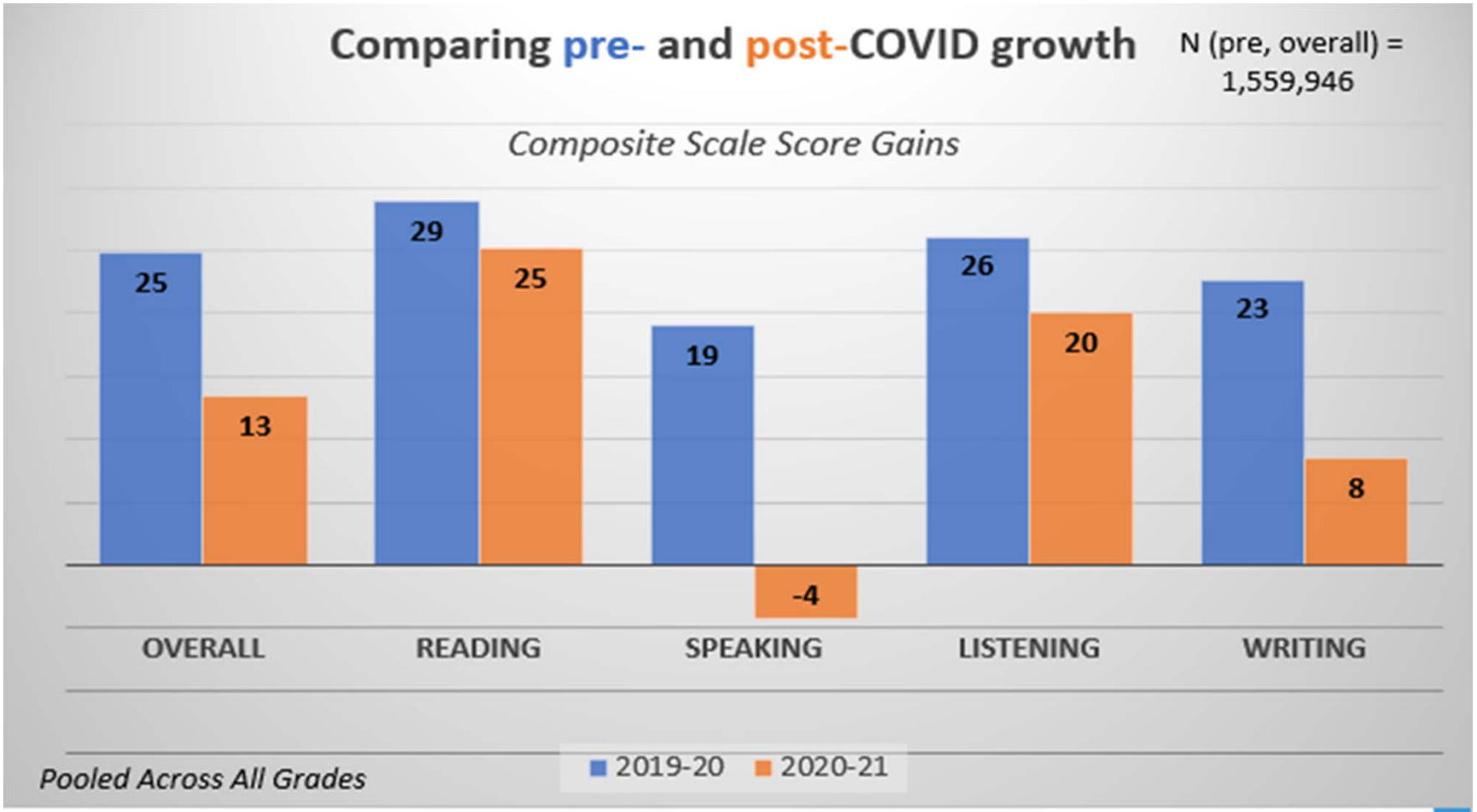
Level of Impact*	Baseline MGP Range	Estimated Timeline for Recovery
Modest/None	46-55	Minimal
Moderate	36-45	Less than 1 year with added support
Large	25-35	More than 1 year with added support
Severe	1-25	Multiple years with added support

* Note that these are the initial category names suggested by NCIEA and we are seeking feedback on how best to label and characterize the observed impacts.

2021 WIDA ACCESS MGPs by Disaggregated Group- Cohort v. Baseline

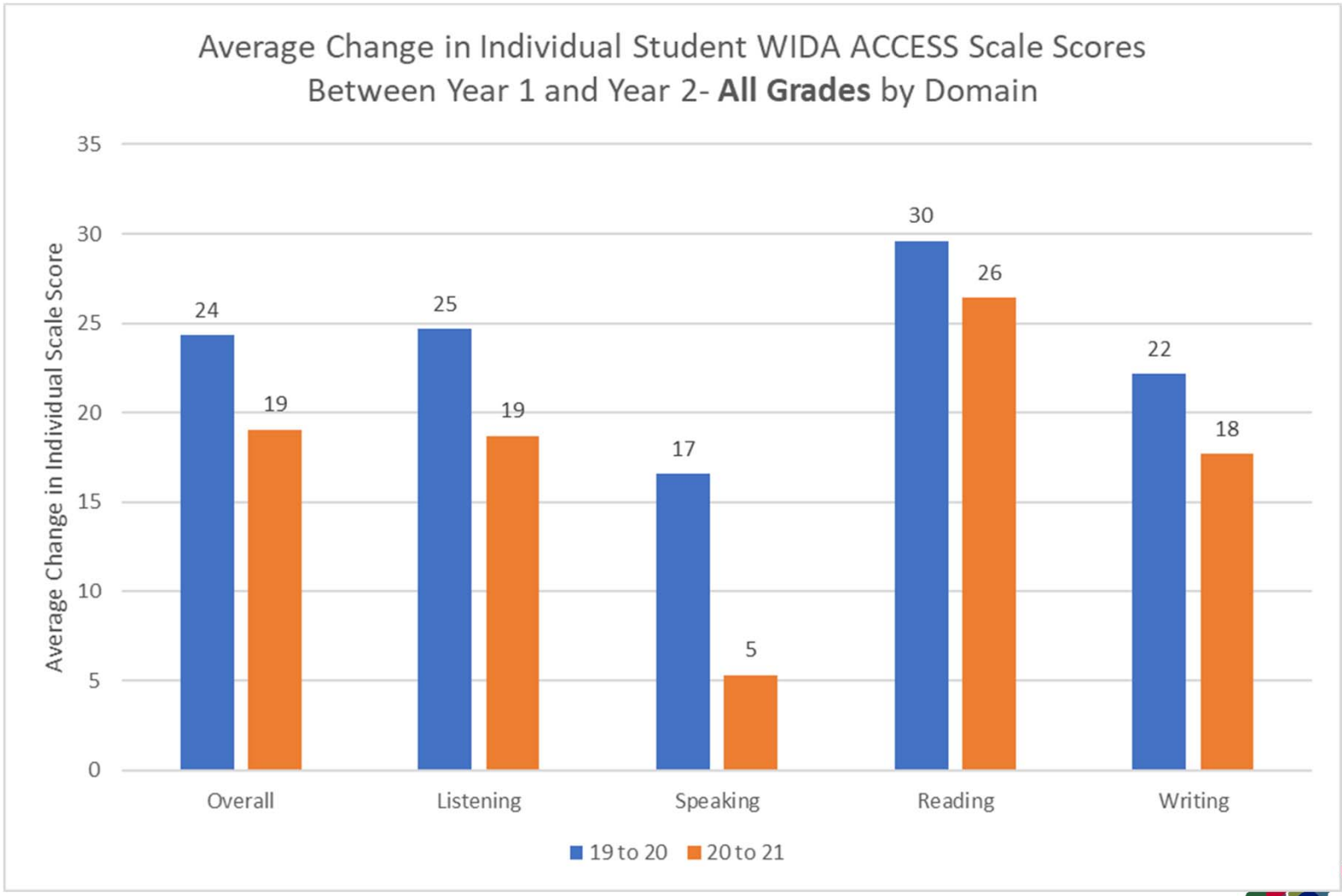
Student Group	Participation	Representativeness	Growth N	Skip-Year MGPs		*Estimated Impact on Student Learning*
				Cohort	Baseline	
All Students	80.4%	0.0%	55,032	51.0	36.0	*Moderate*
IEP: Yes	80.5%	0.0%	9,648	43.0	29.0	*Large*
Free Reduced Lunch: Yes	80.8%	0.4%	38,797	49.0	34.0	*Large*
Female	79.9%	-0.2%	24,755	53.0	38.0	*Moderate*
Male	80.7%	0.2%	30,271	49.0	34.0	*Large*
American Indian or Alaskan Native	78.7%	0.0%	216	48.0	35.0	*Large*
Asian	84.0%	0.3%	3,835	60.0	45.0	*Moderate*
Black or African American	80.7%	0.0%	2,753	56.0	41.0	*Large*
Hispanic or Latino	79.9%	-0.5%	45,031	49.0	34.0	*Large*
Pacific Islander	68.7%	-0.1%	246	52.0	36.0	*Large*
Two or more races	88.2%	0.1%	330	62.0	46.0	*Moderate*
White	83.7%	0.2%	2,602	62.0	45.0	*Moderate*

Average Student Scale Score Change between Years- WIDA Consortium as of 6.21.21, All Grades



WIDA

Average Student Scale Score Change between Years- Colorado, All Grades

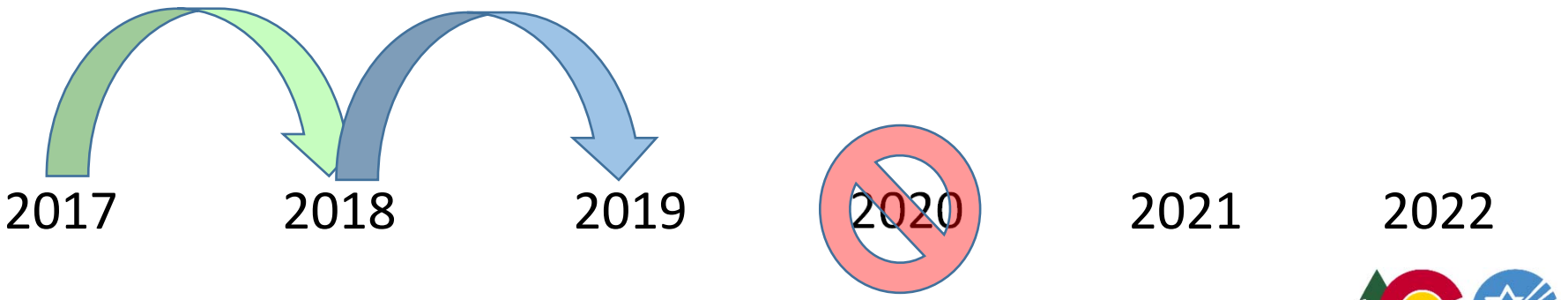


2021 CMAS
Growth Results Overview

(Information Item)

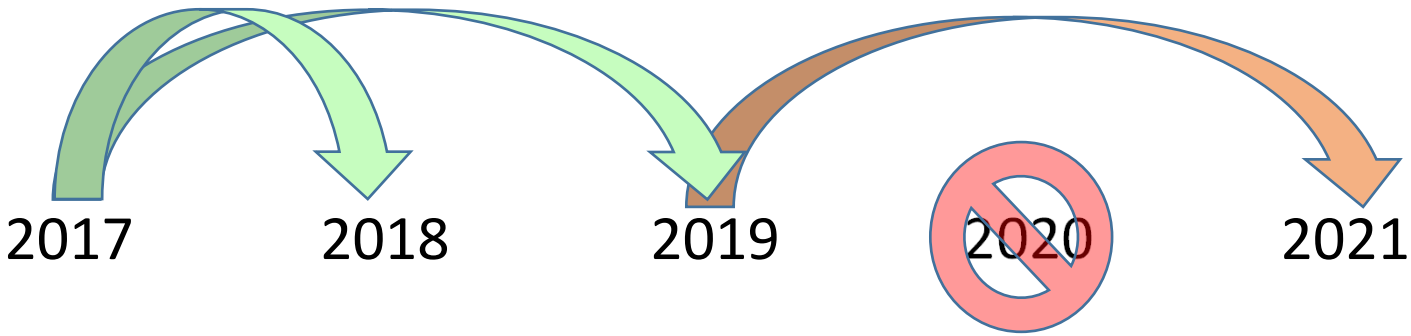
Cohort-Referenced Growth

- 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) 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



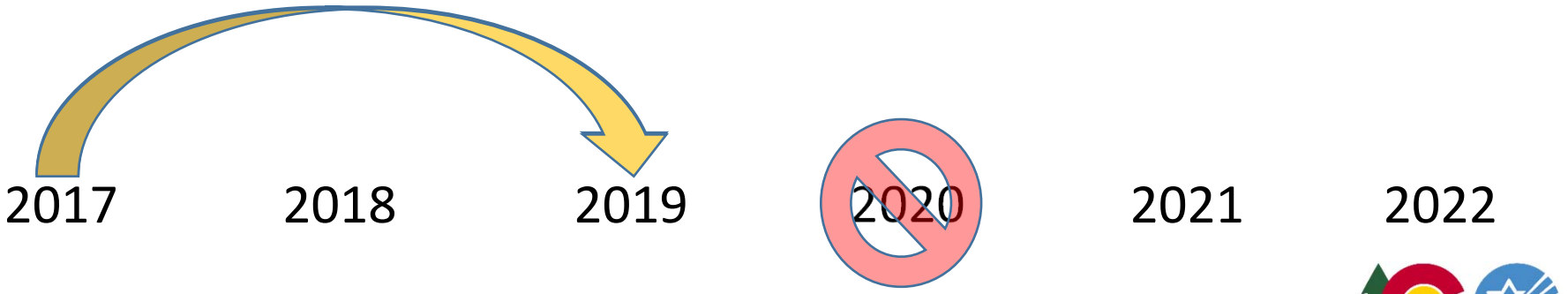
Skip-year Cohort-Referenced Growth

- Since assessments results do not exist for 2020, we need an approach for calculating student growth across non-consecutive years (i.e., skip-year growth).
- Last fall we presented findings from NCIEA's historical skip-year growth study showing that, under normal circumstances, skip-year growth outcomes are consistent with consecutive year growth outcomes.



Alternative Baseline-Referenced Methodology

- This approach uses the growth expectations we established in past normal years (e.g., 2018-2020) to gauge the impact of the pandemic on student learning in the current atypical year.
- 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.



Note on Test Participation for Required CMAS Subjects/Grades

- Ensuring adequate representative student participation on the 2021 assessments has been a major concern this year for all our state assessments
- In 2021, about 71% of grade 3, 5, 7 students tested in ELA and 68% of grade 4, 6, 8 students tested in Math.

Subject	Grade Level	Number Registere	Number Tested	% Tested
ELA	All Grade Levels	191,124	135,819	71.1%
MATH	All Grade Levels	194,668	130,728	67.2%
ELA	Elementary	123,730	92,912	75.1%
MATH	Elementary	68,621	52,272	76.2%
ELA	Middle School	67,394	42,907	63.7%
MATH	Middle School	126,047	78,456	62.2%
ELA	Grade 03	60,701	46,013	75.8%
MATH	Grade 04	61,749	46,771	75.7%
ELA	Grade 05	63,029	46,899	74.4%
MATH	Grade 06	65,301	44,786	68.6%
ELA	Grade 07	67,394	42,907	63.7%
MATH	Grade 08	67,618	39,171	57.9%

2021 Demographic Representativeness- Grades 3-8, English Language Arts

STUDENT_GROUP	Number Registered	Number Tested	% Tested	% of Total Registered	% of Total Tested	Diff: Test-Reg
All Students	191,124	135,819	71.1%	100.0%	100.0%	0.0%
English Learners	34,888	24,201	69.4%	18.3%	17.8%	-0.5%
American Indian Or Alaska Native	1,248	789	63.2%	0.7%	0.6%	-0.1%
Asian	5,964	4,142	69.5%	3.1%	3.1%	0.0%
Black	8,748	5,032	57.5%	4.6%	3.7%	-0.9%
Hawaiian/Pacific Islander	532	317	59.6%	0.3%	0.2%	-0.1%
Hispanic	66,401	45,353	68.3%	34.7%	33.4%	-1.3%
Two Or More Races	9,247	6,270	67.8%	4.8%	4.6%	-0.2%
White	98,952	73,887	74.7%	51.8%	54.4%	2.6%
FRL Eligible	76,088	51,537	67.7%	39.8%	37.9%	-1.9%
Female	92,819	65,439	70.5%	48.6%	48.2%	-0.4%
Male	98,305	70,380	71.6%	51.4%	51.8%	0.4%
Gifted	12,416	8,821	71.0%	6.5%	6.5%	0.0%
Students on IEPs	23,572	15,344	65.1%	12.3%	11.3%	-1.0%
Migrant Students	764	617	80.8%	0.4%	0.5%	0.1%
Minority Students	92,140	61,903	67.2%	48.2%	45.6%	-2.6%

2021 Demographic Representativeness- Grades 3-8, Math

STUDENT_GROUP	Number Registered	Number Tested	% Tested	% of Total Registered	% of Total Tested	Diff: Test-Reg
All Students	194,668	130,728	67.2%	100.0%	100.0%	0.0%
English Learners	34,437	23,116	67.1%	17.7%	17.7%	0.0%
American Indian Or Alaska Native	1,257	722	57.4%	0.6%	0.6%	0.0%
Asian	6,088	4,099	67.3%	3.1%	3.1%	0.0%
Black	8,950	4,660	52.1%	4.6%	3.6%	-1.0%
Hawaiian/Pacific Islander	575	315	54.8%	0.3%	0.2%	-0.1%
Hispanic	68,247	44,367	65.0%	35.1%	33.9%	-1.2%
Two Or More Races	9,280	5,822	62.7%	4.8%	4.5%	-0.3%
White	100,249	70,727	70.6%	51.5%	54.1%	2.6%
FRL Eligible	76,107	48,504	63.7%	39.1%	37.1%	-2.0%
Female	94,813	62,635	66.1%	48.7%	47.9%	-0.8%
Male	99,855	68,093	68.2%	51.3%	52.1%	0.8%
Gifted	13,485	9,190	68.1%	6.9%	7.0%	0.1%
Students on IEPs	23,558	14,793	62.8%	12.1%	11.3%	-0.8%
Migrant Students	773	618	79.9%	0.4%	0.5%	0.1%
Minority Students	94,397	59,985	63.5%	48.5%	45.9%	-2.6%

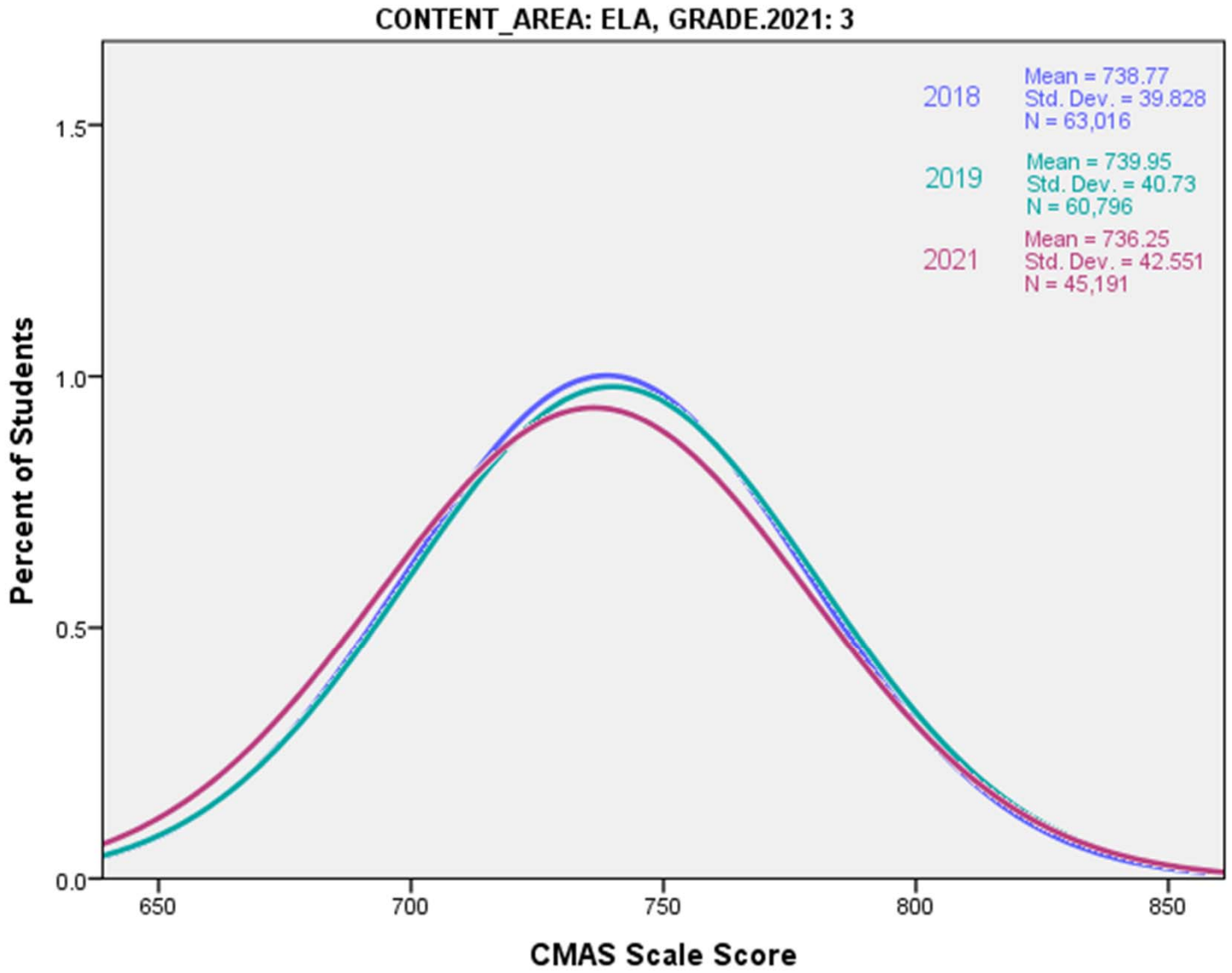
Note on Test Participation (continued)

- The highlighted differences for minority/white, are potentially concerning, particularly as individual schools and districts showed much more extreme differences for some disaggregated groups.
- At the state level, the slight over-representation of white students among testers likely means that reported 2021 achievement and growth information are the best-case scenario.

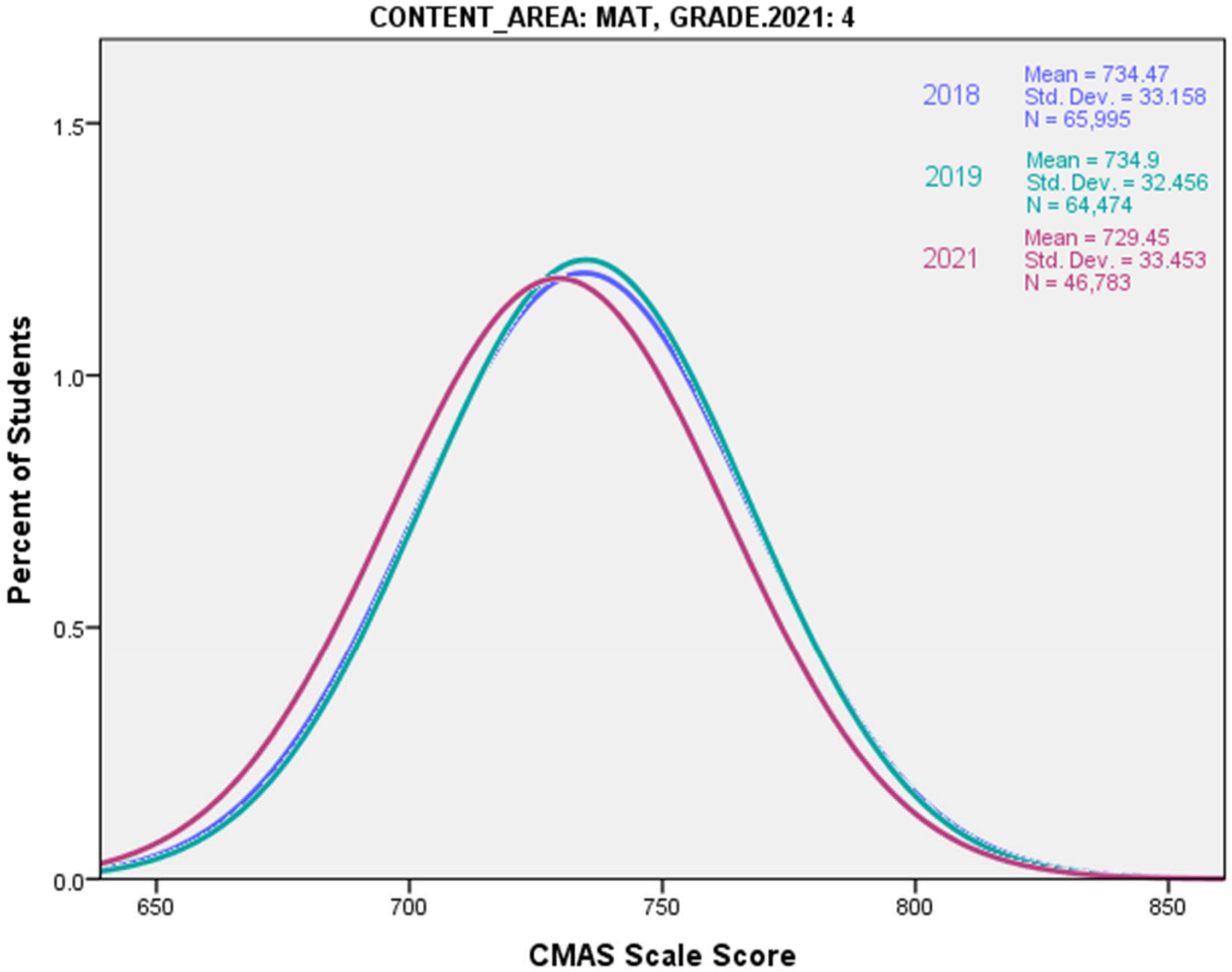
Matched Historical Sample

- Created matched sample of 2019 students who mirrored the 2021 tested population demographics
- Matched on Grade, Content Area, Gender, Ethnicity, IEP status, EL Status and prior proficiency level
- Compared scale score and growth results for matched 2019 sample against original full 2019 population
- Minor differences in student results, support inference that 2021 results are fairly representative of all Colorado students.

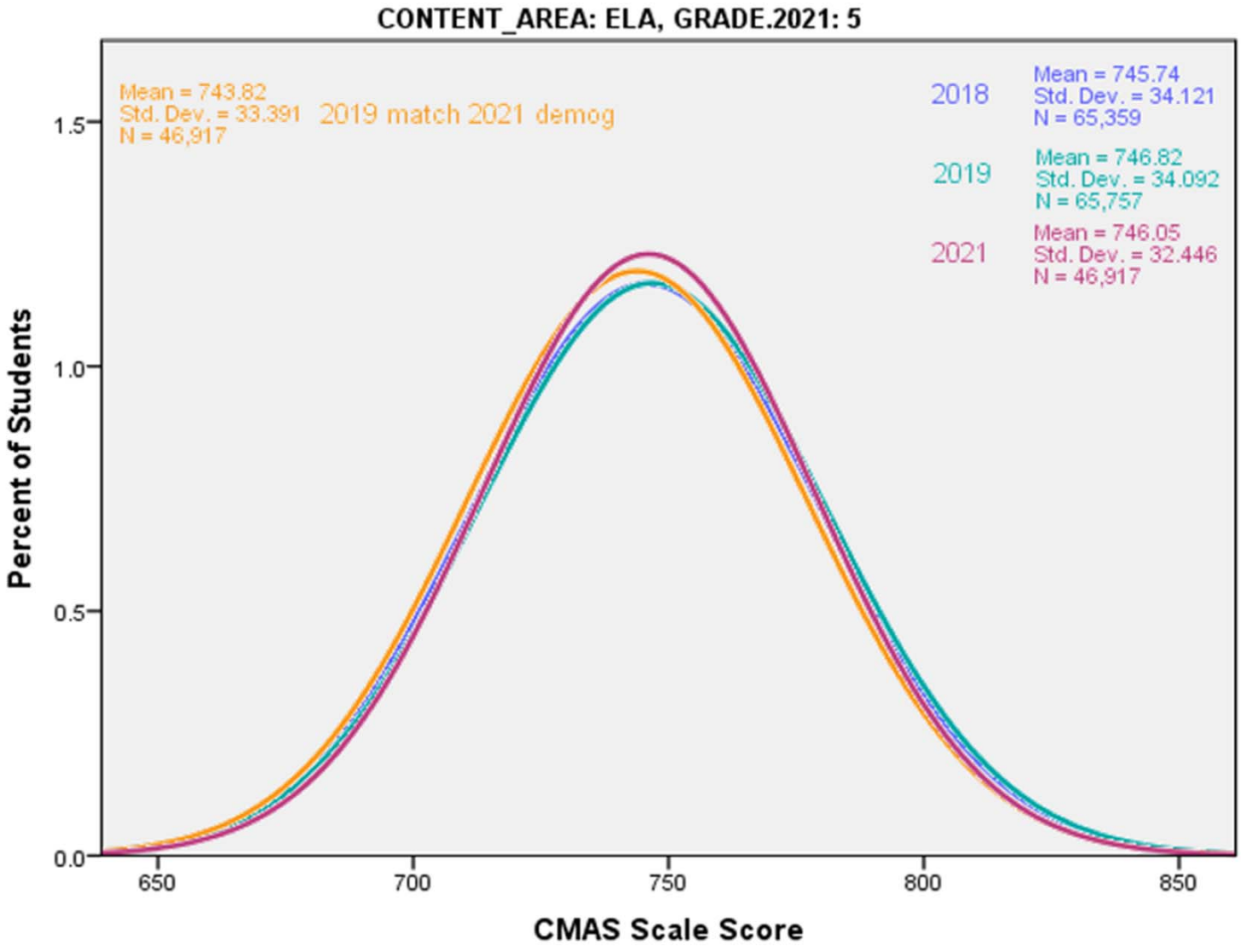
CMAS Student Scale Score Trends Over Time- Grade 3 ELA



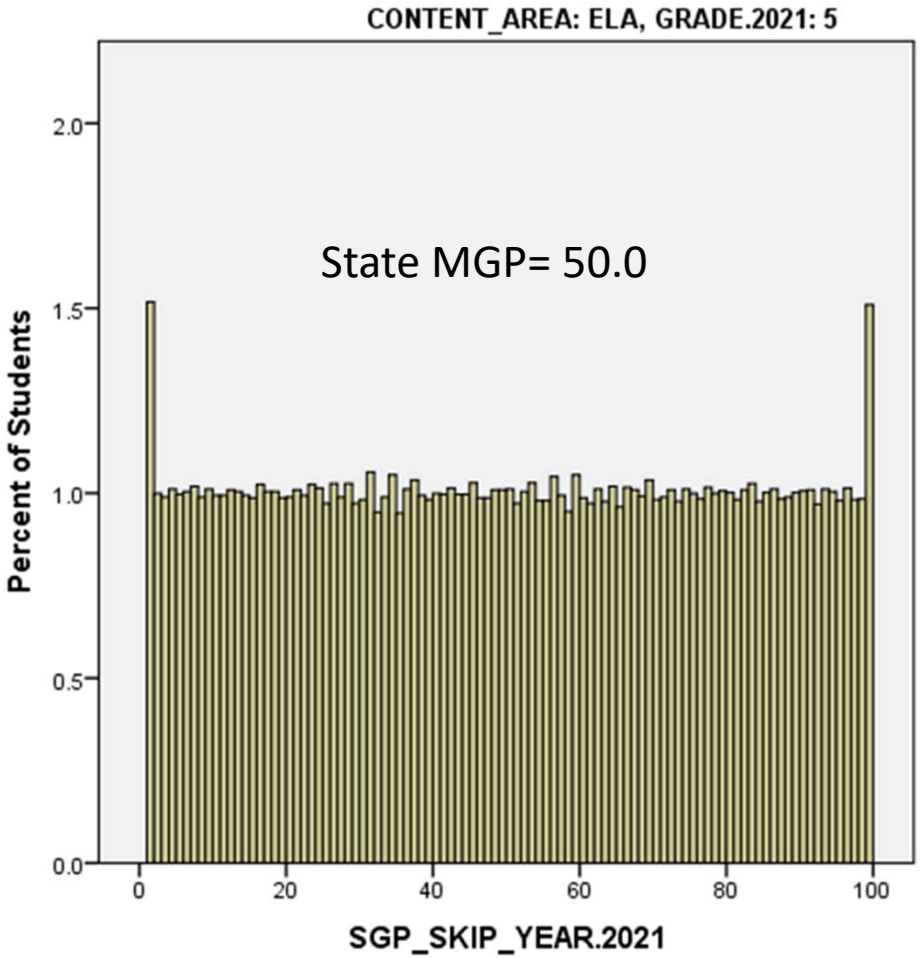
CMAS Student Scale Score Trends Over Time- Grade 4 Math

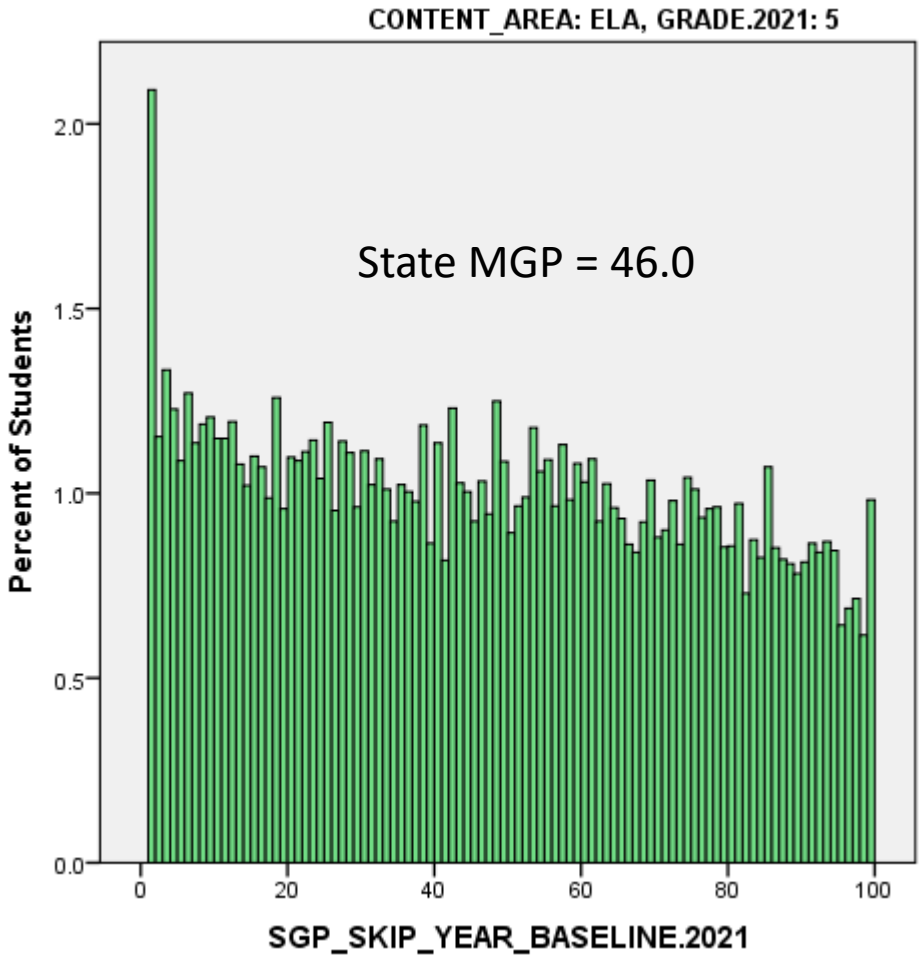


CMAS Student Scale Score Trends Over Time- Grade 5 ELA

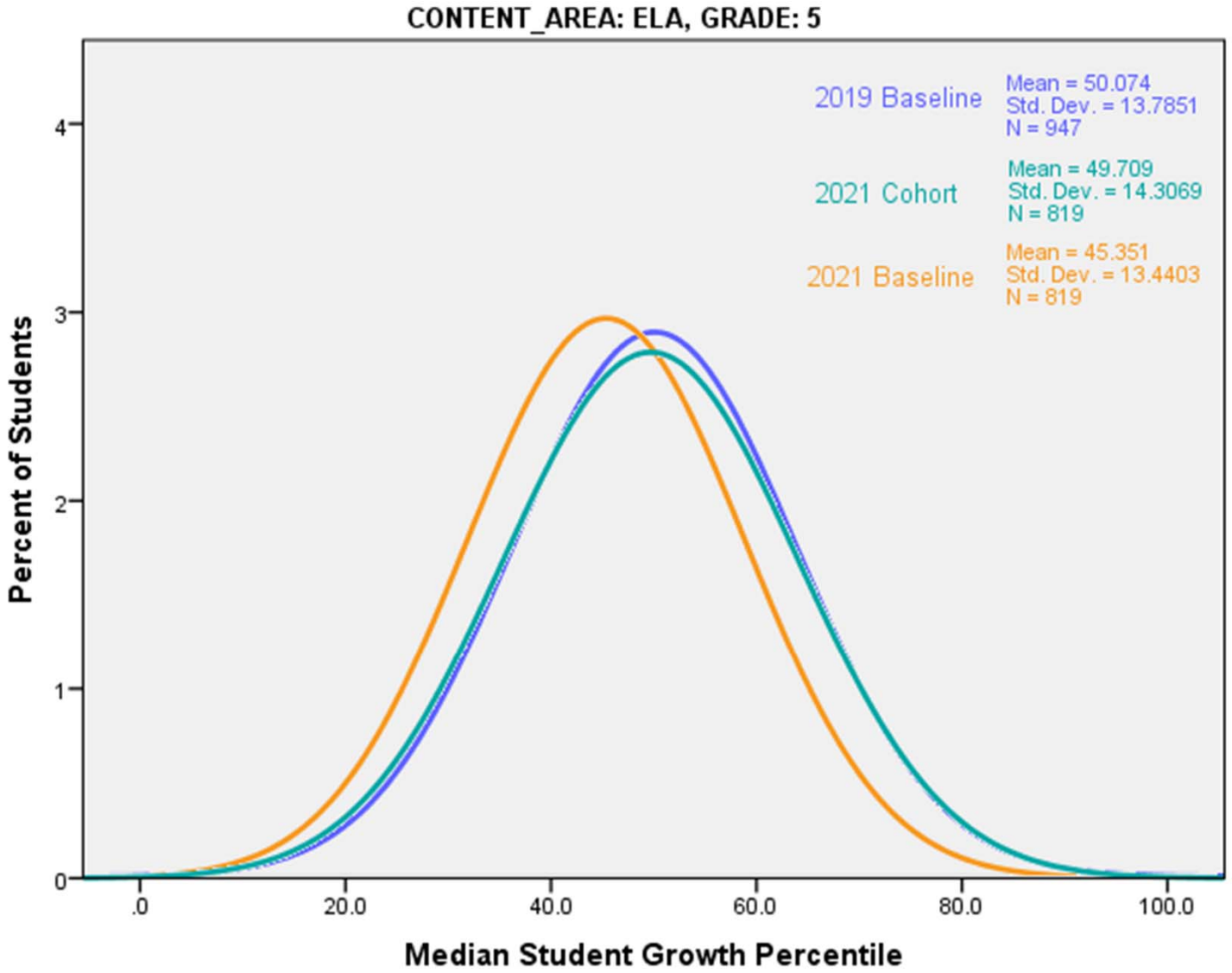


2021 CMAS Skip-Year Growth Percentile Distributions: Cohort v. Baseline – Grade 5 ELA, (N=41,535)

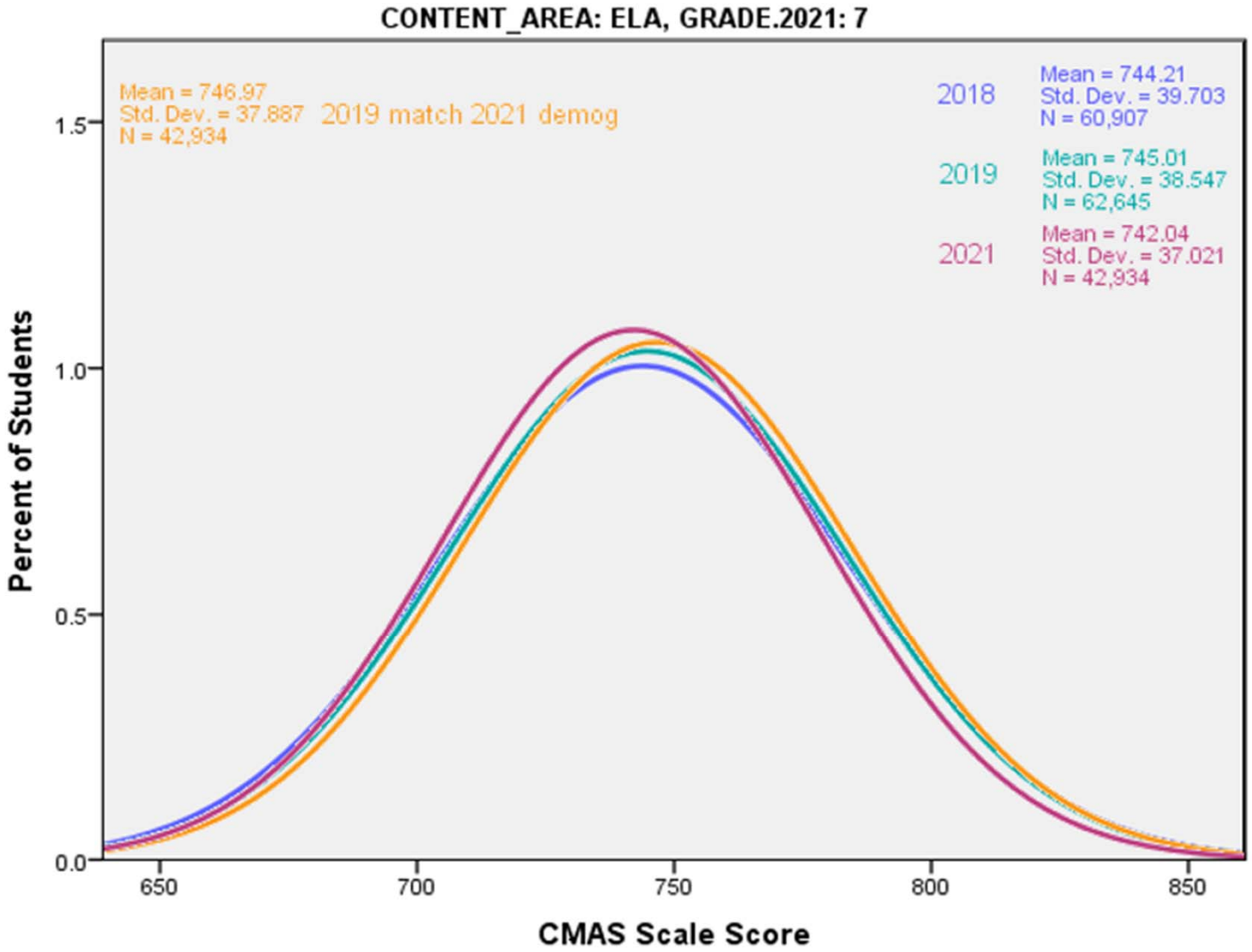




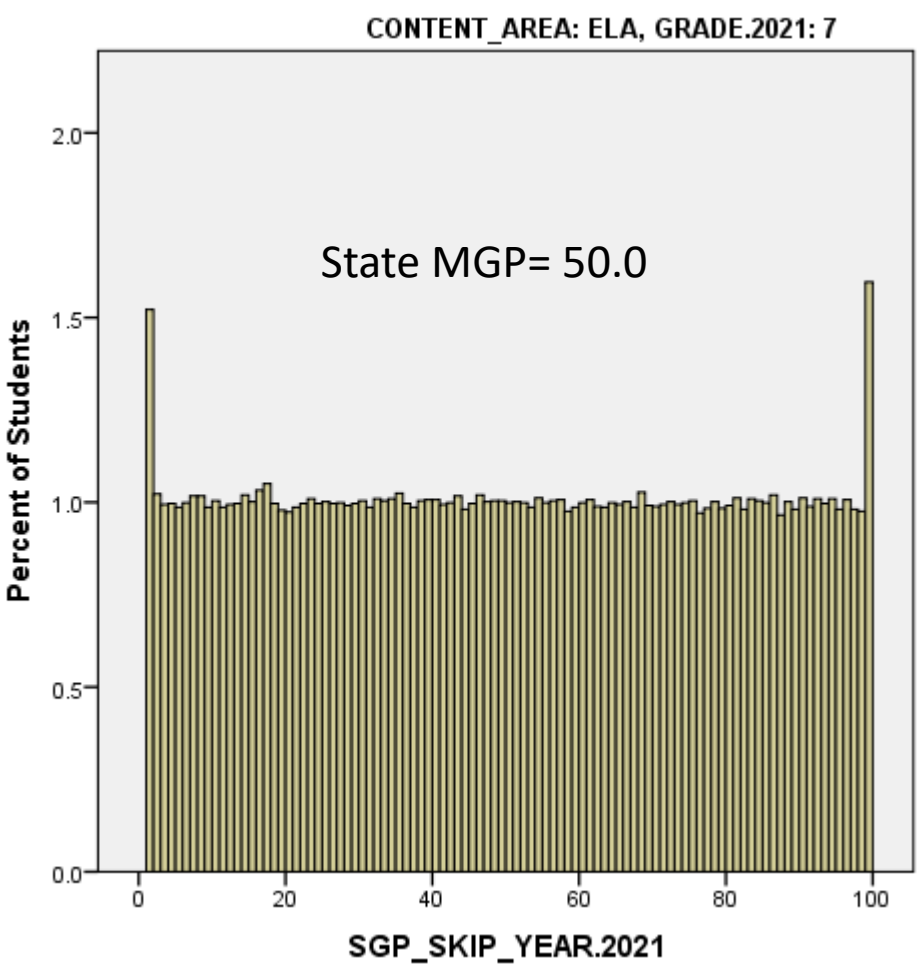
School-level MGP Distributions by Year & Reference Group (min N ≥ 20) – Grade 5 ELA

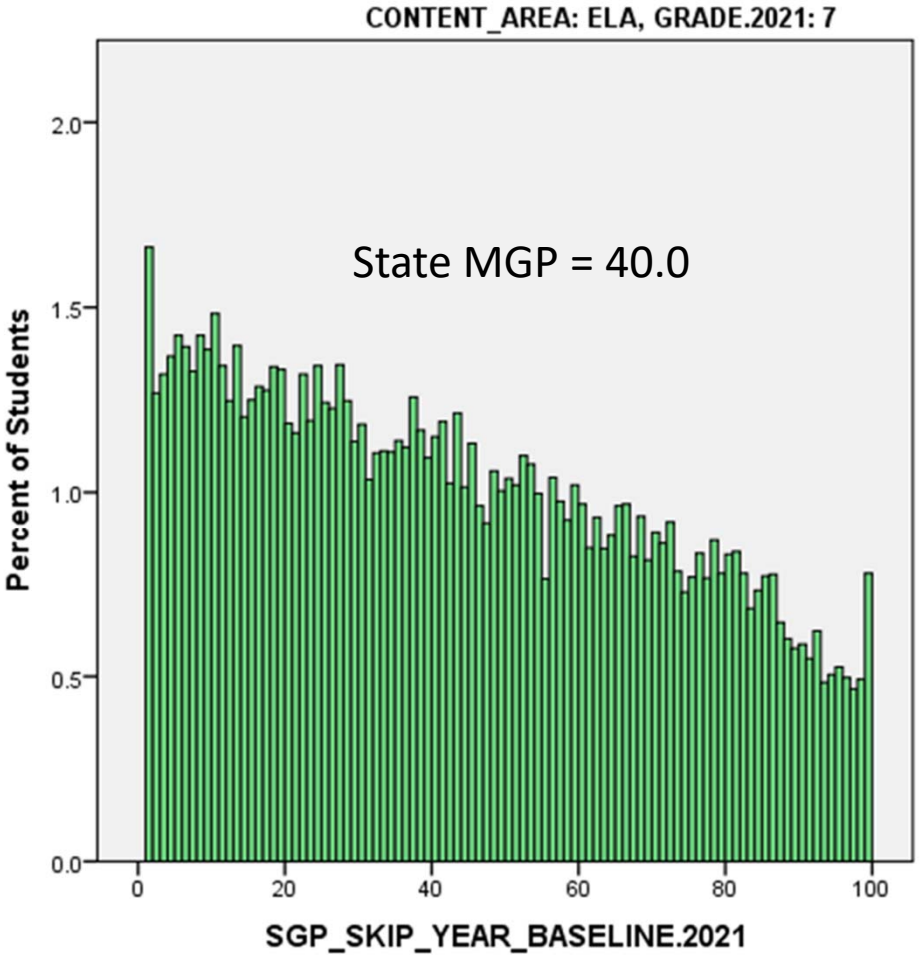


CMAS Student Scale Score Trends Over Time- Grade 7 ELA

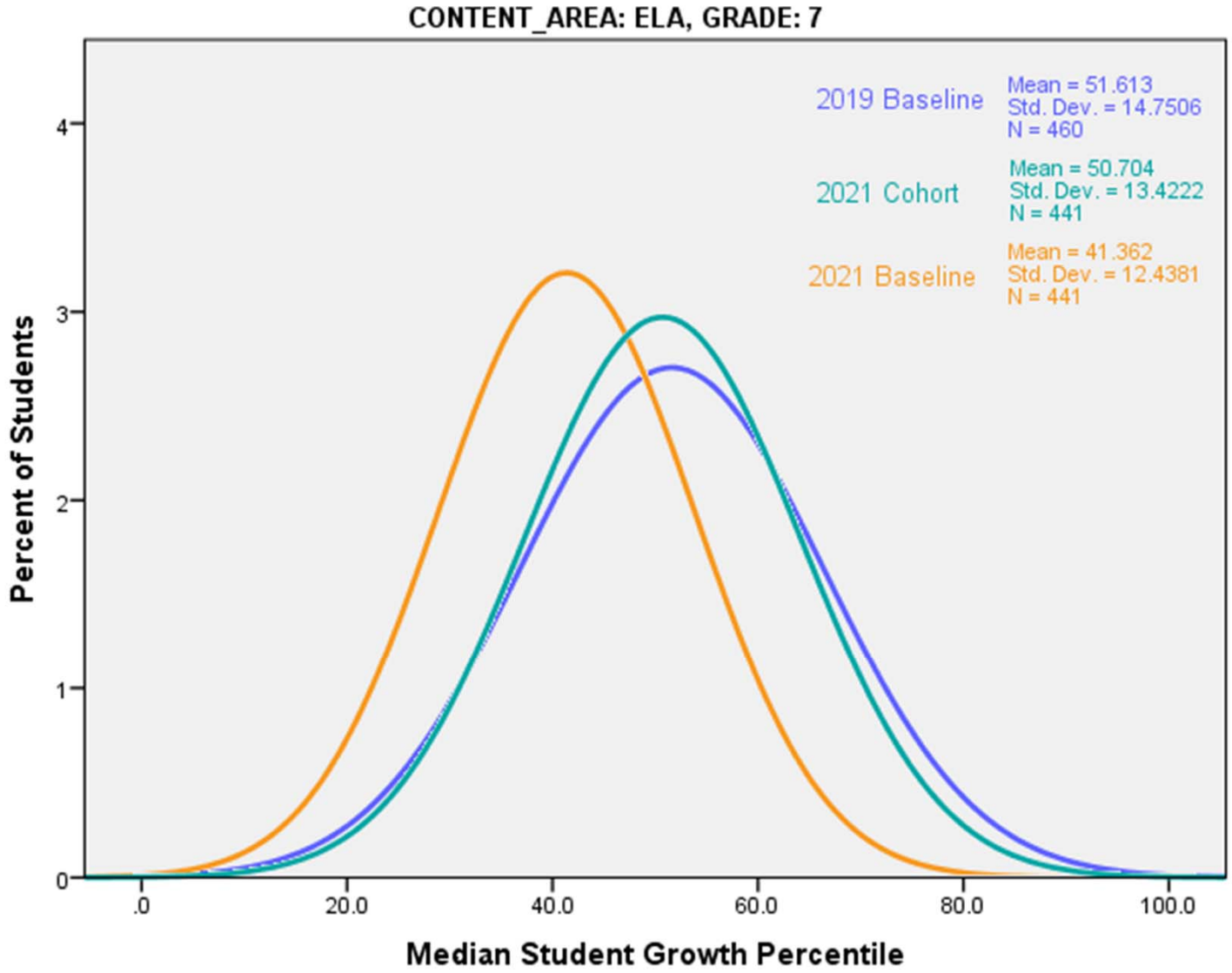


2021 CMAS Skip-Year Growth Percentile Distributions: Cohort v. Baseline – Grade 7 ELA, (N=39,035)

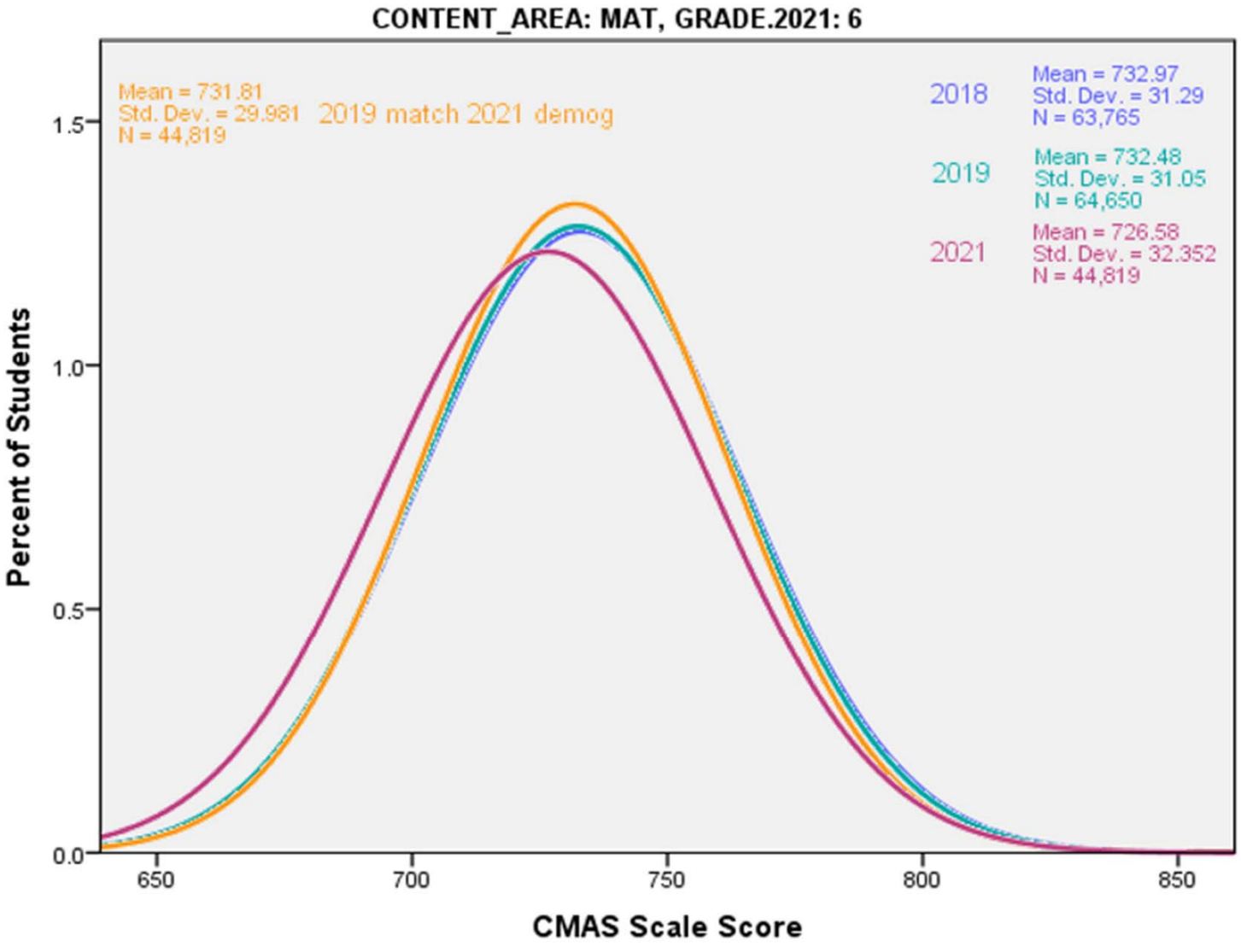




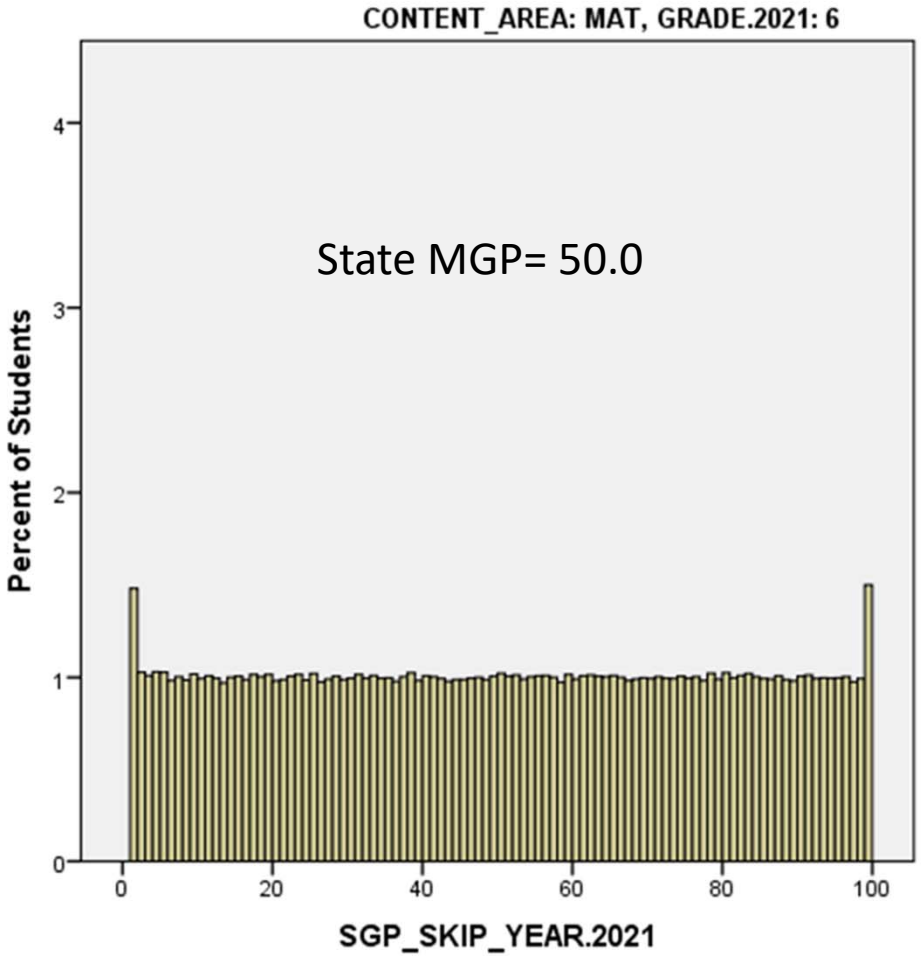
School-level MGP Distributions by Year & Reference Group (min N ≥ 20) – Grade 7 ELA

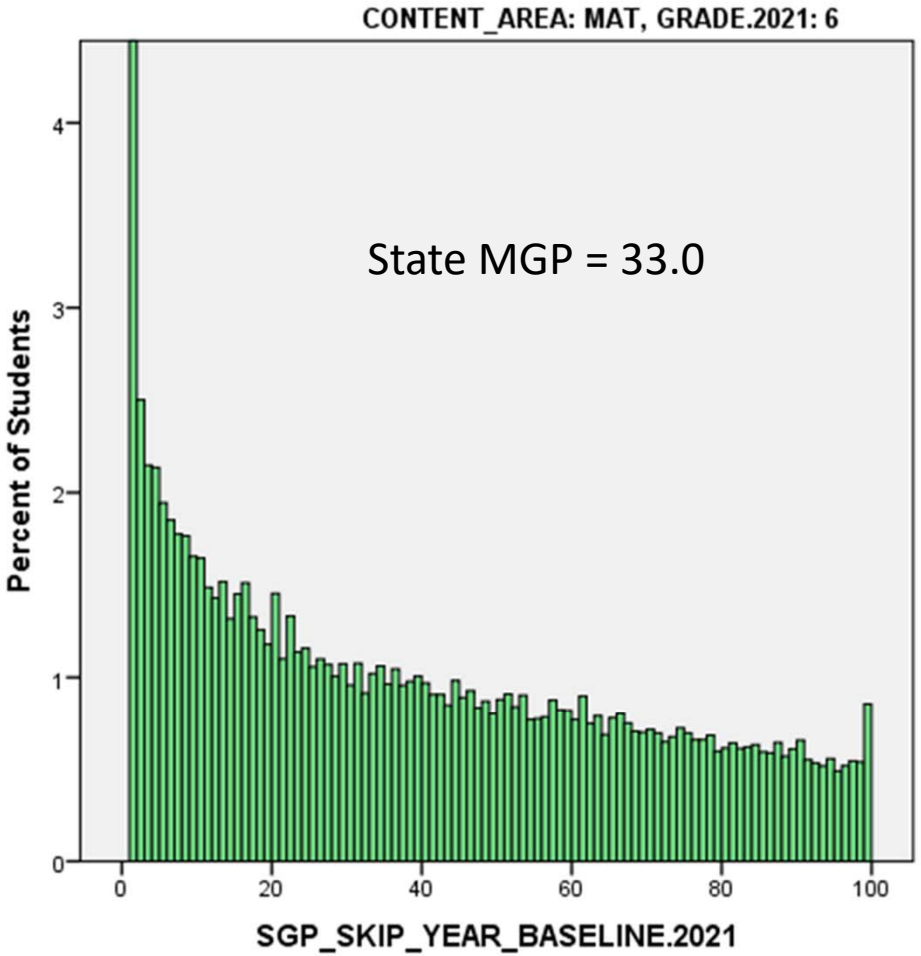


CMAS Student Scale Score Trends Over Time- Grade 6 Math

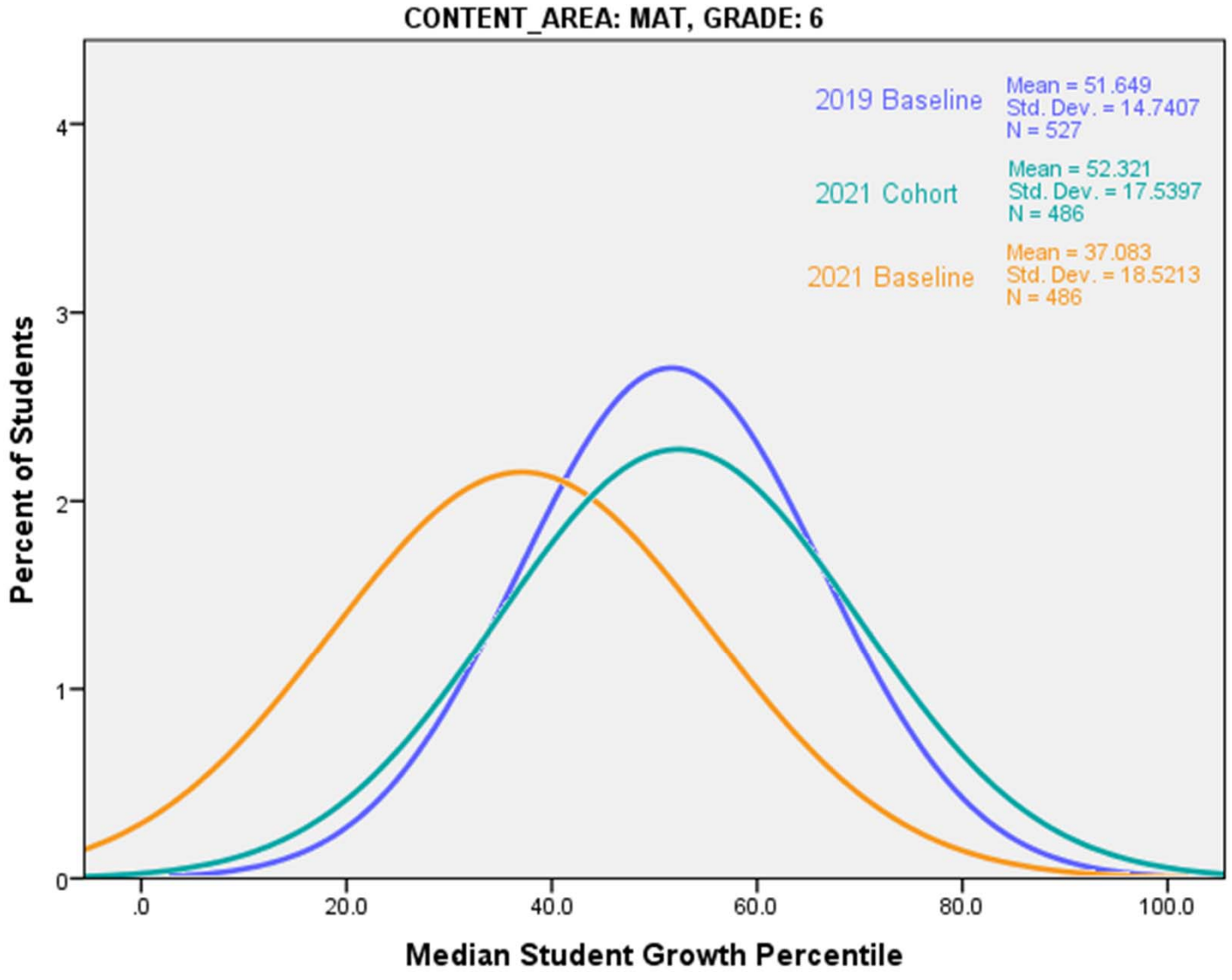


2021 CMAS Skip-Year Growth Percentile Distributions: Cohort v. Baseline – Grade 6 Math, (N=40,775)

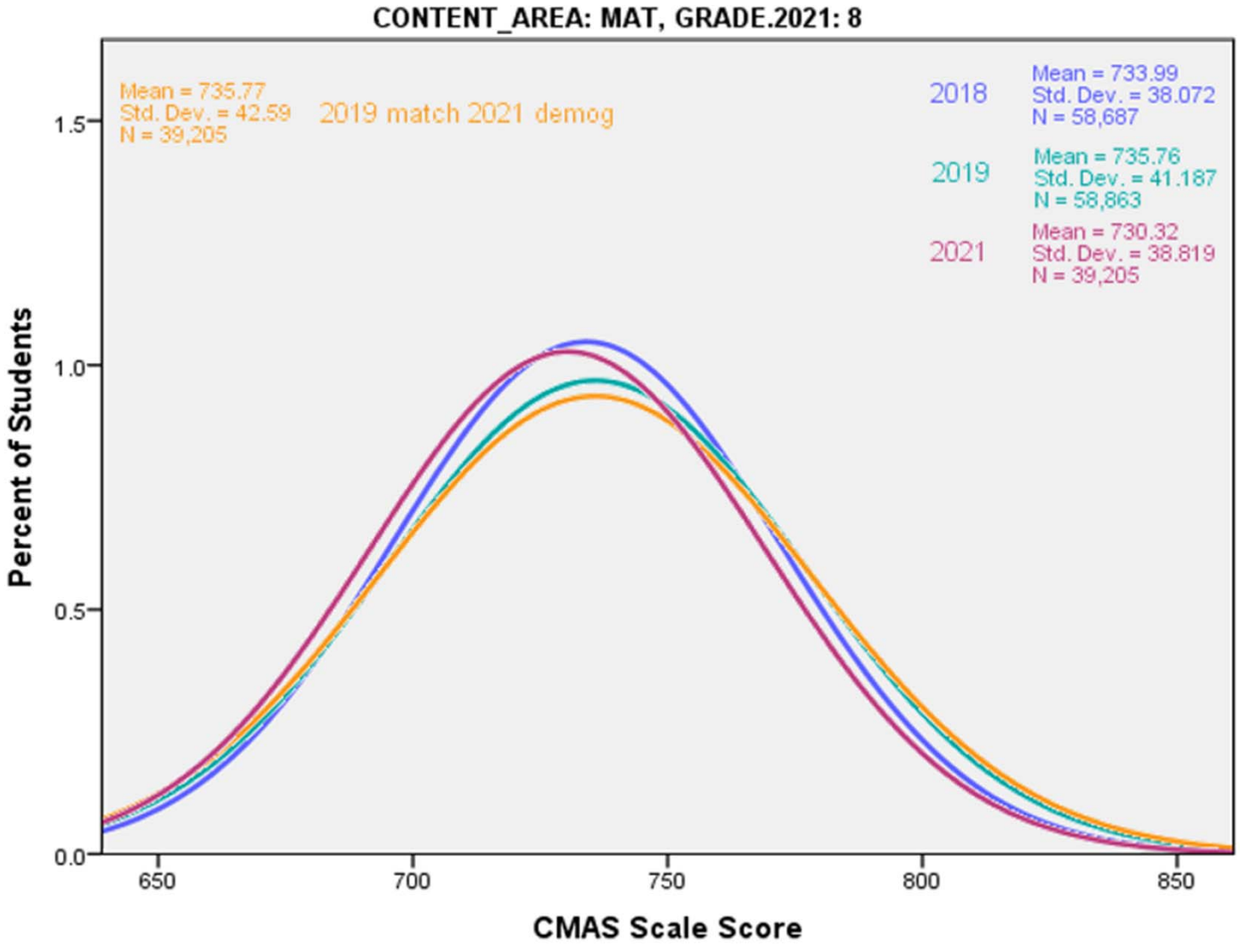




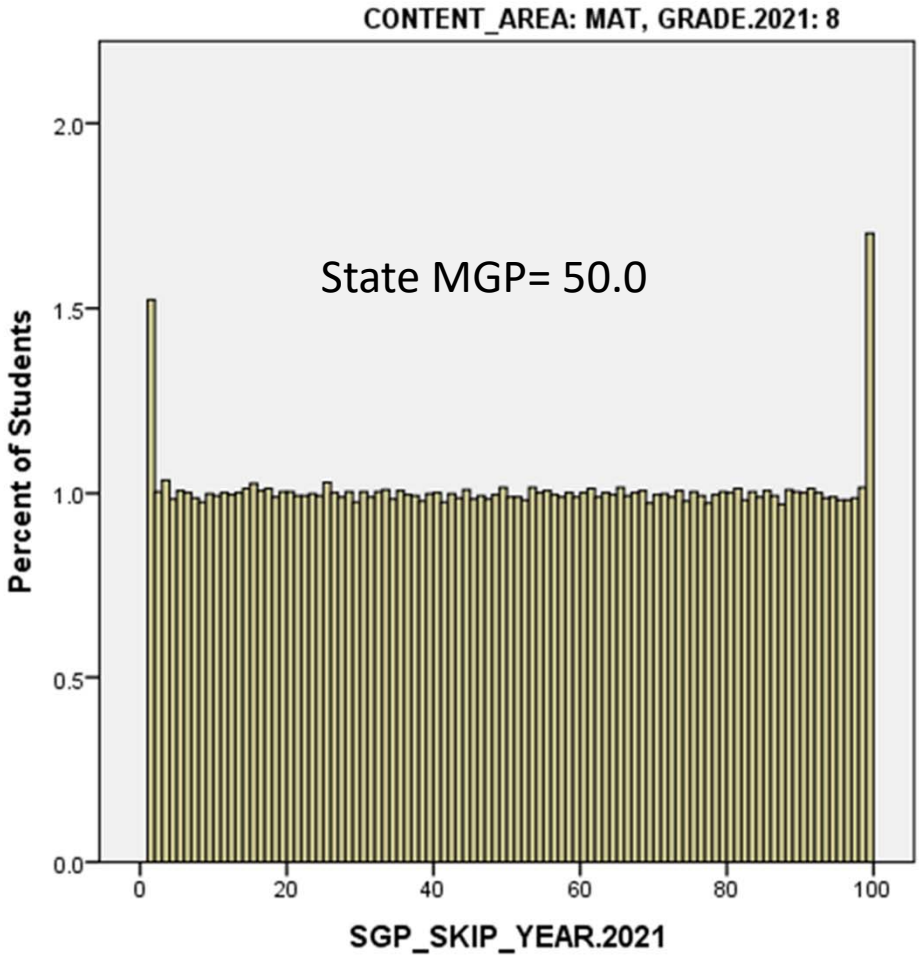
School-level MGP Distributions by Year & Reference Group (min N ≥ 20) – Grade 6 Math

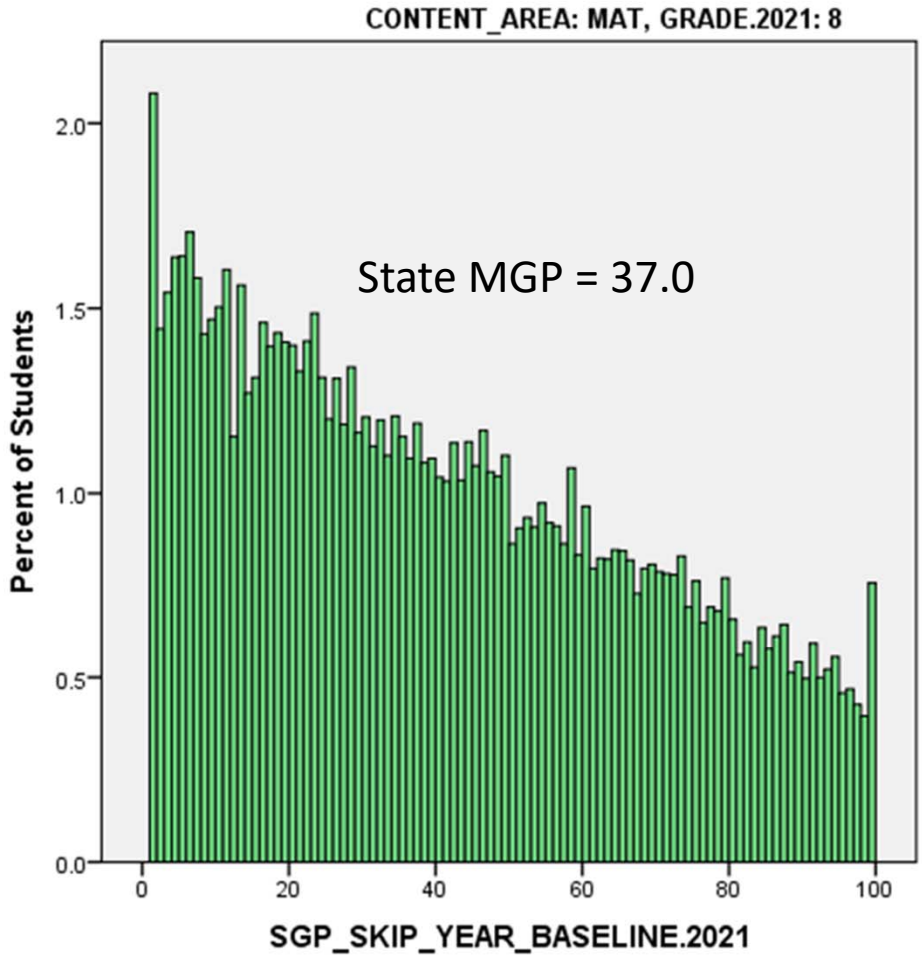


CMAS Student Scale Score Trends Over Time- Grade 8 Math

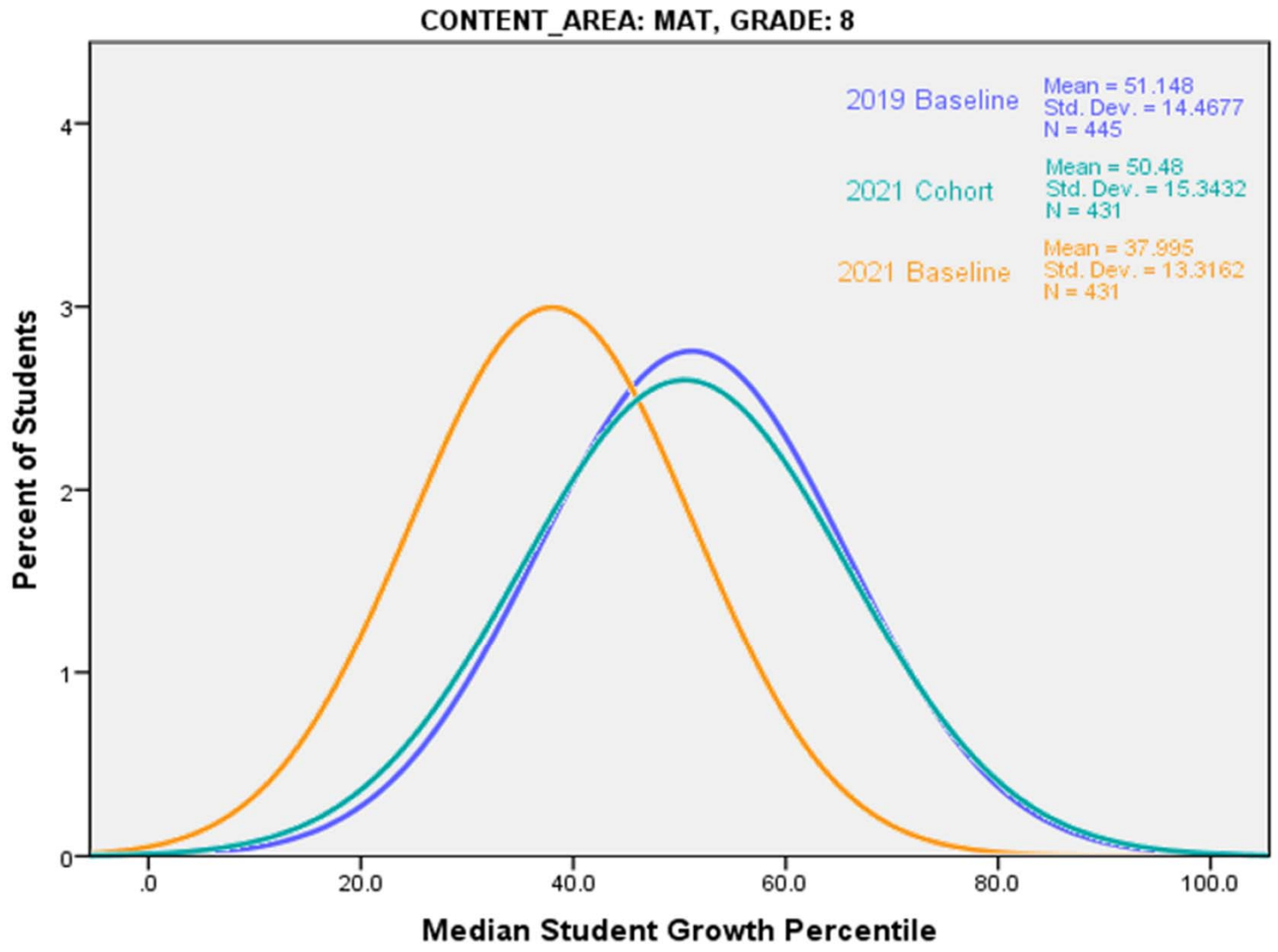


2021 CMAS Skip-Year Growth Percentile Distributions: Cohort v. Baseline – Grade 8 Math, (N=35,647)





School-level MGP Distributions by Year & Reference Group (min N ≥ 20) – Grade 8 Math



Rough Impact Estimates for State Growth Results

- This table shows NCIEA's estimated learning impact and recovery timelines based upon 2021 baseline median growth percentile (MGP) ranges.

Level of Impact*	Baseline MGP Range	Estimated Timeline for Recovery
Modest/None	46-55	Minimal
Moderate	36-45	Less than 1 year with added support
Large	25-35	More than 1 year with added support
Severe	1-25	Multiple years with added support

* Note that these names are preliminary and we are seeking feedback

2021 CMAS Skip-Year MGPs by Disaggregated Group- Cohort v. Baseline

Student Group	Content Area	Grade	Particip-ation Rate	Represen-tativeness	Growth N	Skip-Year MGPs		*Estimated Impact on Student Learning*
						Cohort	Baseline	
All Students	ELA	5	74.4%	-	41,521	50.0	46.0	*Modest*
		7	63.7%	-	39,014	50.0	40.0	*Moderate*
	MATH	6	68.6%	-	40,753	50.0	33.0	*Large*
		8	57.9%	-	35,617	50.0	37.0	*Moderate*
ELL: NEP & LEP	ELA	5	72.1%	-0.6%	3,482	40.0	41.0	*Moderate*
		7	63.7%	0.0%	3,112	45.0	38.0	*Moderate*
	MATH	6	68.3%	-0.1%	3,384	38.0	22.0	*Severe*
		8	59.5%	0.4%	2,776	40.5	38.0	*Moderate*
IEP: Yes	ELA	5	68.3%	-1.1%	4,893	41.0	42.0	*Moderate*
		7	59.6%	-0.8%	4,202	42.0	36.0	*Moderate*
	MATH	6	63.6%	-0.9%	4,583	46.0	29.0	*Large*
		8	54.2%	-0.7%	3,568	43.5	40.0	*Moderate*
Free Reduced Lunch: Yes	ELA	5	71.1%	-1.8%	15,729	42.0	40.0	*Moderate*
		7	59.9%	-2.3%	14,473	44.0	36.0	*Moderate*
	MATH	6	64.4%	-2.4%	15,422	43.0	26.0	*Large*
		8	55.1%	-1.9%	12,836	43.0	33.0	*Large*

For Representativeness metric, differences further from zero indicate tested students were less representative of student group population

2021 CMAS Skip-Year MGPs by Disaggregated Group- Cohort v. Baseline

Student Group	Content Area	Grade	Participation Rate	Representativeness	Growth N	Skip-Year MGPs		*Estimated Impact on Student Learning*
						Cohort	Baseline	
American Indian or Alaskan Native	ELA	5	65.9%	-0.1%	227	47.0	42.0	*Moderate*
		7	58.3%	0.0%	202	41.0	33.0	*Large*
	MATH	6	56.6%	-0.2%	199	48.0	32.0	*Large*
		8	47.8%	-0.2%	178	46.0	36.0	*Moderate*
Asian	ELA	5	72.8%	0.0%	1,226	57.0	51.0	*Modest*
		7	63.2%	0.0%	1,156	66.0	56.0	*Modest*
	MATH	6	69.8%	0.0%	1,226	60.0	44.0	*Moderate*
		8	58.4%	0.0%	1,108	61.0	45.0	*Moderate*
Black or African American	ELA	5	61.0%	-0.9%	1,545	43.0	39.5	*Moderate*
		7	50.1%	-0.9%	1,336	51.0	41.0	*Moderate*
	MATH	6	53.5%	-1.0%	1,387	41.0	24.0	*Severe*
		8	41.8%	-1.3%	1,113	44.0	35.0	*Large*
Hispanic or Latino	ELA	5	71.7%	-1.3%	13,521	42.0	39.0	*Moderate*
		7	61.4%	-1.3%	13,564	46.0	37.0	*Moderate*
	MATH	6	66.3%	-1.2%	14,200	44.0	27.0	*Large*
		8	57.2%	-0.4%	12,557	44.0	34.0	*Large*

2021 CMAS Skip-Year MGPs by Disaggregated Group- Cohort v. Baseline

Student Group	Content Area	Grade	Particip-ation Rate	Represen-tativeness	Growth N	Skip-Year MGPs		*Estimated Impact on Student Learning*
						Cohort	Baseline	
Pacific Islander	ELA	5	62.5%	-0.1%	80	57.5	54.5	*Modest*
		7	50.0%	-0.1%	81	45.0	36.0	*Moderate*
	MATH	6	50.3%	-0.1%	76	47.0	28.5	*Large*
		8	47.7%	-0.1%	76	47.5	35.5	*Large*
Two or more races	ELA	5	72.0%	-0.2%	1,952	52.0	47.0	*Modest*
		7	57.9%	-0.4%	1,629	50.0	39.0	*Moderate*
	MATH	6	64.4%	-0.3%	1,725	52.0	35.0	*Large*
		8	51.5%	-0.5%	1,410	52.0	36.0	*Moderate*
White	ELA	5	78.0%	2.5%	22,968	55.0	49.0	*Modest*
		7	67.1%	2.8%	21,045	52.0	41.0	*Moderate*
	MATH	6	72.1%	2.7%	21,939	54.0	37.0	*Moderate*
		8	60.6%	2.4%	19,174	54.0	38.0	*Moderate*
Female	ELA	5	74.2%	-0.2%	20,288	52.0	48.0	*Modest*
		7	62.3%	-1.0%	18,565	52.0	42.0	*Moderate*
	MATH	6	67.7%	-0.6%	19,637	50.0	34.0	*Large*
		8	55.7%	-1.9%	16,708	52.0	38.0	*Moderate*
Male	ELA	5	74.6%	0.2%	21,233	48.0	44.0	*Moderate*
		7	64.9%	1.0%	20,449	48.0	38.0	*Moderate*
	MATH	6	69.4%	0.6%	21,116	50.0	33.0	*Large*
		8	60.1%	1.9%	18,909	48.0	35.0	*Large*

2021 CMAS Skip-Year MGPs by Disaggregated Group- Cohort v. Baseline

Student Group	Content Area	Grade	Growth N	Skip-Year MGPs		*Estimated Impact on Student Learning*
				Cohort	Baseline	
2019 Achievement Level 1	ELA	5	6,721	50.0	53.0	*None*
		7	3,337	49.0	45.0	*Moderate*
	MATH	6	5,453	50.0	32.0	*Large*
		8	4,666	50.0	49.0	*Modest*
2019 Achievement Level 2	ELA	5	7,477	50.0	45.0	*Moderate*
		7	6,375	50.0	43.0	*Moderate*
	MATH	6	9,553	50.0	32.0	*Large*
		8	9,410	50.0	40.0	*Moderate*
2019 Achievement Level 3	ELA	5	9,647	50.0	46.0	*Modest*
		7	9,898	50.0	40.0	*Moderate*
	MATH	6	11,160	50.0	36.0	*Moderate*
		8	10,113	51.0	31.0	*Large*
2019 Achievement Level 4	ELA	5	15,717	50.0	44.0	*Moderate*
		7	16,964	50.0	39.0	*Moderate*
	MATH	6	13,275	50.0	32.0	*Large*
		8	9,816	50.0	32.0	*Large*
2019 Achievement Level 5	ELA	5	1,959	51.0	35.0	*Large*
		7	2,440	50.0	35.0	*Large*
	MATH	6	1,312	50.0	33.0	*Large*
		8	1,612	50.0	33.0	*Large*

Draft Tableau Visualizations

(Informal Feedback and
Formal Recommendation)

Requests for TAP Feedback

Informal TAP Feedback

- Informal feedback on visualizations

Formal TAP Recommendation

- For Tableau visualization that can drill down to the student level, is interactive online format sufficient or do we need to create student-level PDF files for distribution?

Technical Advisory Panel

- Meeting Summary:
  - Suggested future analysis
  - TAP recommendations from this meeting
- Public Comment
- Close Meeting
  - Next Scheduled Meeting: September 30th