Recovery Analysis of COVID-19 on Public School Units, Students and Families

2023 NC Association of County Commissioners

Jeni Corn, Ph.D., Director of Research and Evaluation
Andrew Smith, Ed.D., Assistant State Superintendent

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https://shorturl.at/uxF06

NC Emerges as a National Leader in Recovery

Superintendent Truitt created the Office of Learning Recovery and Acceleration in March 2021 to facilitate

- **Transparency**: Prioritize providing the research needed to make evidence-based decisions at state and local levels to aid in recovery and accelerate learning for all students.
- **Partnership**: Partner with PSUs to bring needed solutions to long-standing challenges facing NC public education.
- **Coordination**: Serve as the central point of contact for internal and external coordination of resources, collaboration, and communications.

OLR Purpose

- Combat the impact of lost instructional time and accelerate learning for all students
- Evaluate the implementation and impact of the interventions sponsored by the OLR and support decision-making about continuation, expansion, and targeting of the programs
- Use research to identify, extend, scale, and sustain programs that demonstrate impact, and build a clearinghouse of NC Promising Practices

Your NCDPI OLR Team!

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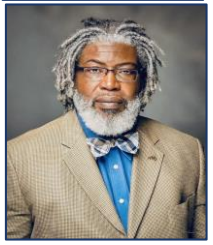

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OLR Spring 2023 Evidenced-Based Strategic Planning Regional Sessions

Purpose of Regional Sessions

- Help PSUs identify their priorities for recovery and acceleration based on their data to use as part of local strategic plans and identify interventions to address those priorities.
- Participant Outcomes:
  - ✔ increase awareness of new data sources and better understand impacts of the pandemic for different student groups
  - ✔ increase understand of how data and research can guide local strategic investments in interventions to address priorities
  - ✔ build relationships with DPI and other PSU staff

Agenda for Regional Sessions

- Setting Vision and Direction
- Getting to Know You
- Reviewing Statewide and Regional Data
- Exploring Local Data and Identifying Priorities
- Modeling the Use of Strategic Planning Tools
- Putting Data Into Practice
- Reflecting Together

What did PSUs receive?

Data Sources: Impacts of Pandemic, National Student Clearinghouse, Employment Outcome Dashboard, myFutureNC County Profiles

- Overview of state and regional data results
- Aggregated data files based on their LEA and schools
- Documentation and supports on how to interpret results
- Recommended clearinghouses of vetted resources

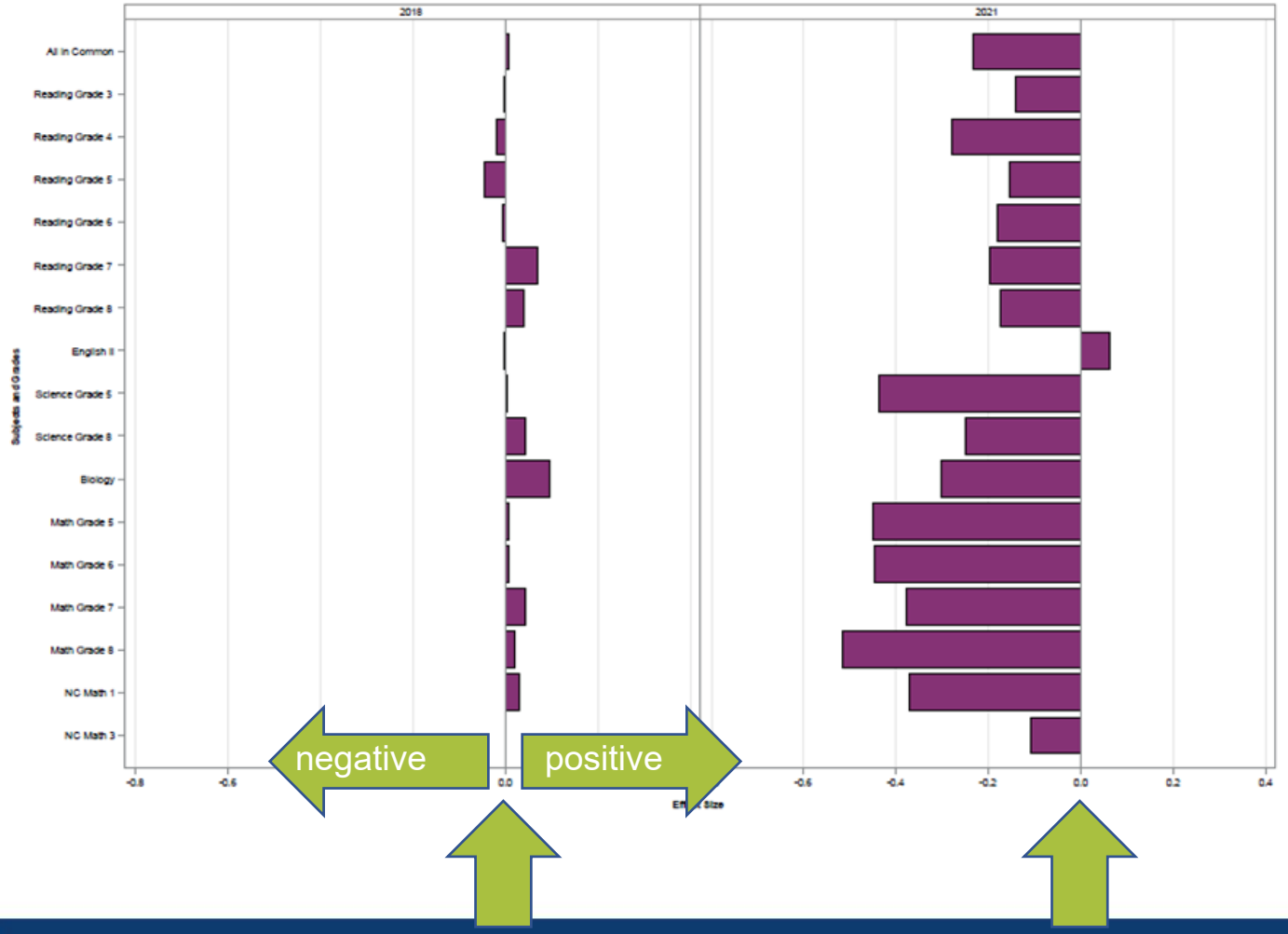
Recovery Analysis of COVID-19 on Public School Units, Students and Families - EVAAS Team at SAS (ESSER II, ESSER III)

Full Report Available on NCDPI's Research & Recovery Roundup

Wrapping Up 2020-21 *Lost Instructional Time* Report

- Technical Report Submitted to JLEOC December 15 (link)
- Releasing a series of white papers focused on:
  - New data added for Science Grade 5 and ACT
  - New interactions including gender, region, race, urbanicity, student groups (i.e., AIG, SWD, EDS, ML)
  - New findings related to:
    - Teacher and principal effectiveness and longevity (link)
    - Chronic absenteeism

Wrapping Up 2020-21 *Lost Instructional Time* Report



Framing the 2021-22 *Recovery Analysis* Results

- This data is unique to North Carolina as it is individual, student level data (~1.4M students) and not based on sample sizes which means all differences are *statistically* significant.
- This data goes beyond how many students met grade level proficiency and presents the difference between where we expected students to perform and how they actually performed.
  - 2018 provides a reference for "business as usual”
  - Effect size graphs compare 2021 and 2022 to provide an estimate of "magnitude of recovery"
  - Vertical 0 line means students in those groups are performing as we would expect. They are on track based on past performance.

Main Effects for Student Groups

- Summary of All Tested Subjects
- Sex
- Race/Ethnicity
- Economically Disadvantaged Students
- Chronically Absent
- Academically or Intellectually Gifted
- Students with Disabilities
- Multilingual Learners
- Student Experiencing Homelessness
- Military Connected
- Foster Students
- Migrant Students
- Entering Achievement by Quintile
- Urbanicity
- Percentage Connectivity
- 2021 Remote Days by Quintile

Interactions and School Type

- Race/Ethnicity Split by Sex
- Race/Ethnicity Split by Urbanicity
- Race/Ethnicity Split by AIG
- Sex and EDS Split by Race/Ethnicity
- Urbanicity Split by EDS
- Urbanicity Split by AIG
- Urbanicity Split by Multilingual Learners
- Urbanicity Split by Students with Disabilities
- Student Remote Split by Race/Ethnicity
- State Board of Education Region
- Race/Ethnicity Split by SBE Region
- Urbanicity Split by SBE Region and Economically Disadvantaged
- School Designation
- A-F Grade

Understanding Effect Sizes

- Standardized metric that indicates magnitude or practical significance of a research outcome. A large effect size means that a research finding has practical significance, while a small effect size indicates limited practical applications.
- How to interpret:
  - Small: Effect size less than 0.05
  - Medium: Effect size ranges from 0.05 to 0.20
  - Large: Effect size greater than 0.20*
- Effect size can be positive or negative

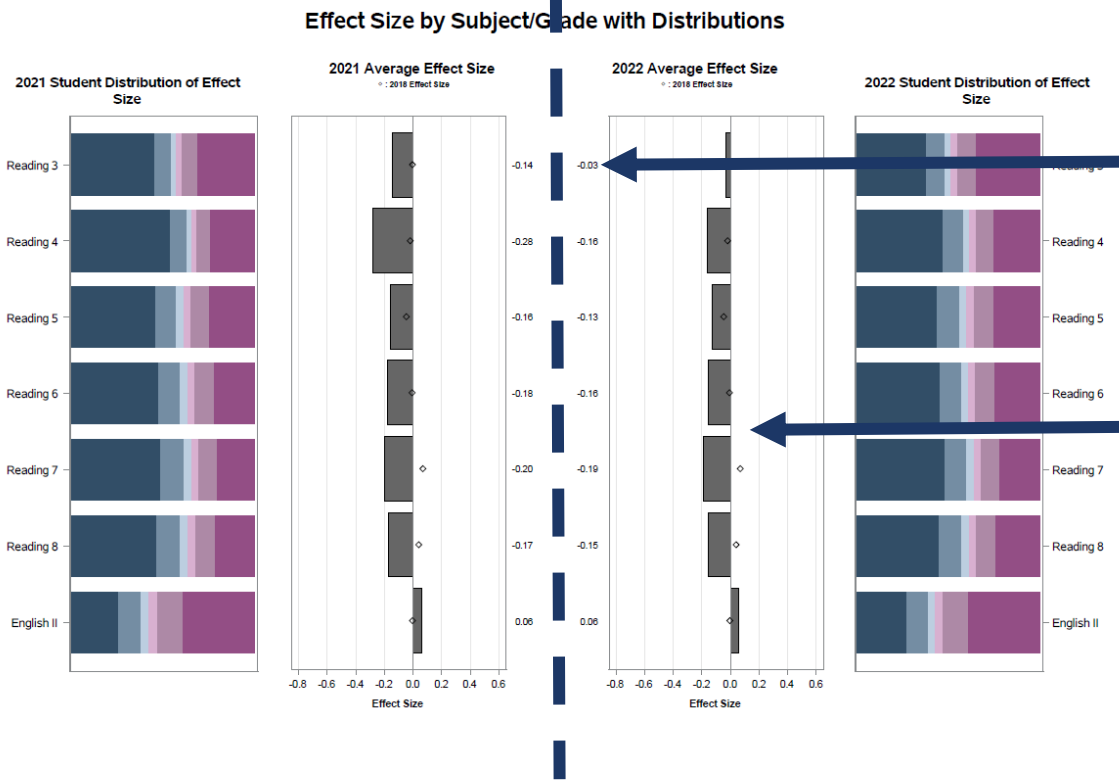
*Kraft MA. “Interpreting Effect Sizes of Education Interventions.” *Educational Researcher*. 2020; 49 (4):241-253.

NEW 2021-22 *Recovery Analysis*

Distributions of student-level effect sizes within each subject and grade or course.

Levels:
- Large Negative
- Medium Negative
- Small Negative
- Small Positive
- Medium Positive
- Large Positive

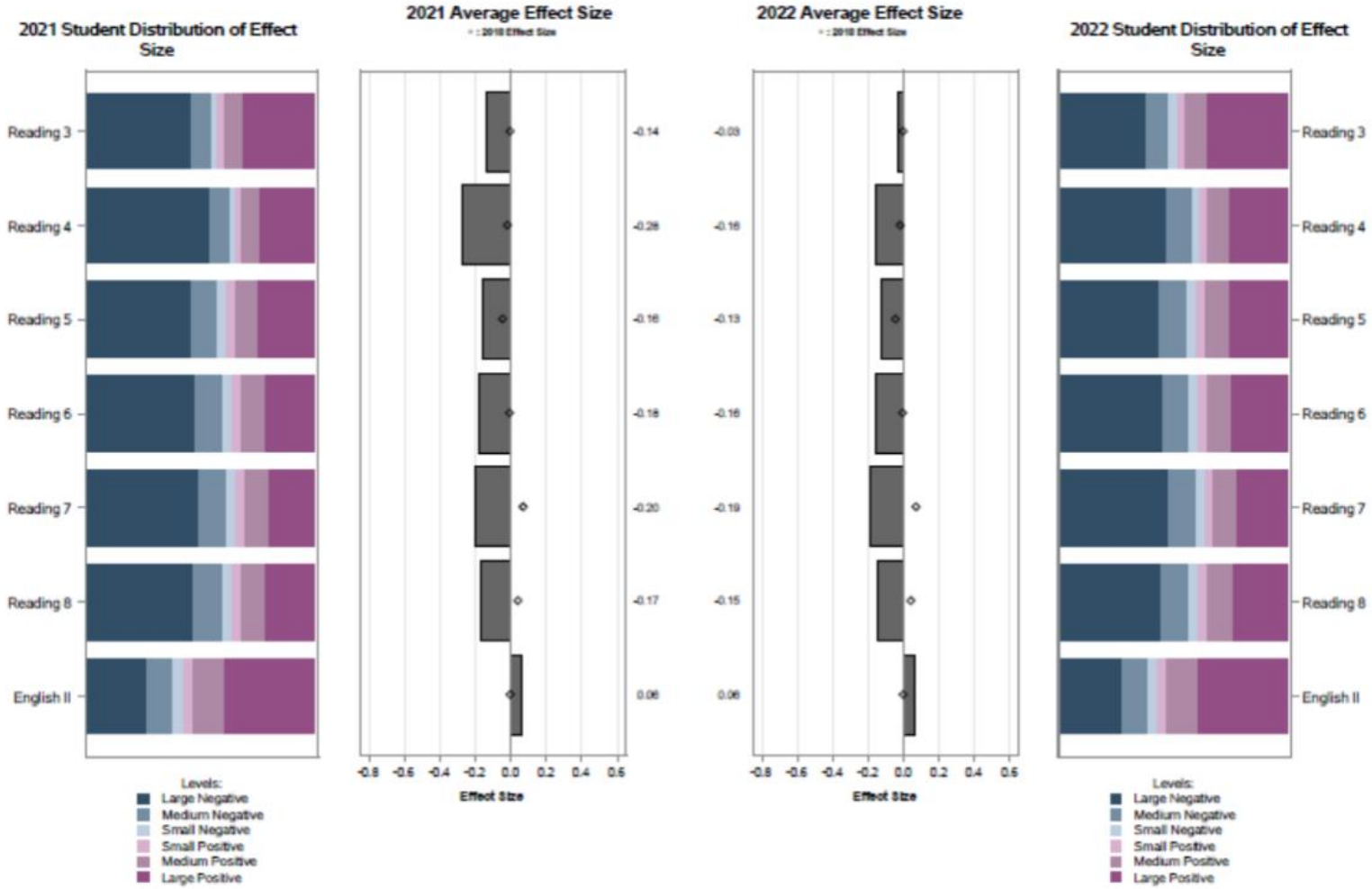
2020-21 Results | **2021-22 Results**



Average Effect Sizes

Open diamond outlined in black shows the average effect size for 2017-18 school year

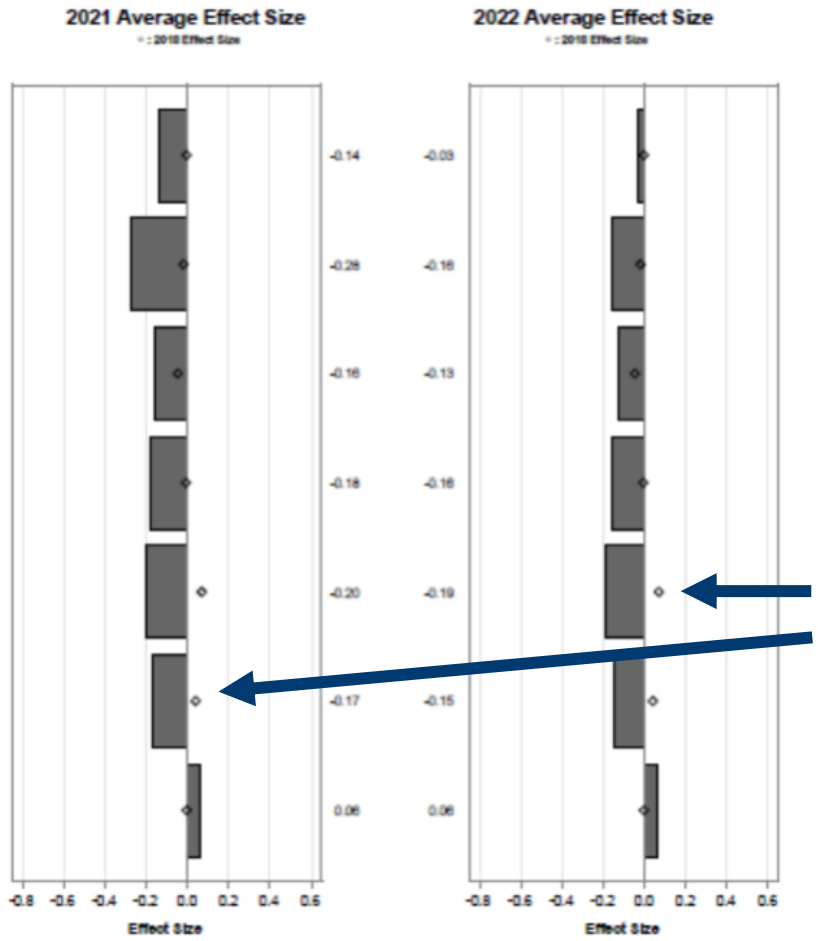
NEW 2021-22 *Recovery Analysis*



2021
Pandemic Impact

2022
Learning Recovery

Assessments by Subject/Grade



2018
Historical Comparison

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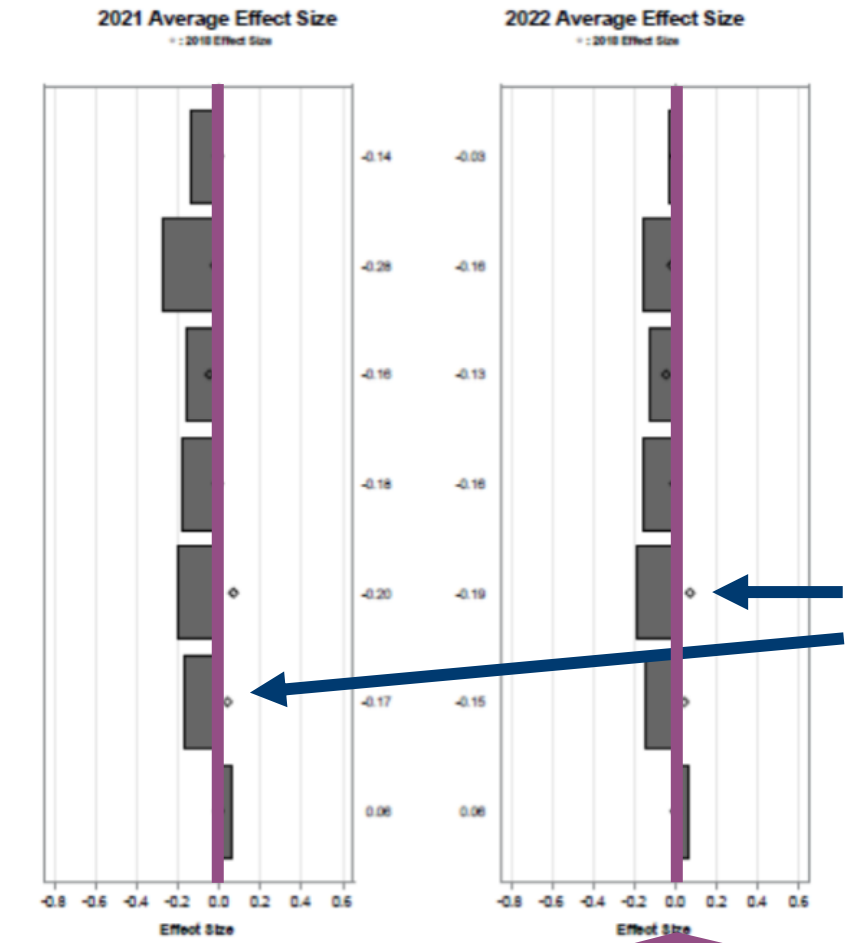

2018
Historical Comparison

Zero line = expected growth **Zero line = expected growth**

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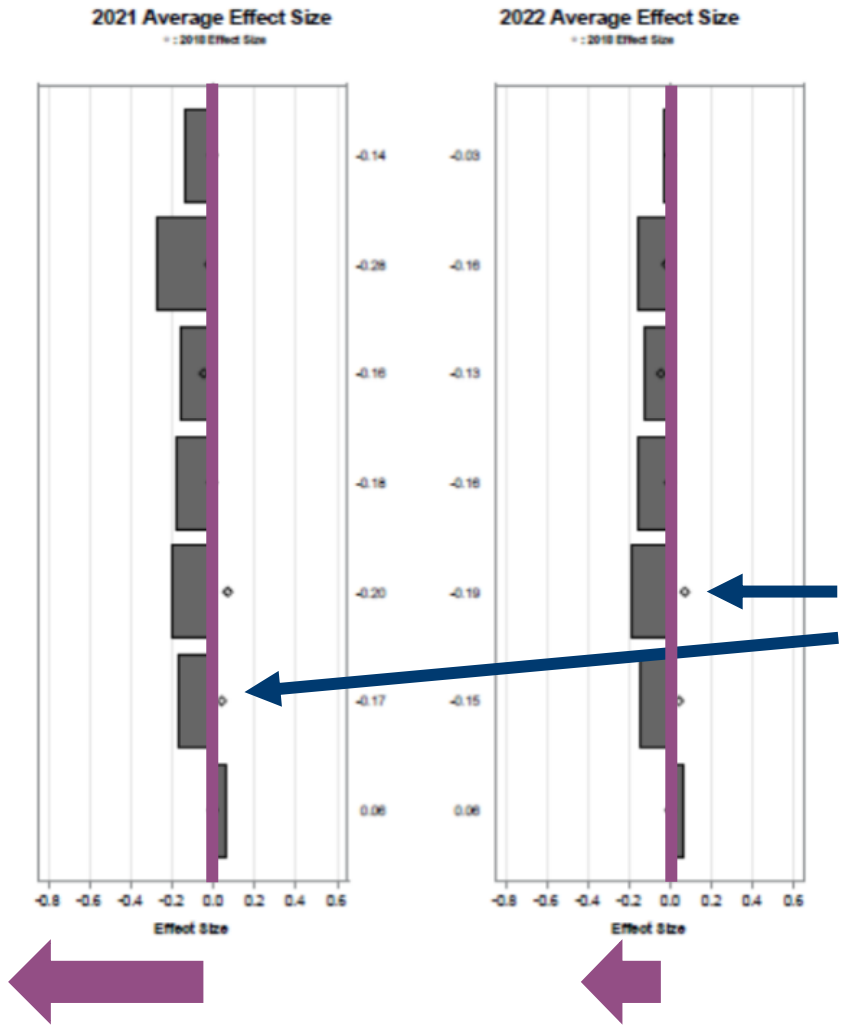


2018
Historical Comparison

Student Distribution of Effects

2021
Pandemic Impact

2022
Learning Recovery

Assessments by Subject/Grade

Levels:
- Large Negative
- Medium Negative
- Small Negative
- Small Positive
- Medium Positive
- Large Positive

Assessments by Subject/Grade

NEW 2021-22 *Recovery Analysis*

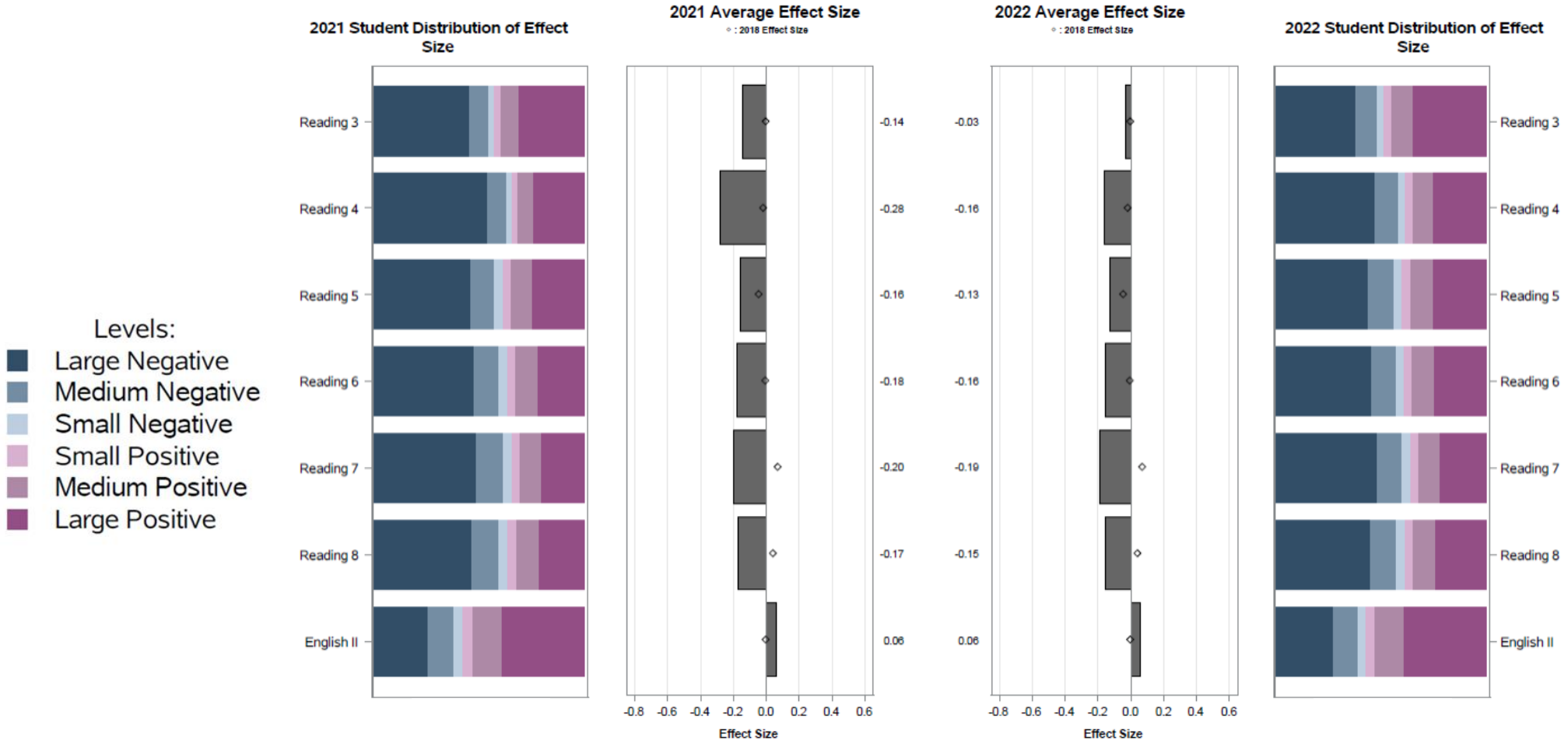
Effect Size by Subject Grade - 2022

	SBE Region														
	North Central			Northeast			Northwest			Piedmont Triad			Sandhills		
Assessment	Effect Size	Std Error of Effect Size	N	Effect Size	Std Error of Effect Size	N	Effect Size	Std Error of Effect Size	N	Effect Size	Std Error of Effect Size	N	Effect Size	Std Error of Effect Size	N
All in Common	-0.090	0.0009	434066	-0.172	0.0020	81333	-0.119	0.0018	96573	-0.169	0.0011	286693	-0.175	0015	148888
Reading 3	-0.039	0.0039	22824	-0.070	0.0089	4366	0.014	0.0084	5050	-0.049	0.0048	15376	-0.022	0.0066	8375
Reading 4	-0.125	0.0036	23714	-0.175	0.0082	4495	-0.196	0.0074	5307	-0.184	0.0043	15983	-0.168	0.0061	854
Reading 5	-0.106	0.0031	25841	-0.187	0.0073	4720	-0.143	0.0070	5217	-0.139	0.0038	16745	-0.113	0.0054	8985
Reading 6	-0.119	0.0033	24774	-0.208	0.0078	4476	-0.101	0.0072	5173	-0.197	0.0042	15935	-0.193	0.0058	8355
Reading 7	-0.153	0.0032	25529	-0.195	0.0073	4651	-0.181	0.0068	5381	-0.244	0.0041	16618	-0.191	0.0055	8607
Reading 8	-0.116	0.0030	26592	-0.166	0.0070	4997	-0.146	0.0065	5879	-0.204	0.0039	17449	-0.159	0.0053	9169
English II	0.100	0.0029	26025	-0.030	0.0069	4972	0.021	0.0062	5848	0.025	0.0037	16973	0.051	0.0051	8809
Science 5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Science 8	-0.053	0.0035	26547	-0.155	0.0079	4993	-0.082	0.0074	5870	-0.155	0.0045	17380	-0.159	0.0061	9164
Biology	-0.148	0.0036	24696	-0.245	0.0082	4709	-0.153	0.0072	5477	-0.206	0.0045	16489	-0.106	0.0063	8230
Math 5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Math 6	-0.174	0.0039	24767	-0.316	0.0092	4477	-0.093	0.0082	5167	-0.238	0.0049	15927	-0.355	0.0066	8344
Math 7	-0.223	0.0036	25516	-0.238	0.0084	4652	-0.158	0.0076	5383	-0.261	0.0045	16582	-0.319	0.0061	8593
Math 8	-0.282	0.0052	16679	-0.242	0.0110	4123	-0.131	0.0100	4959	-0.367	0.0060	12400	-0.384	0.0078	7266
NC Math 1	-0.218	0.0036	26751	-0.202	0.0080	5336	-0.117	0.0072	6470	-0.297	0.0044	18104	-0.267	0.0060	9577
NC Math 3	0.109	0.0040	24155	0.089	0.0096	4356	0.132	0.0086	5266	-0.006	0.0050	16092	0.132	0.0072	8161
ACT Composite	0.005	0.0034	22724	-0.136	0.0073	4067	-0.146	0.0061	5074	-0.113	0.0039	14915	-0.164	0.0053	7362
ACT English	-0.015	0.0041	22794	-0.155	0.0086	4078	-0.139	0.0074	5082	-0.125	0.0046	14969	-0.188	0.0064	7382
ACT Math	-0.061	0.0039	22783	-0.188	0.0082	4078	-0.229	0.0070	5080	-0.155	0.0044	14961	-0.234	0.0058	7380
ACT Reading	0.030	0.0040	22756	-0.106	0.0091	4073	-0.102	0.0077	5078	-0.080	0.0047	14946	-0.105	0.0065	7370
ACT Science	0.058	0.0040	22754	-0.065	0.0091	4070	-0.077	0.0076	5078	-0.068	0.0048	14941	-0.091	0.0066	7376

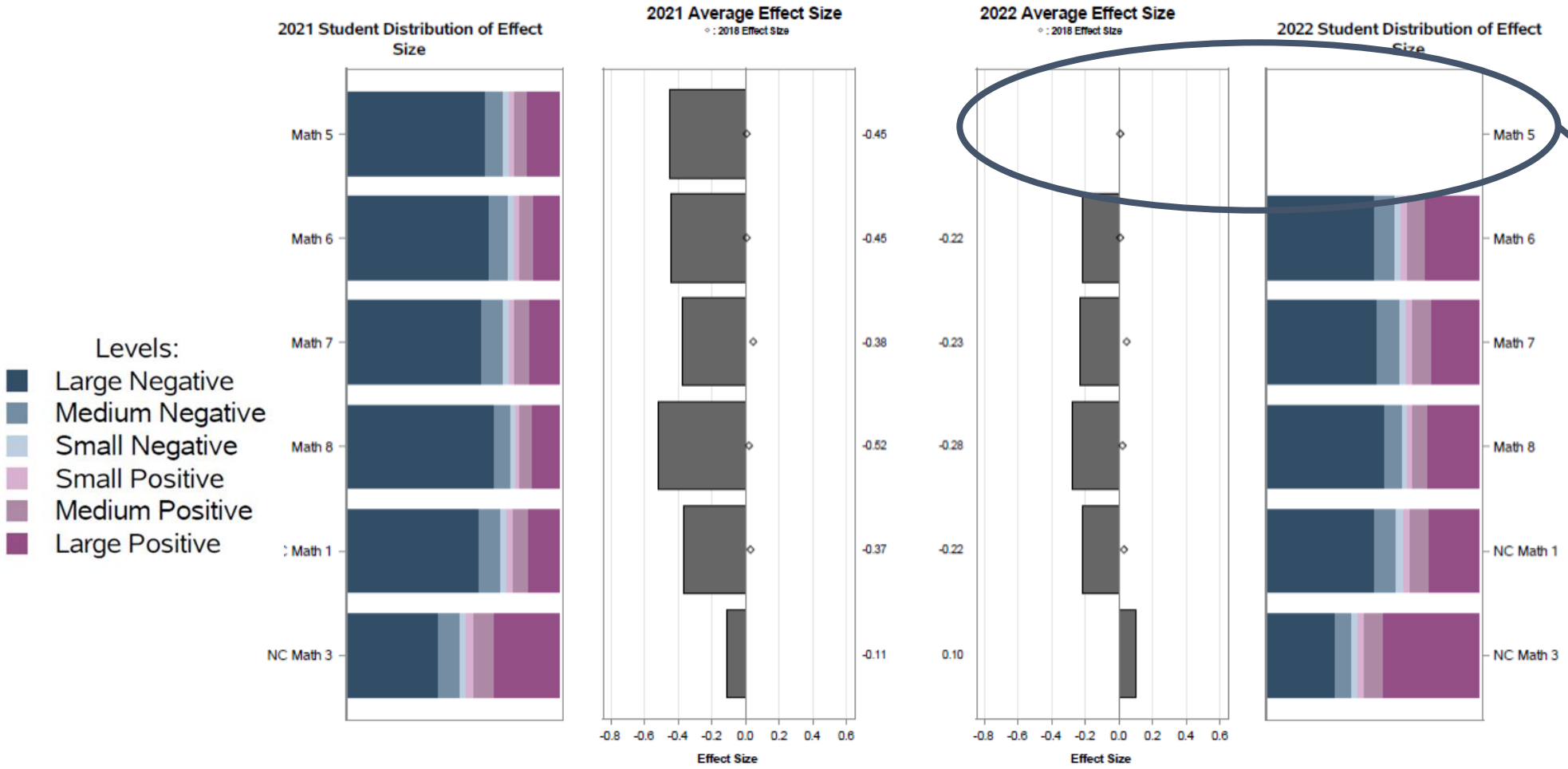
N sizes

Effect sizes

2021-22 Recovery Analysis - ELA

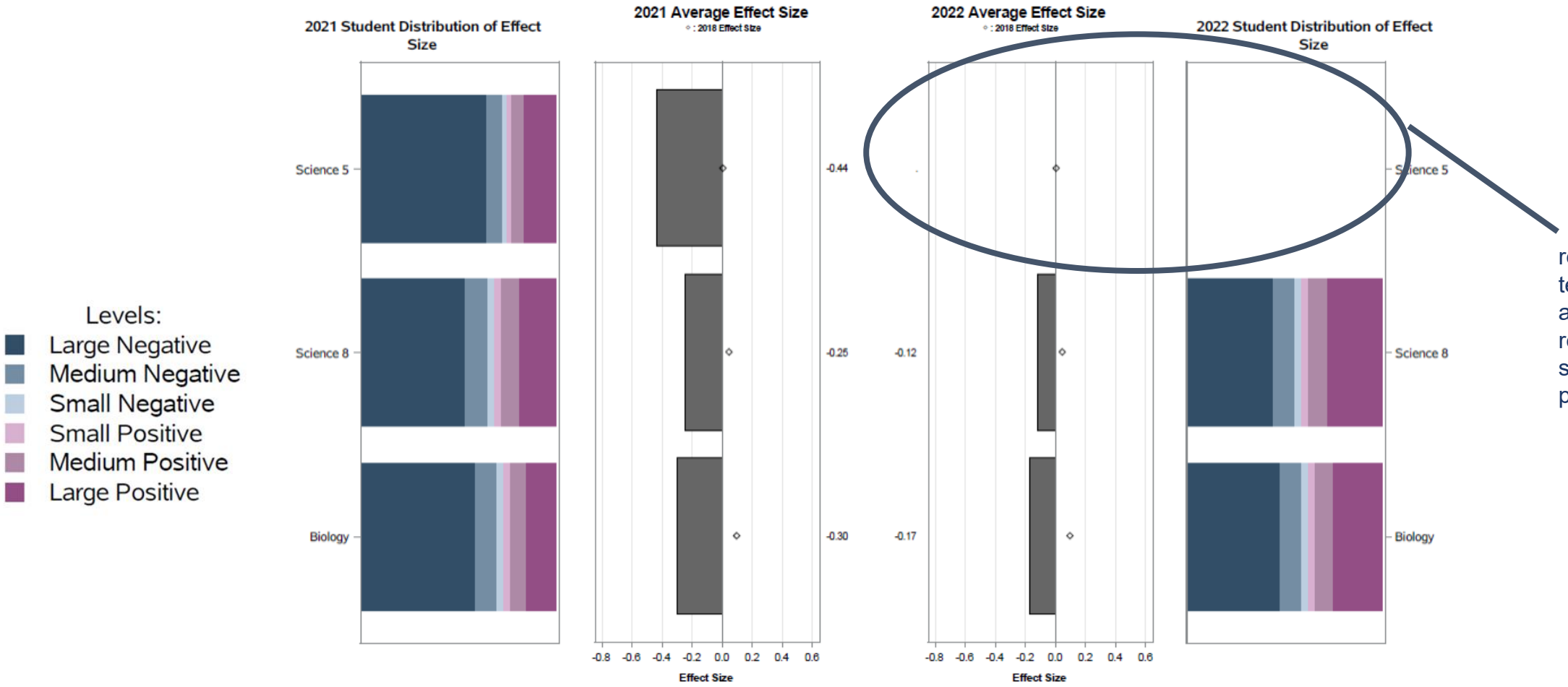


2021-22 Recovery Analysis - Math



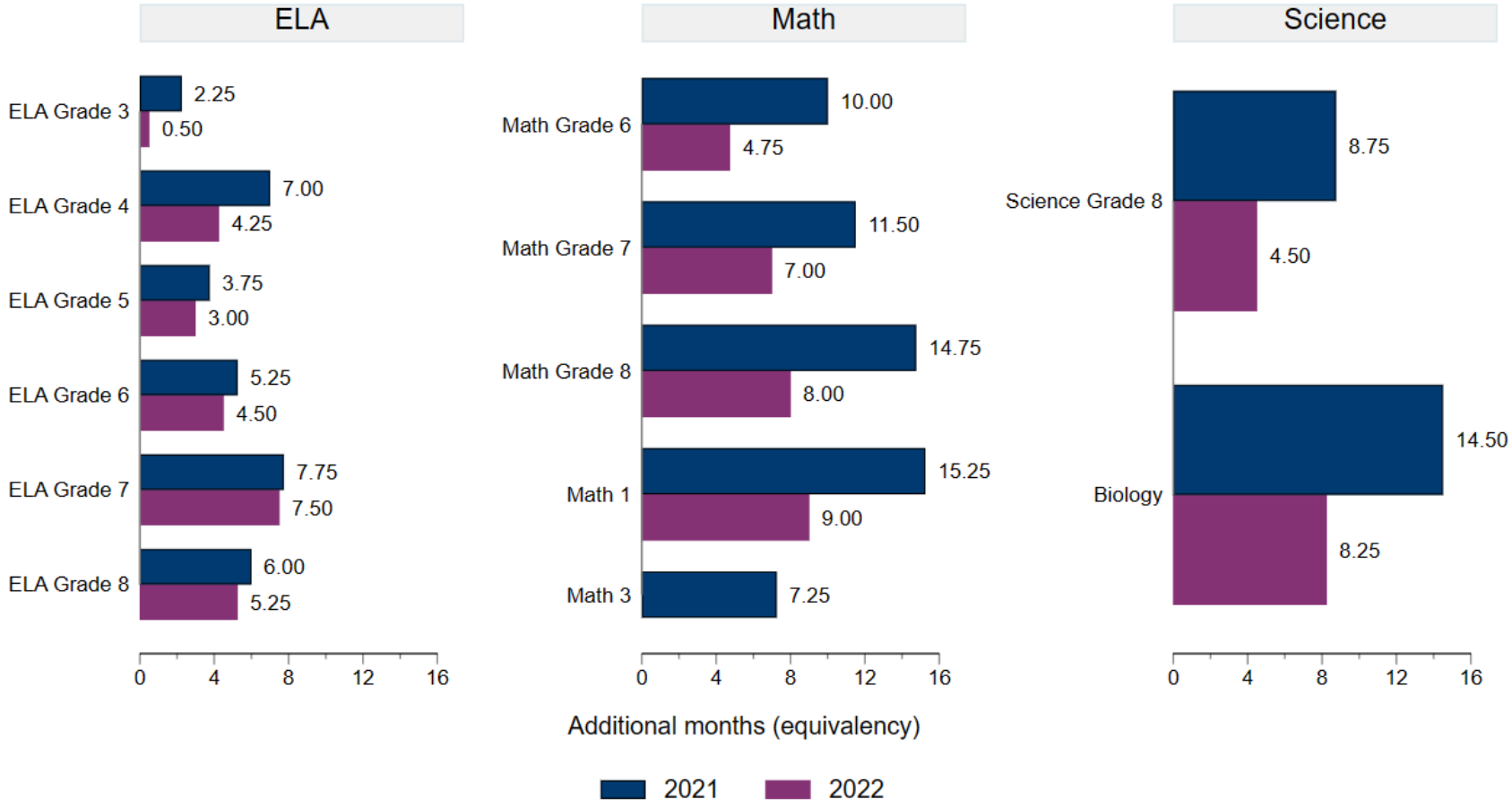
requires historical test scores to have a predictive relationship with students' future performance

2021-22 Recovery Analysis - Science

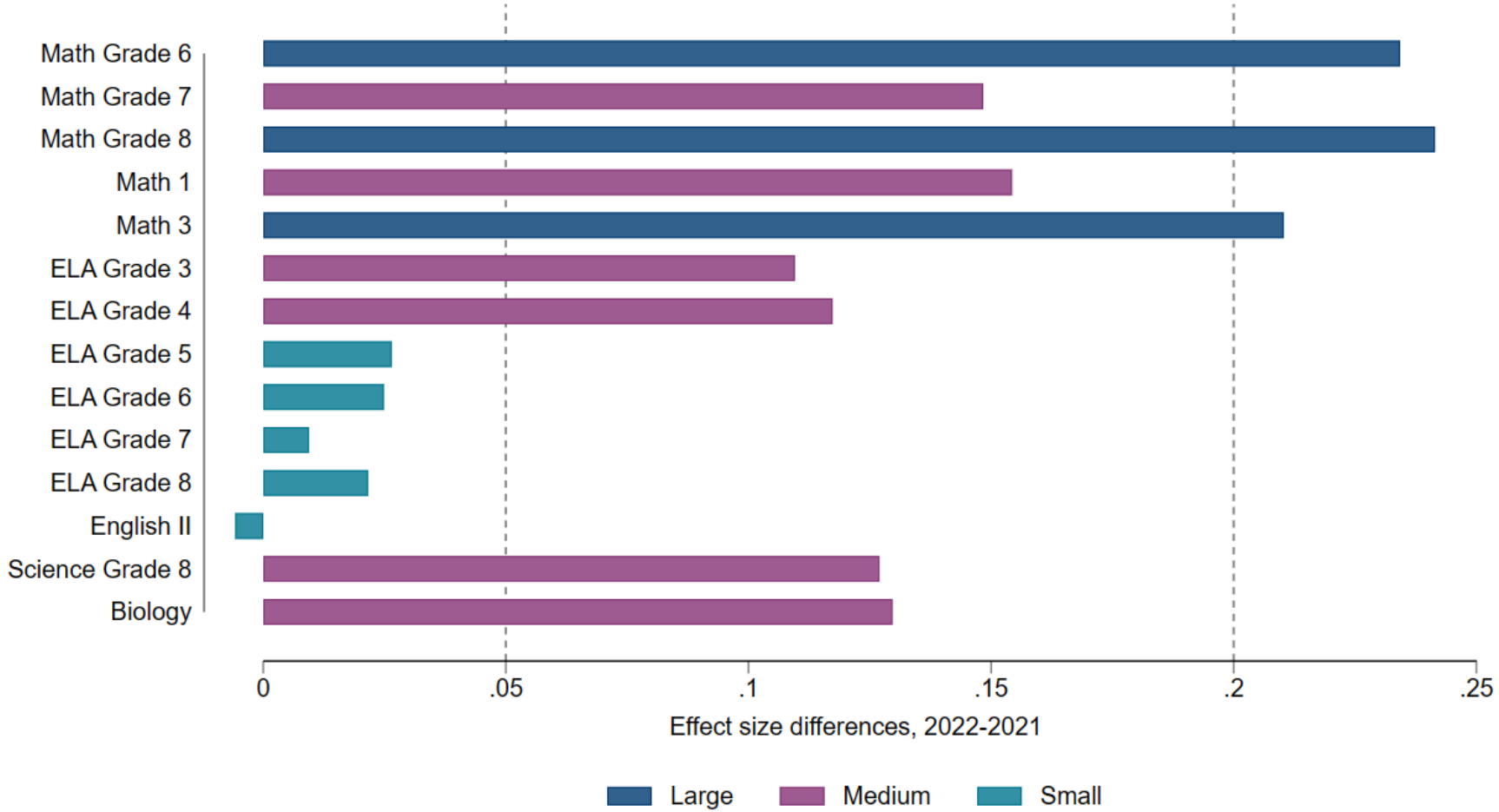


requires historical test scores to have a predictive relationship with students' future performance

2021-22 Recovery Analysis: “Months”

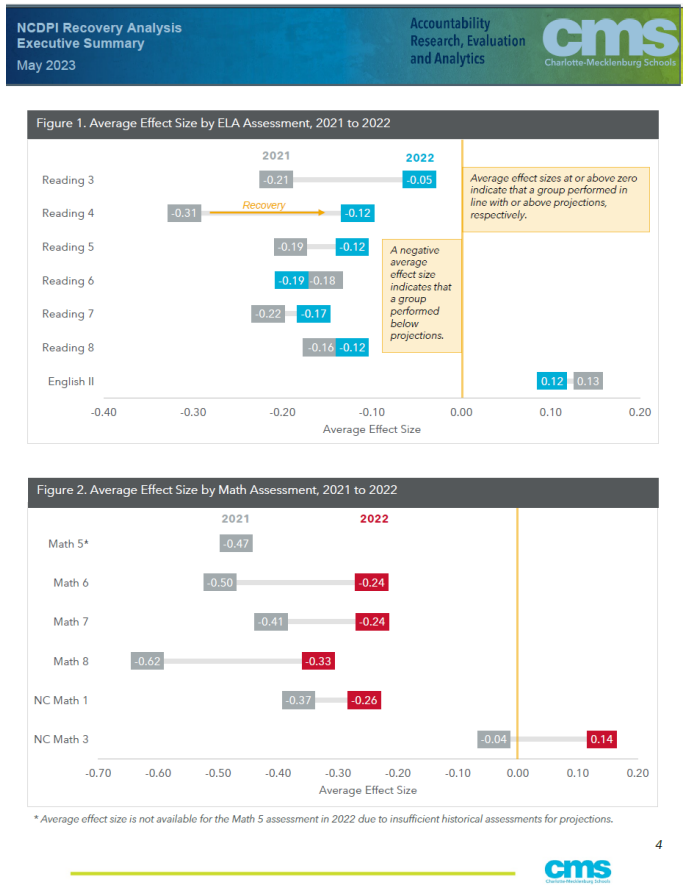


Statewide 2021-2022 "Magnitude of Recovery"



Local Example 2021-2022 "Magnitude of Recovery"

PSUs can use effect size tables to create "Magnitude of Effect" charts and other graphs comparing 2018, 2021 and 2022 effect sizes for different tested subjects and student groups.

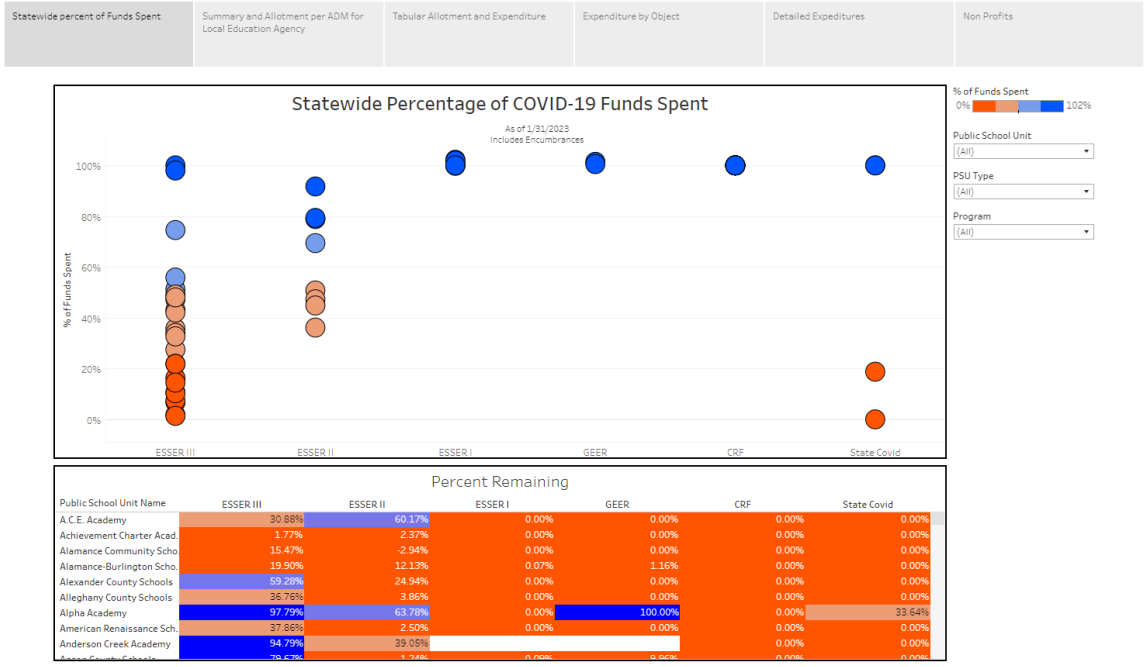


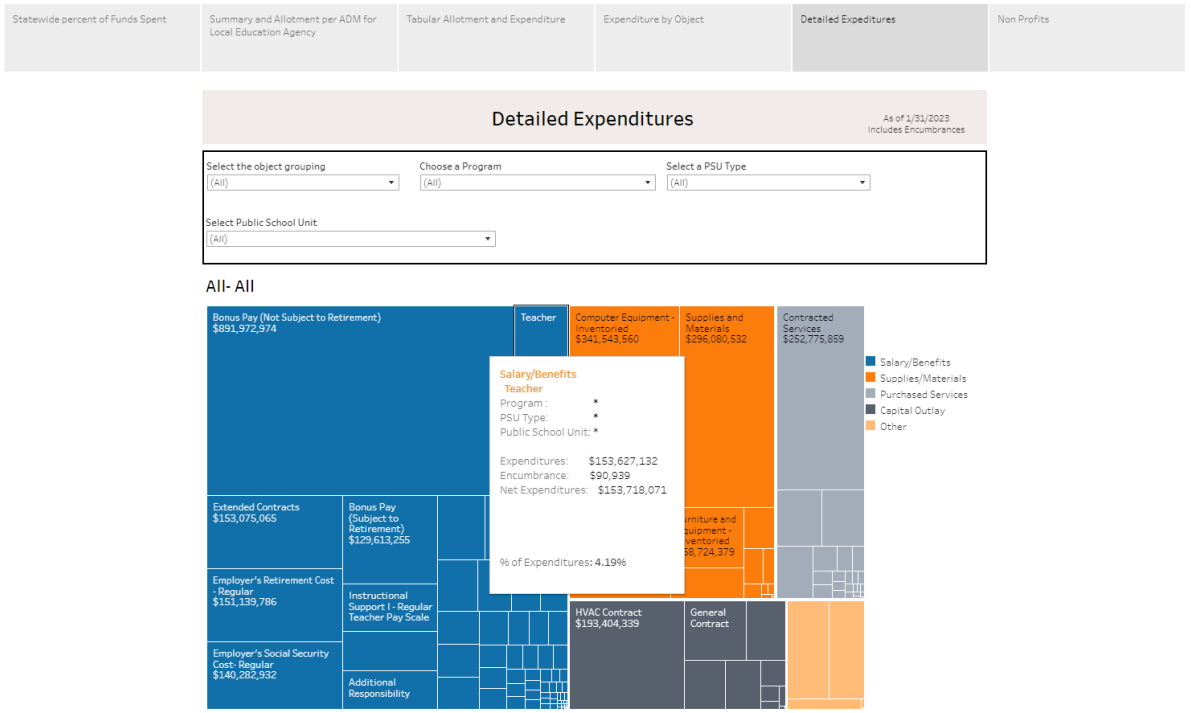
ESSER Funding Implications

The Impending Financial Cliff

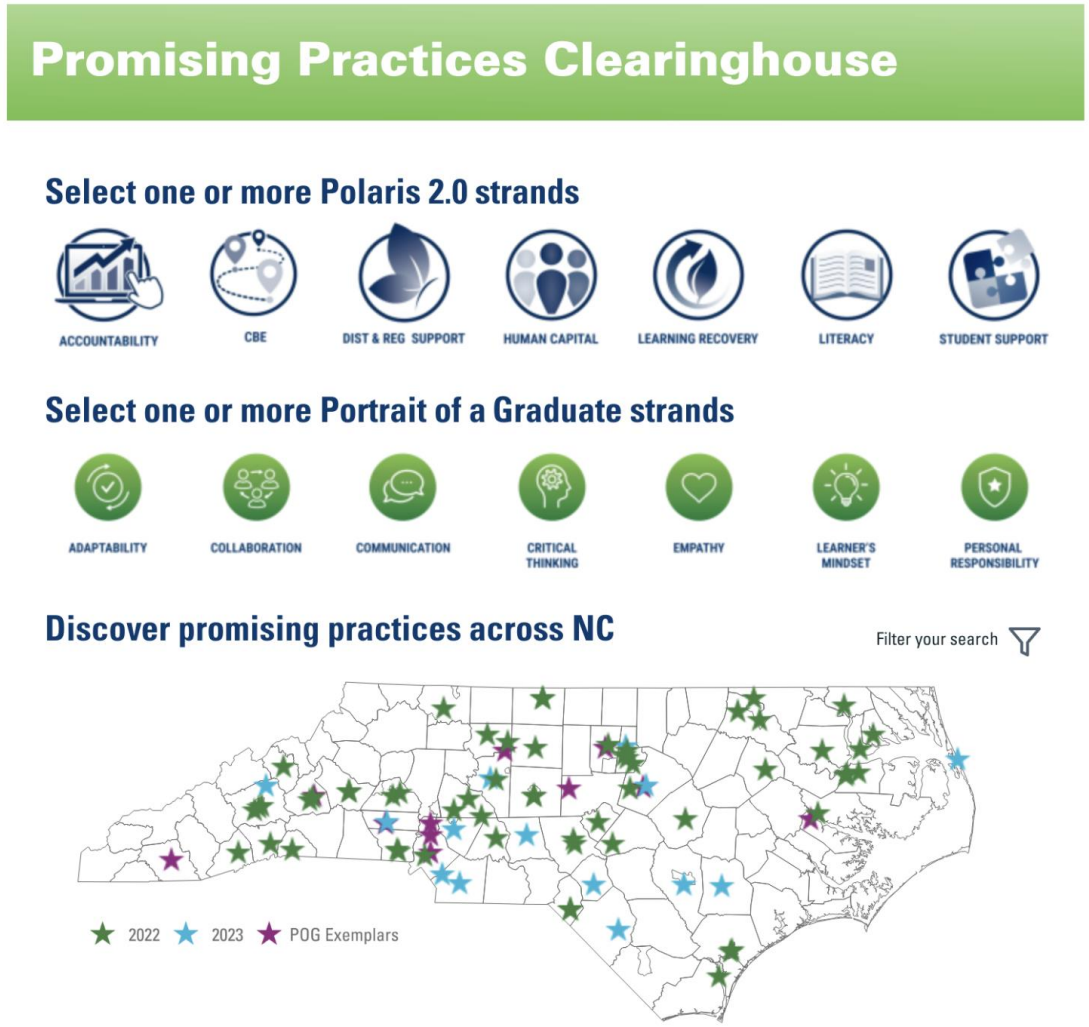
- In September 2024, ESSER Funding (the largest influx of cash into public education in our history) will end.
- Hard decisions will need to be made by educational leaders regarding which programs should remain and which should conclude, as well as, which positions should remain.
- Conversations around data and ROI of programs and personnel should begin now - not later.

Allotment and Expenditure Data Visualization





Promising Practices Clearinghouse



Small Group Activity and Discussion

- Discuss with your small group
  - What are policy solutions to these issues? What interventions might be working?
  - What other data do we need? What needs to be studied?
  - How will this inform your conversations/decisions as a Board?
- Share out

Question & Answer

Thank you

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