Improving gifted education identification & services

with research from the National Center

NATIONAL CENTER FOR RESEARCH ON GIFTED EDUCATION

UCONN | UNIVERSITY OF CONNECTICUT

RENZULLI CENTER FOR CREATIVITY, GIFTED EDUCATION, AND TALENT DEVELOPMENT

Del Siegle

D. Betsy McCoach

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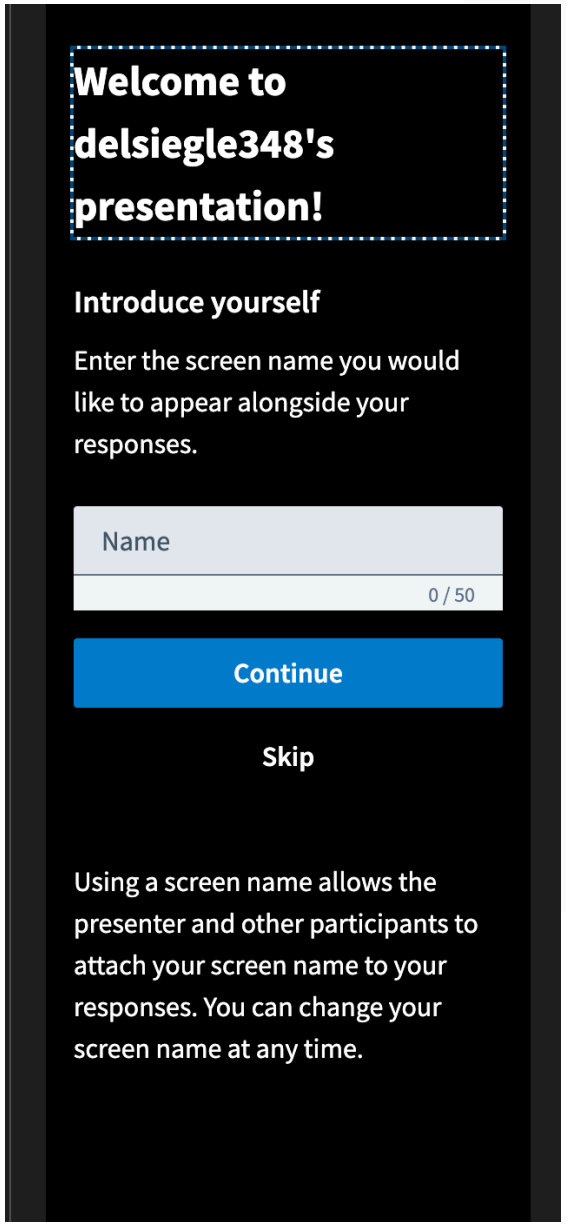
Agenda

1. Examine the strengths and drawbacks of using teacher ratings to screen students for gifted services.
2. Assess the limitation of current identification systems in reaching proportional representation of underserved population in gifted programs.
3. Review recommendations for implementing subject-specific and whole-grade acceleration.

Improving gifted education identification and services using research from the National Center



Del Siegle & D. Betsy McCoach
University of Connecticut

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Any discussion about identification must also address the two issues of...

. . . alignment

. . . under-representation

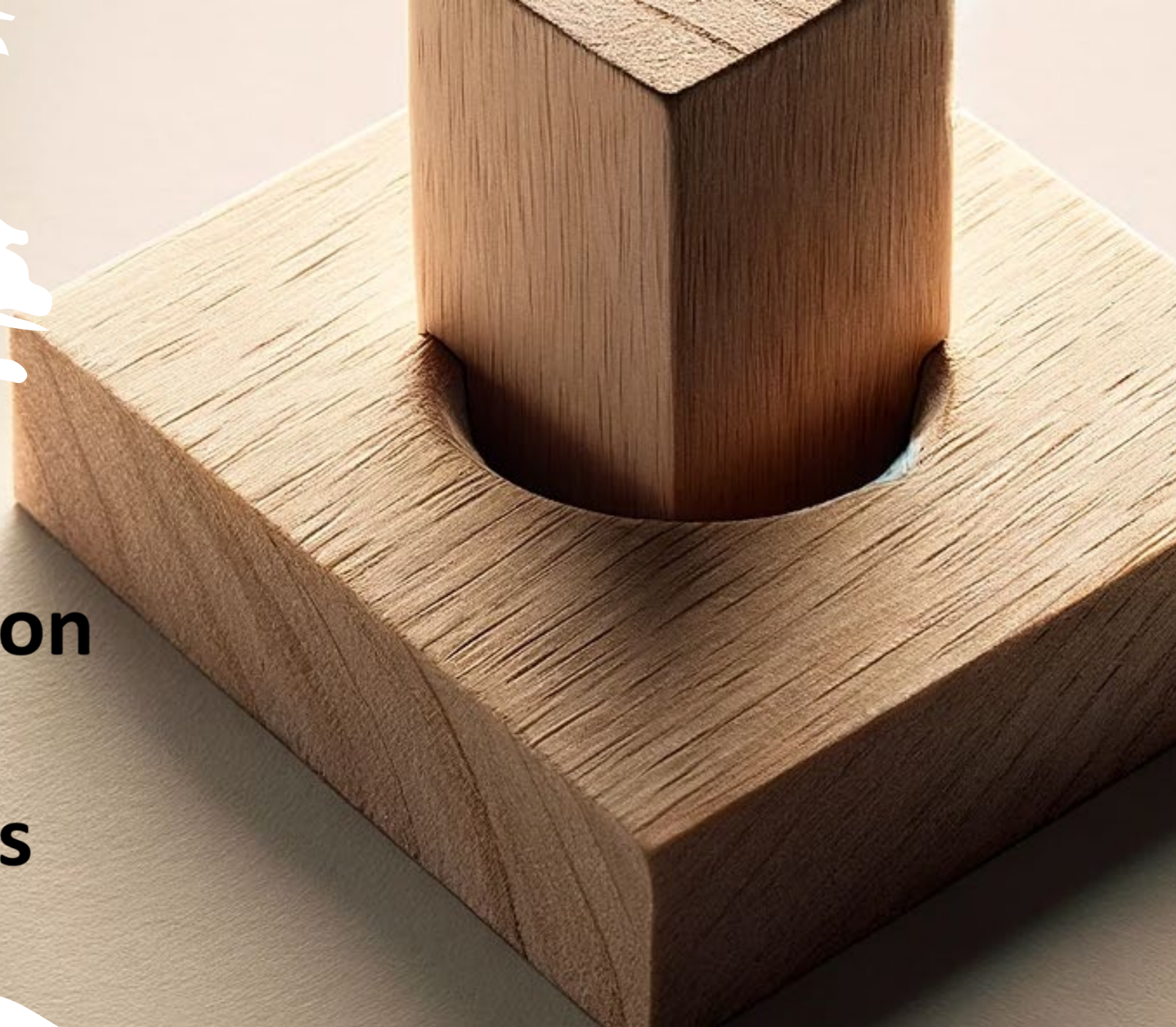
3 Steps for Talent Development

Failure to **align**

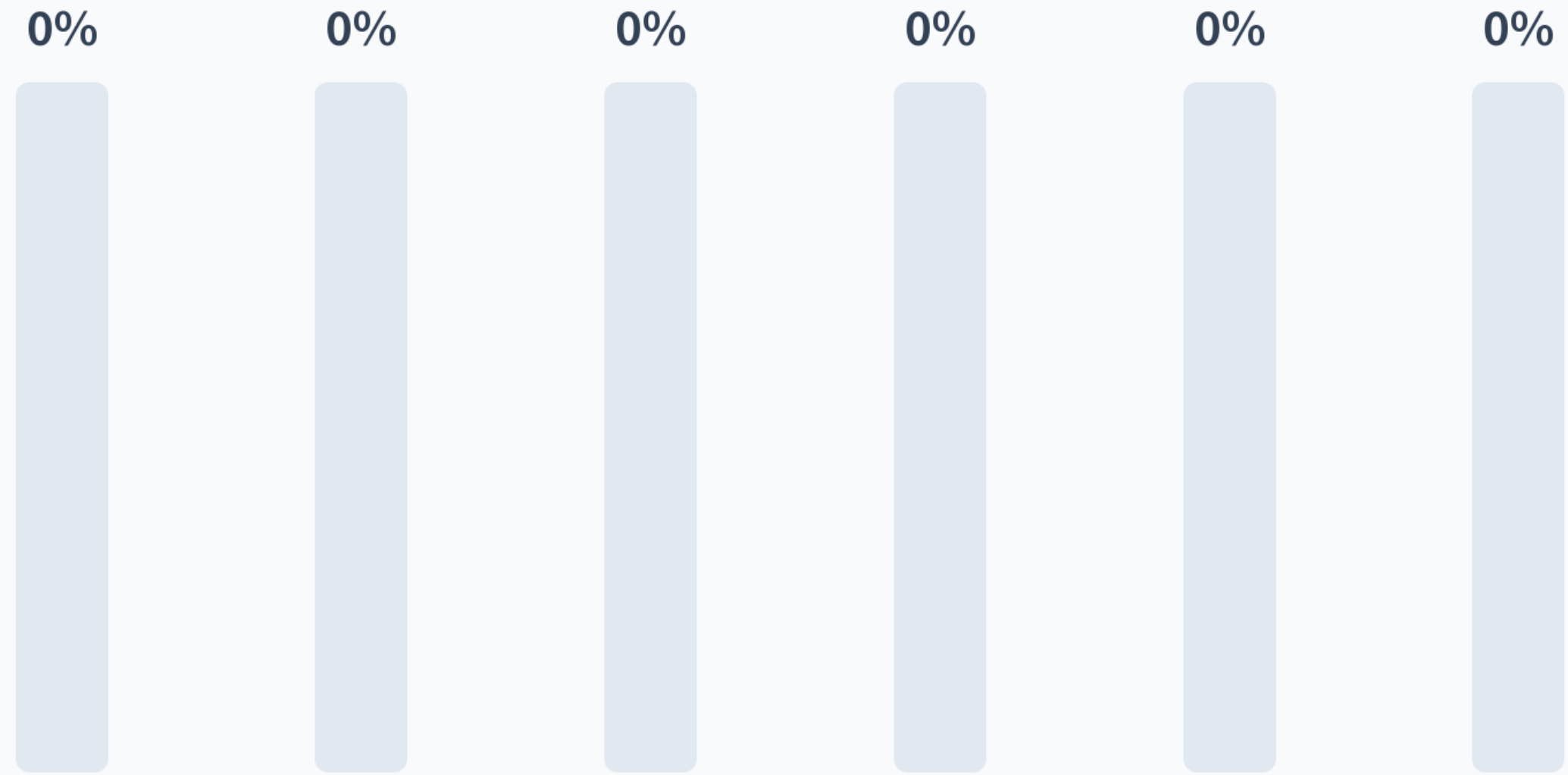
Third → **Identification**

Second → **Services**

First → **Outcomes**



What percentage of districts identify for giftedness in mathematics or reading/language arts?



- **2/3 of districts** identify students for giftedness in mathematics and/or reading language arts.

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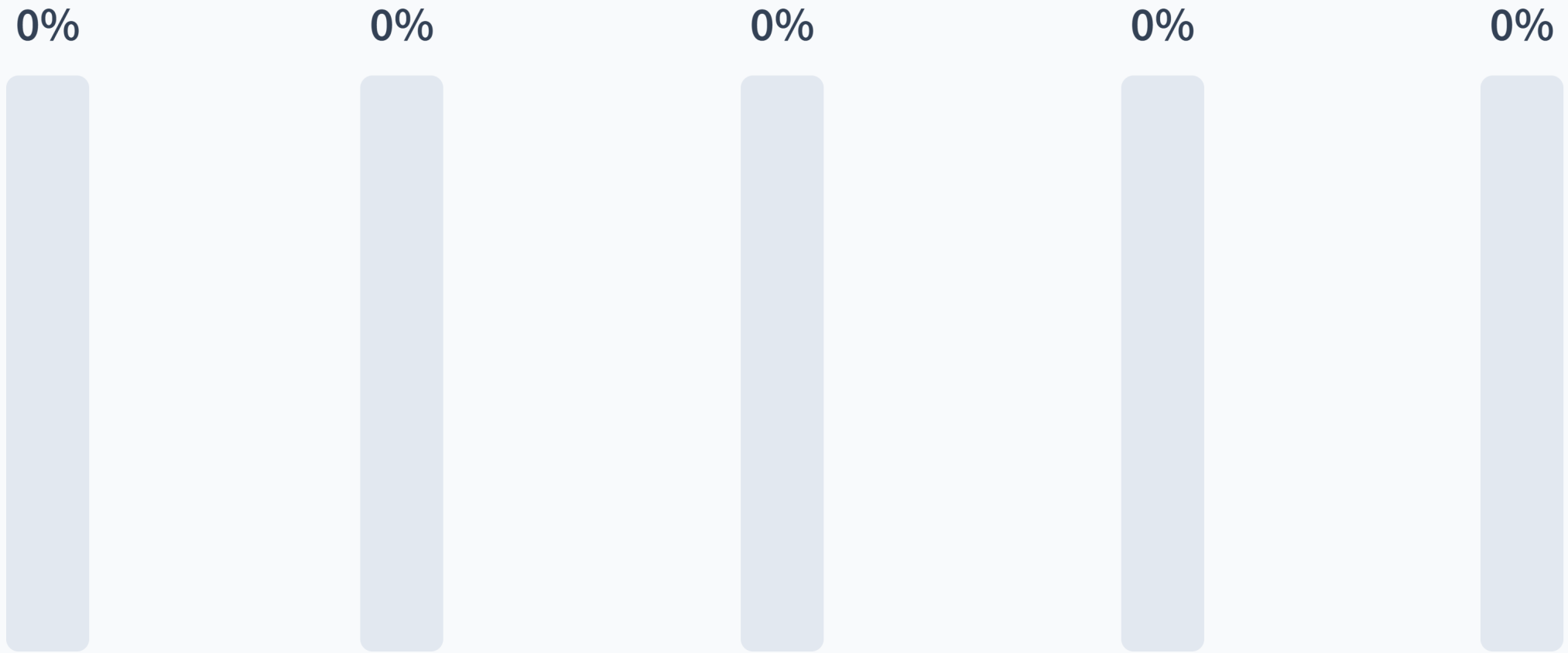
What percent of districts use reading or math curriculum designed for gifted students?



- **2/3 of districts** identify students for giftedness in mathematics and/or reading language arts.
- **Fewer than 10%** of districts used reading or math curriculum designed for gifted students.

Take home message…

The misalignment of identification, services, and outcome measures hinders the evaluation of gifted program effectiveness, and ultimately undermines arguments justifying services for gifted and talented students.

This situation limits the field's ability to measure the benefits of gifted services, let alone justify them.

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under-representation

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Before controlling for achievement, how much more likely are non-under/non-FRL students to be identified for gifted programs than are under/FRL students ?

Before controlling for achievement, non-under/non-FRL students are far more likely to be identified than under/FRL students are…

6.12X

More likely

State 1

2.73X

More likely

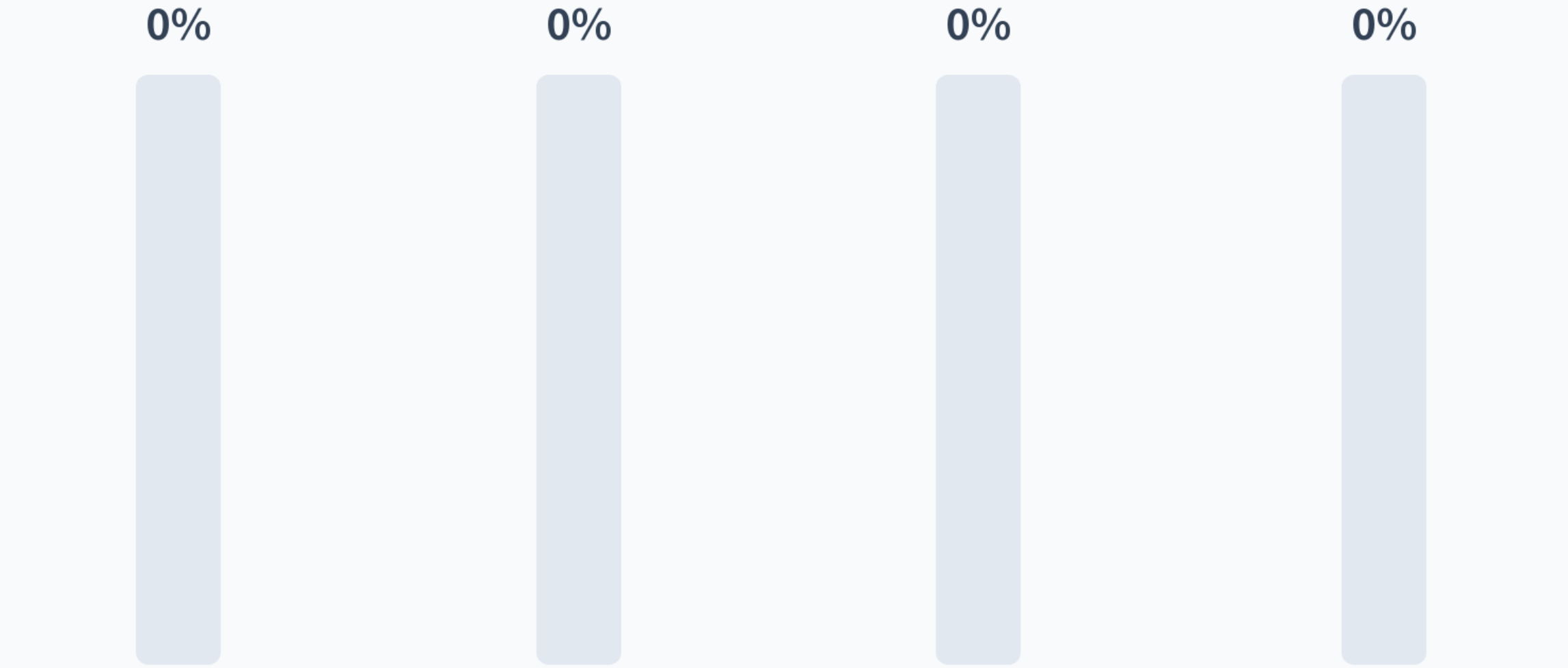
State 2

3.42X

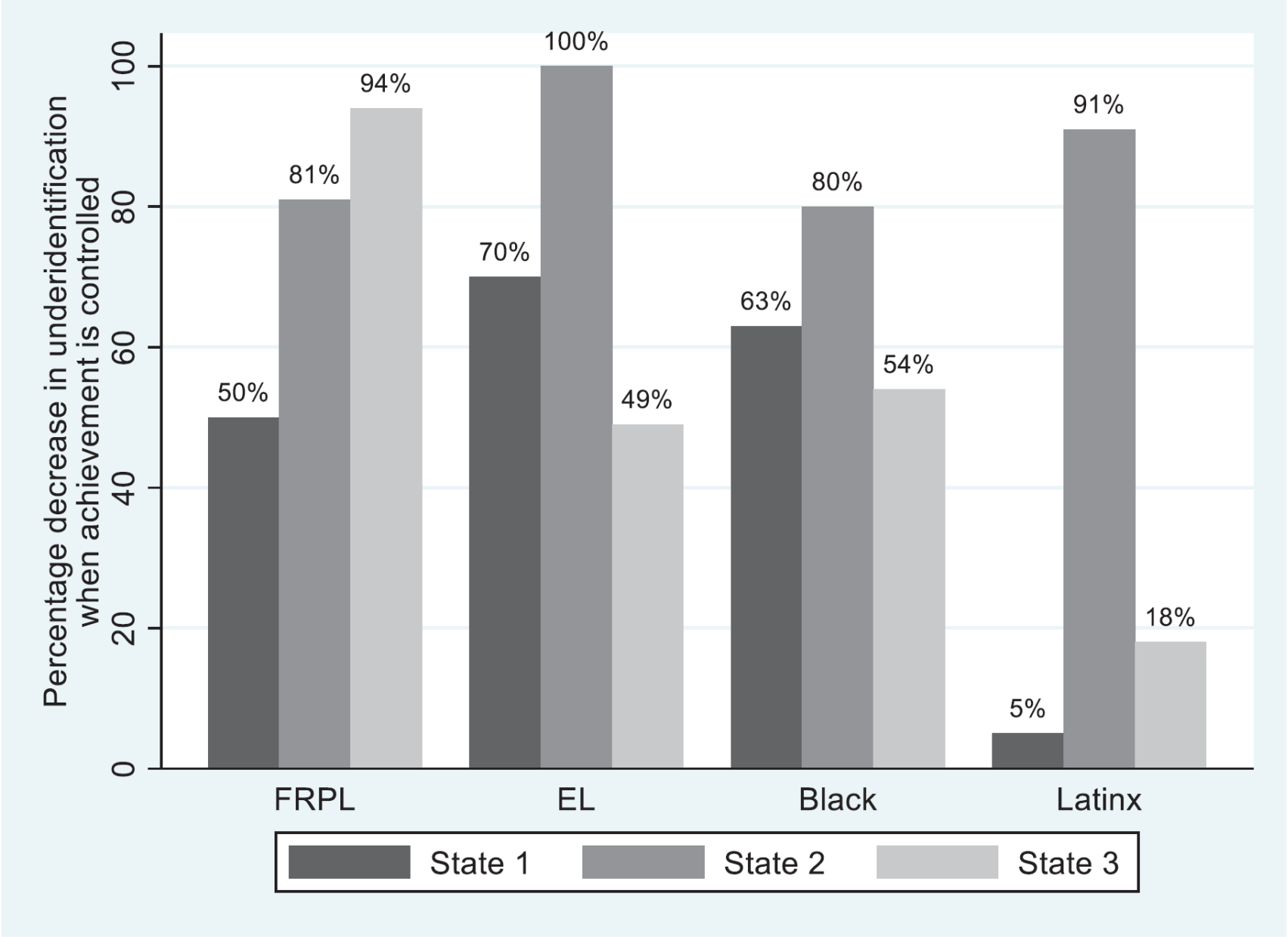
More likely

State 3

What is the percentage decrease in underidentification when third grade achievement is controlled?

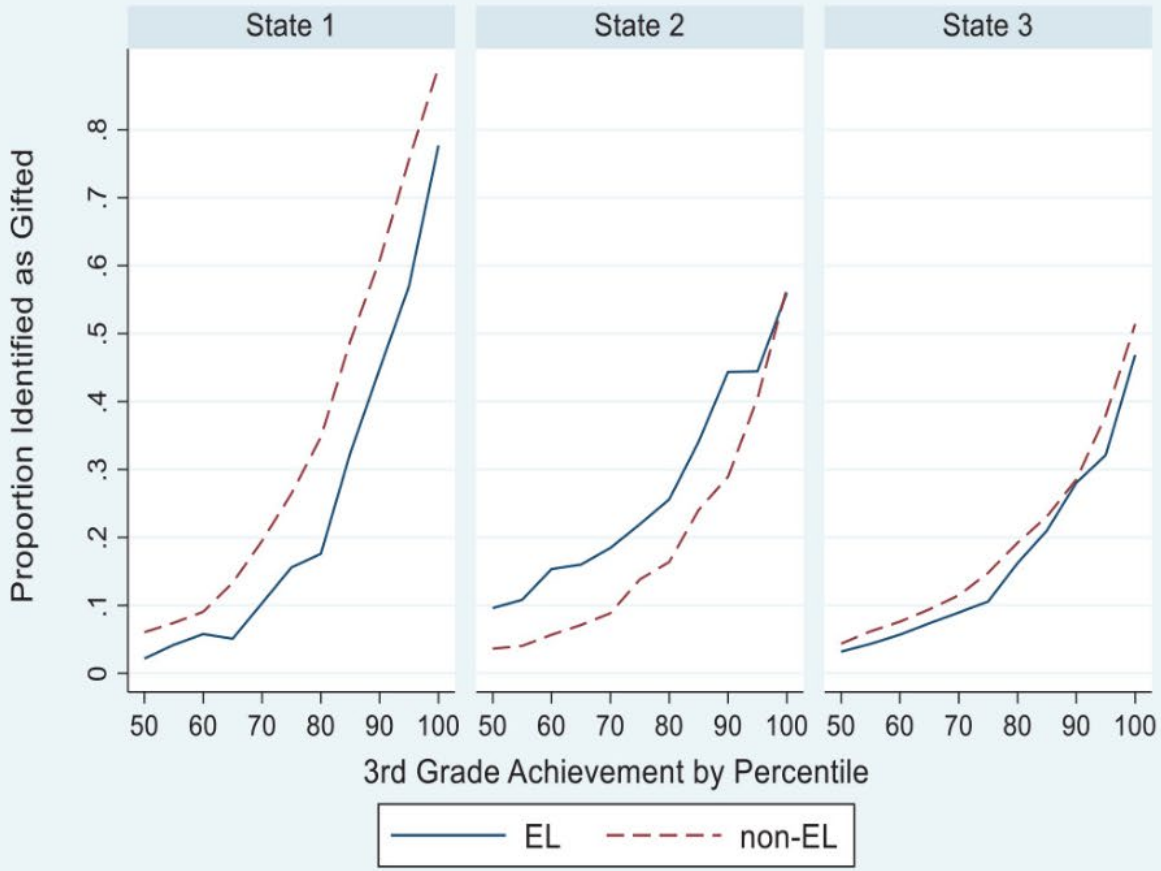


After controlling for achievement, differences in identification rates remain, but are much smaller.

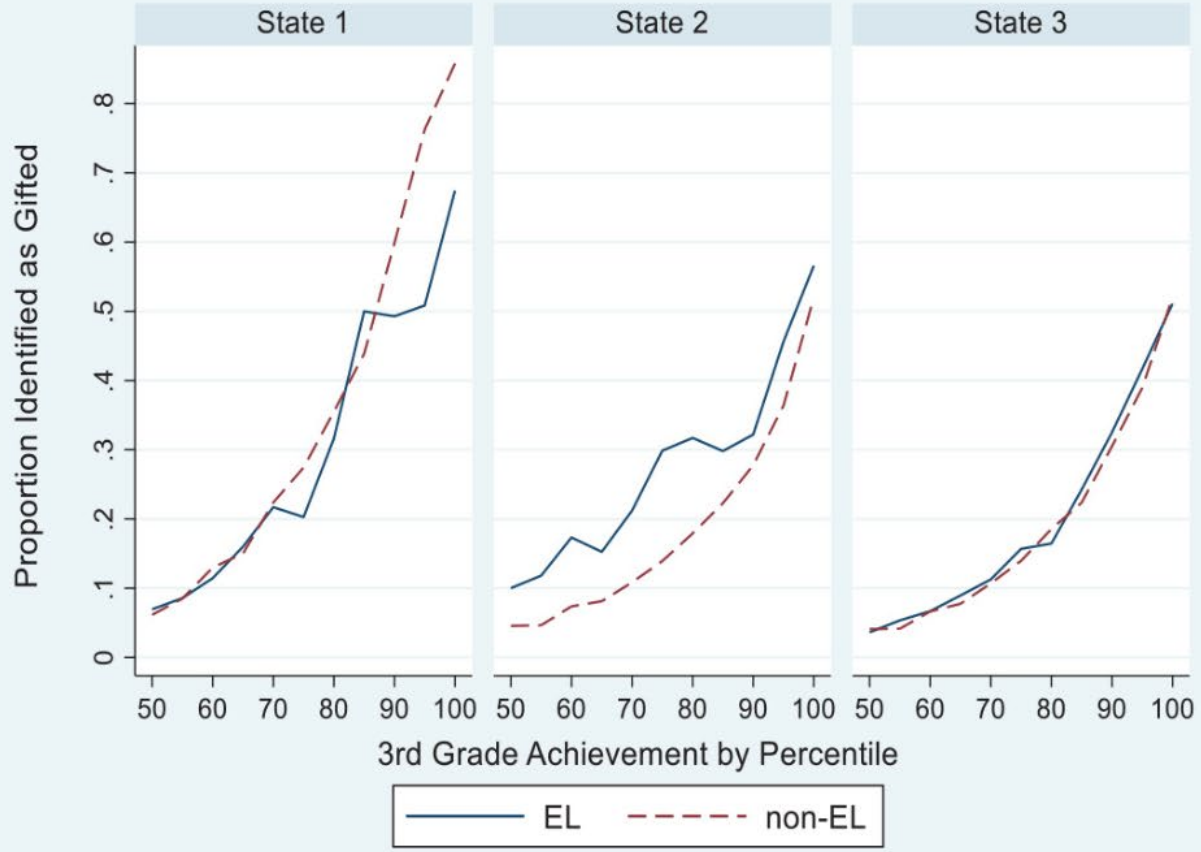


Long, D. A., McCoach, D. B., Siegle, D., Callahan, C. M., & Gubbins, E. J. (2023, January-December). Inequality at the starting line: Underrepresentation in gifted identification and disparities in early achievement. *AERA Open, 9*(1), 1-25. https://doi.org/10.1177/23328584231171535

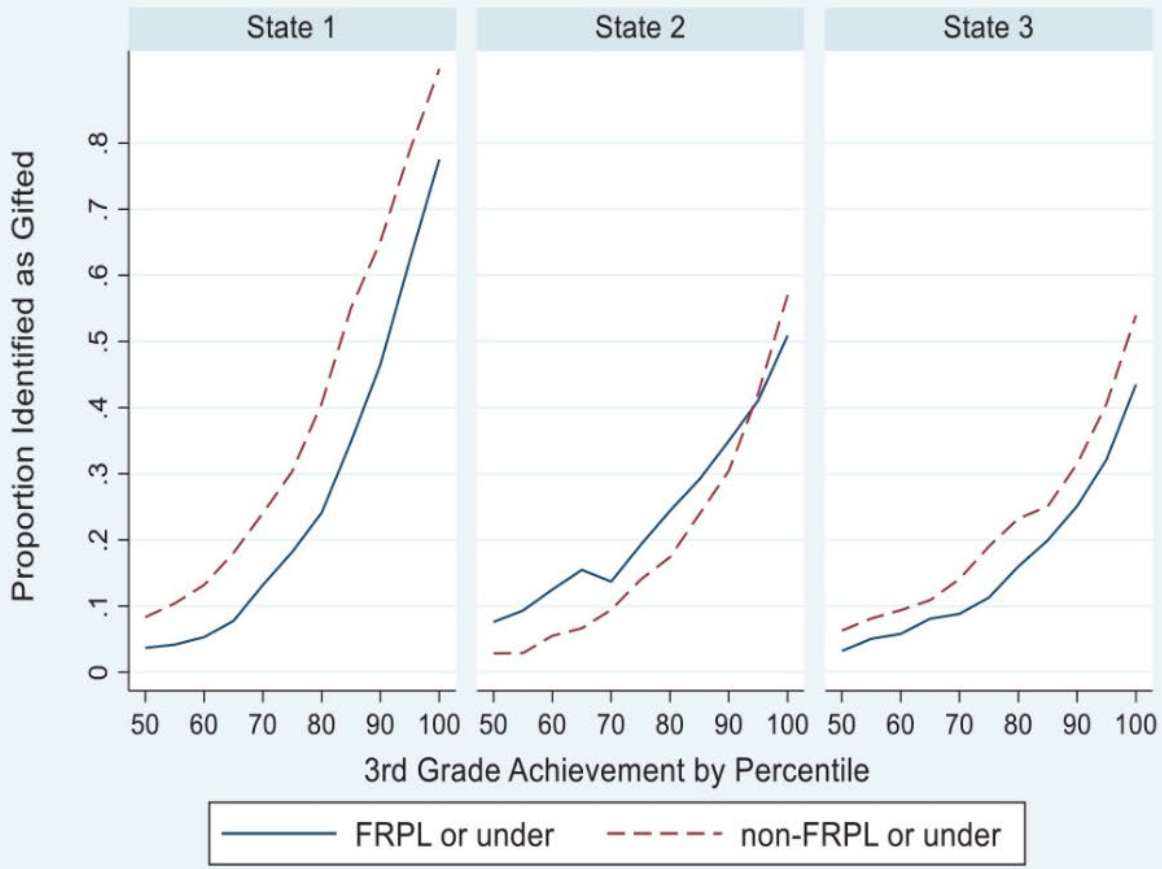
Math Achievement



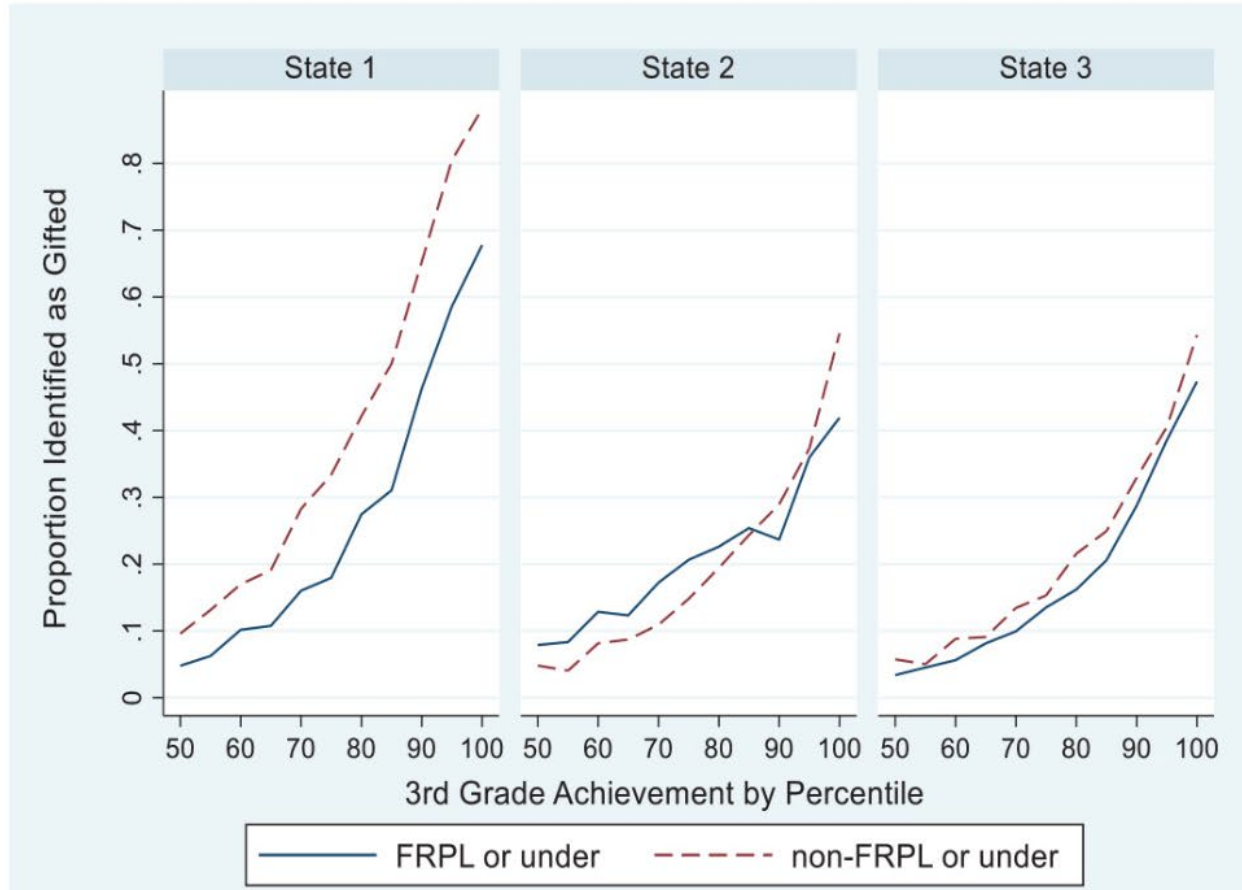
ELA Achievement



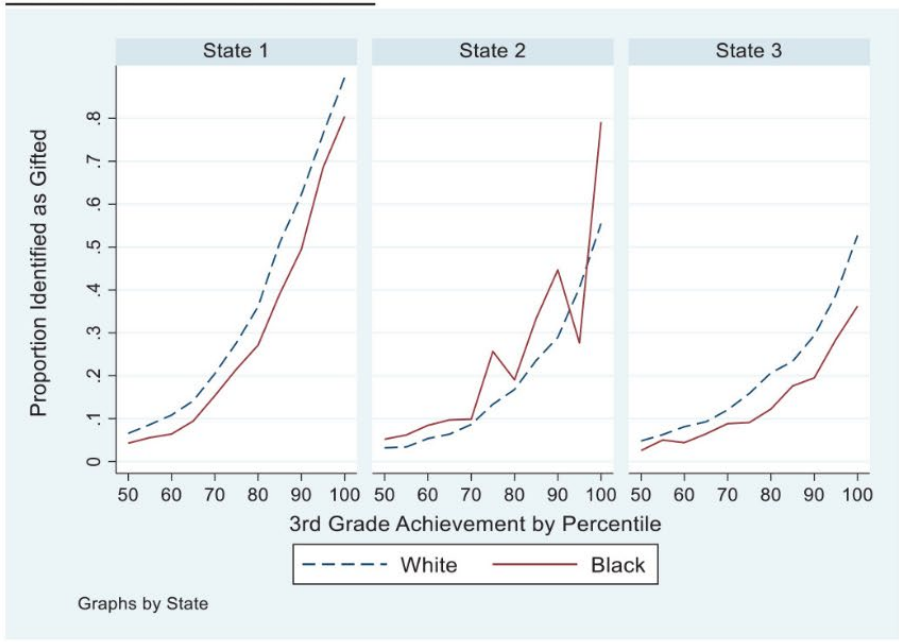
Math Achievement



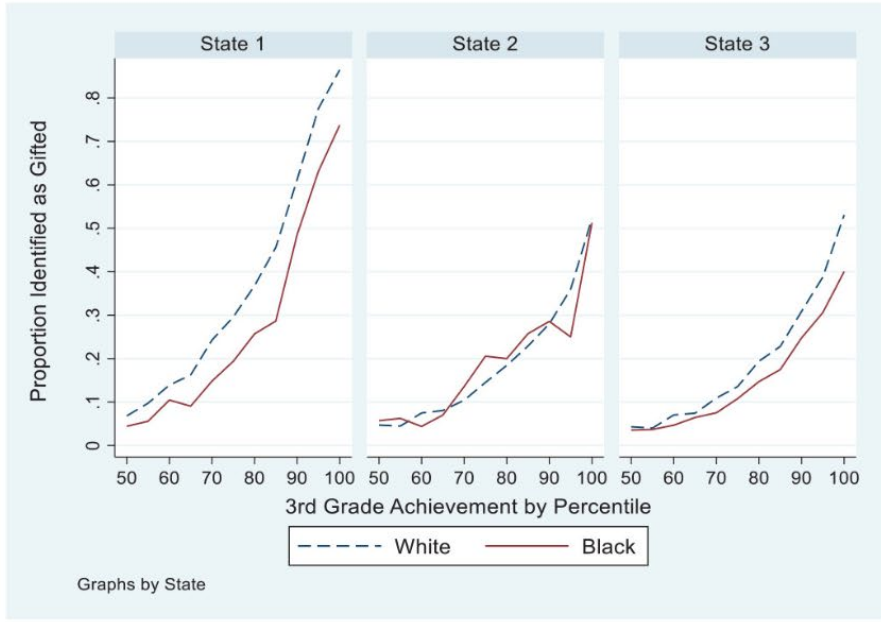
ELA Achievement

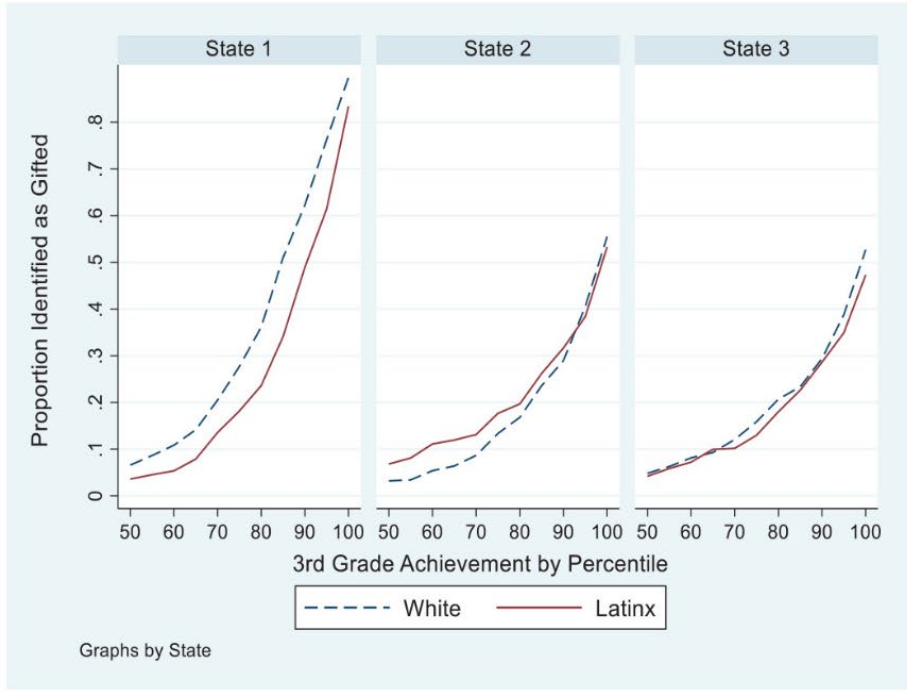


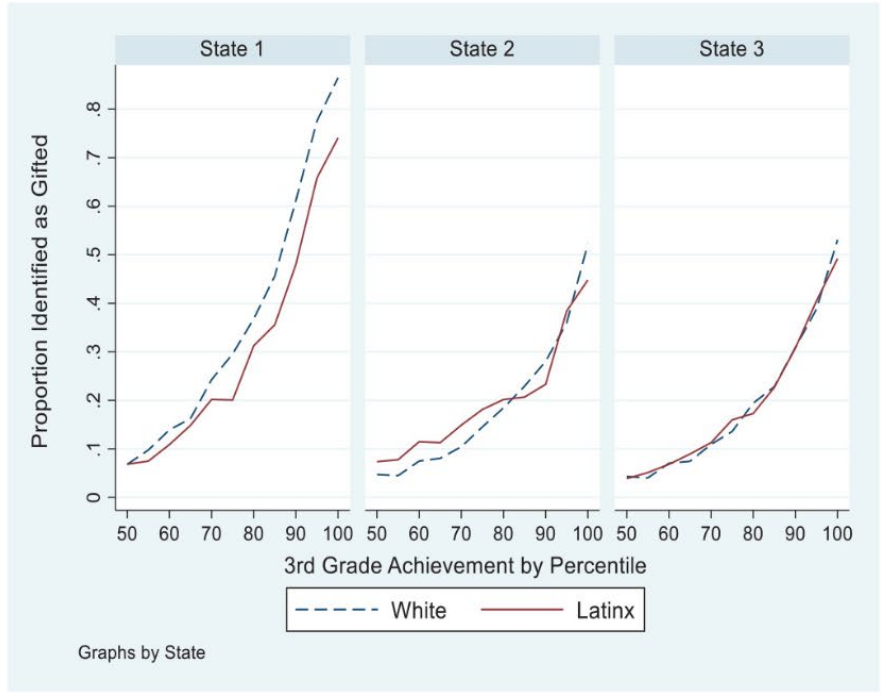
Math Achievement



ELA Achievement







Take home message…

We need to eliminate disparities in early achievement to increase proportional representation.

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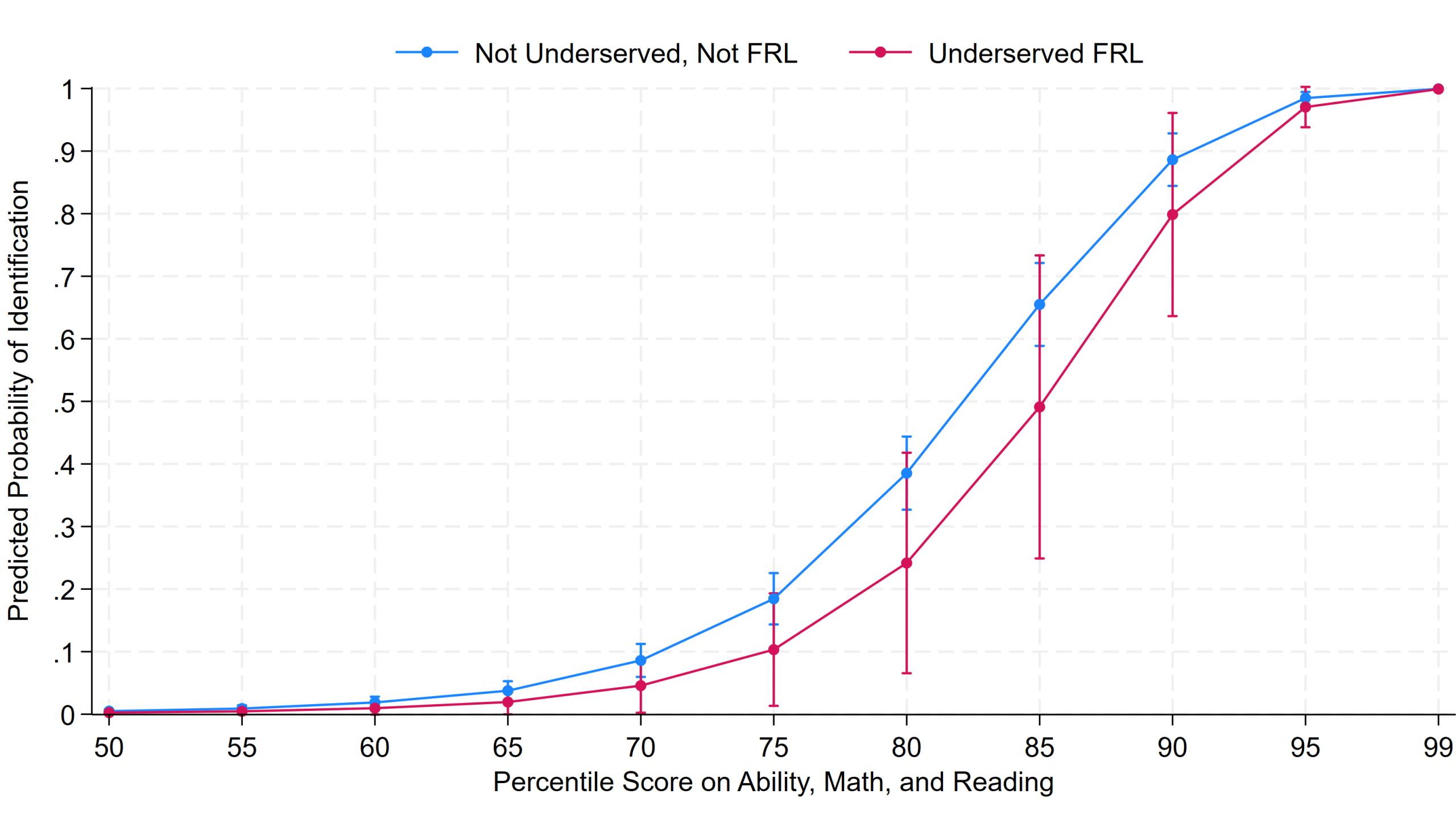
Not Underserved, Not FRL
Underserved FRL
Predicted Probability of Identification
0
.1
.2
.3
.4
.5
.6
.7
.8
.9
1
50
55
60
65
70
75
80
85
90
95
99
Percentile Score on Ability, Math, and Reading

Take home message…

Don’t overlook achievement scores. In some places identification gaps remain even after controlling for achievement.

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teacher ratings

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How frequently do you think teacher nominations/ratings of students are used in the identification process?

Very Frequently	Frequently	Occasionally	Rarely	Very Rarely
0%	0%	0%	0%	0%

Very Frequently

- Callahan et al. (2014) reported that **over 86% of school districts used teacher nominations**.
- National Center for Research on Gifted Education (NCRGE) found that **over 90% of school districts used teacher nominations** and/or TRS to identify students for gifted services (Siegle et al., 2018).

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What are the benefits of using teacher ratings of students?

Nobody has responded yet.

Hang tight! Responses are coming in.

Older Items

Visual settings | Edit

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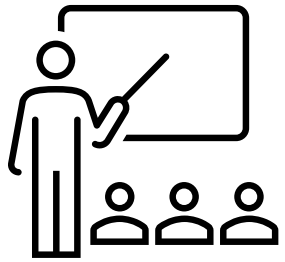
What is the biggest concern in using teacher ratings of students? (enter one or two words for a word cloud)

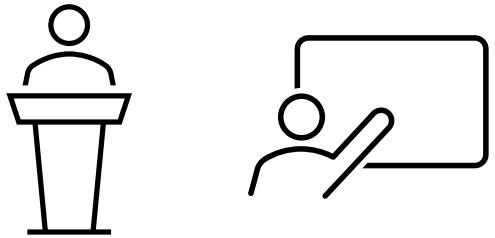
Nobody has responded yet.

Hang tight! Responses are coming in.

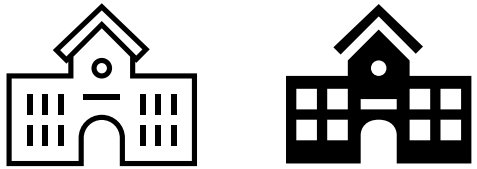
Most Probable Sources of TRS Variance at Each of the Three Levels?



Between-Student (Within-Teacher) Variance



Between-Teacher (Within School) Variance



Between-School Variance

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Teacher ratings are least correlated with...

Students' Cognitive Ability	Students' Math Achievement	Students' Reading Achievement
0%	0%	0%

Correlations among Assessments

District	Variable	TRS	Ability	Math
C	Ability	0.597	1	
	Math	0.697	0.747	1
	Reading	0.716	0.732	0.941
H	Ability	0.400	1	
	Math	0.500	0.550	1
	Reading	0.529	0.533	0.729
M1	Ability	0.518	1	
	Math	0.610	0.729	1
	Reading	0.581	0.647	0.742
M2	Ability	0.488	1	
	Math	0.577	0.730	1
	Reading	0.550	0.587	0.738
M3	Ability	0.526	1	
	Math	0.604	0.741	1
	Reading	0.597	0.605	0.759
O2	Ability	0.539	1	
	Math	0.558	0.855	1
	Reading	0.572	0.849	0.955
O3	Ability	0.428	1	
	Math	0.473	0.816	1
	Reading	0.479	0.815	0.949

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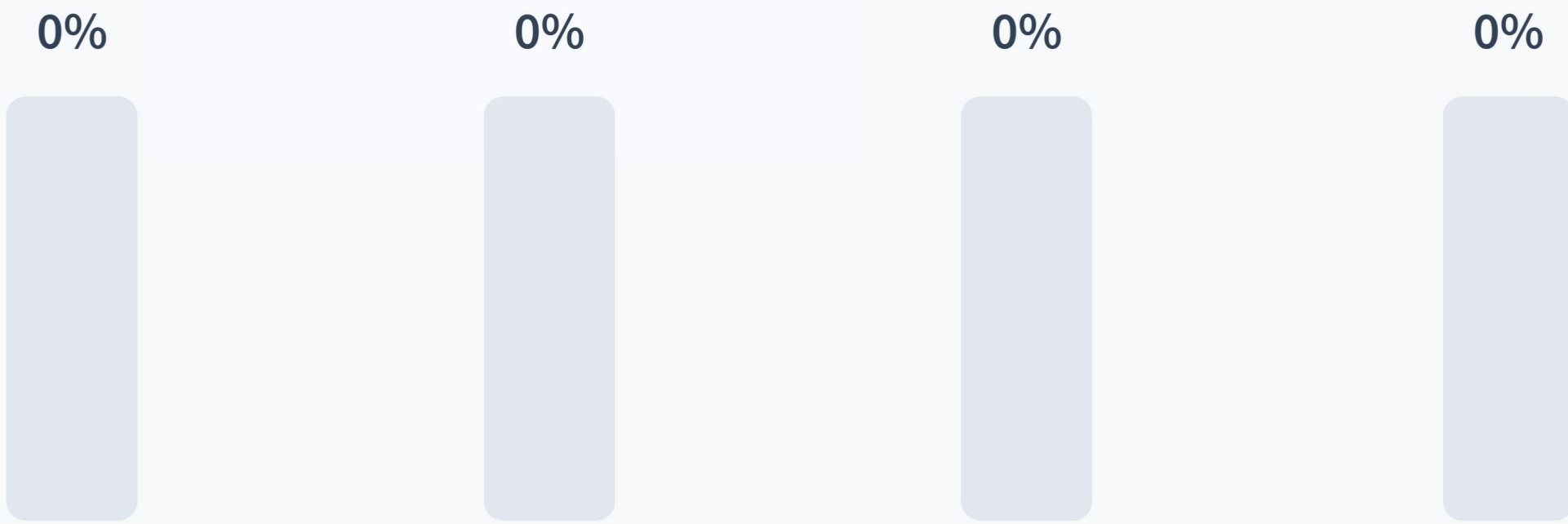
What percentage of variance in students' rating is explained by the teacher?



% Variance for Each Outcome by District

District	Level	TRS	Ability	Math	Reading
C	Student (N = 8,685)	80.9%	78.0%	72.9%	72.3%
	Teacher (J = 587)	10.4%	2.3%	4.2%	3.8%
	School (K = 109)	8.7%	19.7%	22.9%	23.9%
H	Student (N = 11,892)	61.7%	81.1%	76.6%	76.3%
	Teacher (J = 1,013)	24.6%	07.0%	12.0%	11.7%
	School (K = 166)	13.7%	11.9%	11.4%	12.0%
M1	Student (N = 2,036)	77.8%	85.9%	91.4%	92.0%
	Teacher (J = 92)	22.2%	6.3%	4.5%	5.0%
	School (K = 19)	0%	7.8%	4.1%	3.0%
M2	Student (N = 1,859)	75.1%	94.2%	92.2%	95.0%
	Teacher (J = 90)	24.9%	.6%	.6%	1.8%
	School (K = 19)	0%	5.2%	7.2%	3.2%
M3	Student (N = 1,832)	86.6%	94.2%	93.5%	96.9%
	Teacher (J = 89)	11.9%	0%	.2%	0%
	School (K = 20)	1.5%	5.8%	6.3%	3.1%
O2	Student (N = 2,618)	80.3%	84.6%	83.6%	83.8%
	Teacher (J = 171)	13.7%	1.8%	.2%	2.4%
	School (K = 60)	6.0%	13.6%	14.4%	13.8%
O3	Student (N = 2,176)	79.7%	85.6%	81.8%	81.7%
	Teacher (J = 153)	16.0%	.4%	.3%	.4%
	School (K = 56)	4.3%	14.0%	17.9%	17.9%

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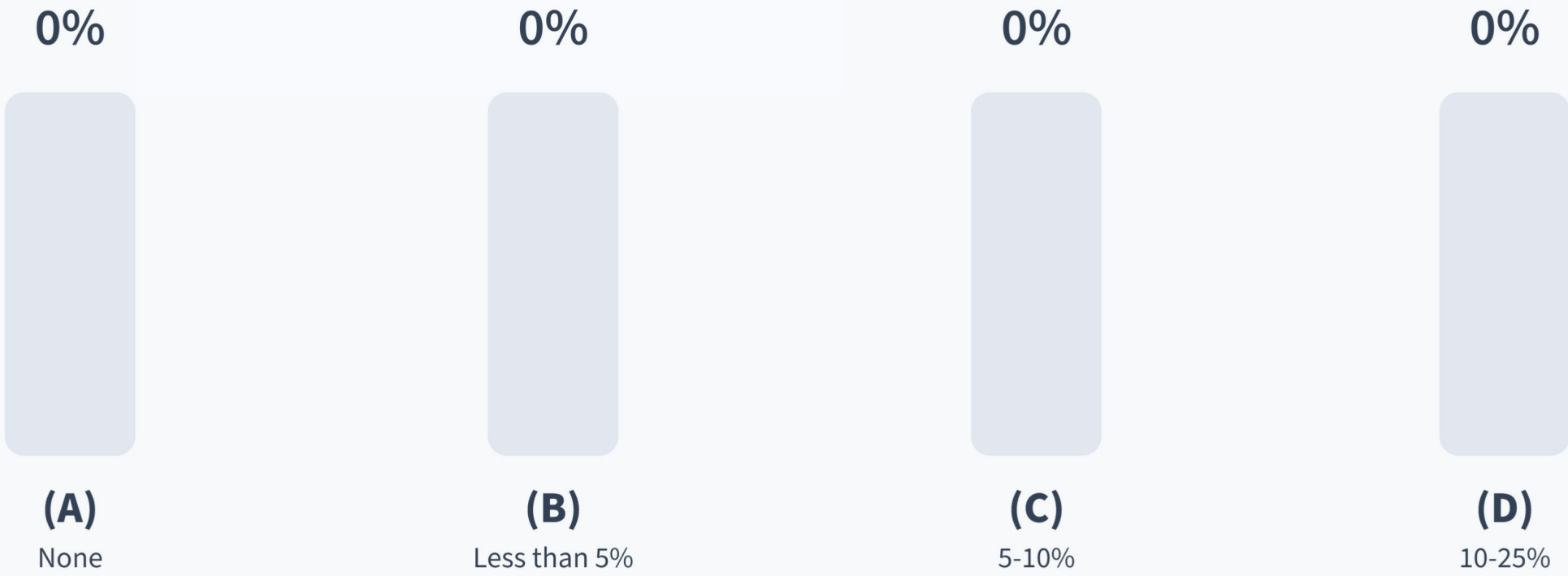
What percentage of variance in students' rating is explained by the teacher after controlling for the student's cognitive ability and achievement?



(A) None

(B) Less than 5%

(C) 5-10%

(D) 10-25%

Percentage of Teacher Rating Scale Variance that was Unexplained Between Teacher Variance across Models

District	Unconditional	Ability + Ach	Ability, Ach,& Demographics	% Decrease
C	10.4%	10.6%	10.6%	No decrease
H	24.6%	24.2%	23.9%	2.8% decrease
M1	22.2%	19.6%	19.2%	13.5% decrease
M2	24.9%	23.1%	22.4%	10% decrease
M3	11.9%	13.3%	13.2%	No decrease
O2	13.7%	15.6%	14.3%	No decrease
O3	16%	16.7%	14.0%	12.5% decrease

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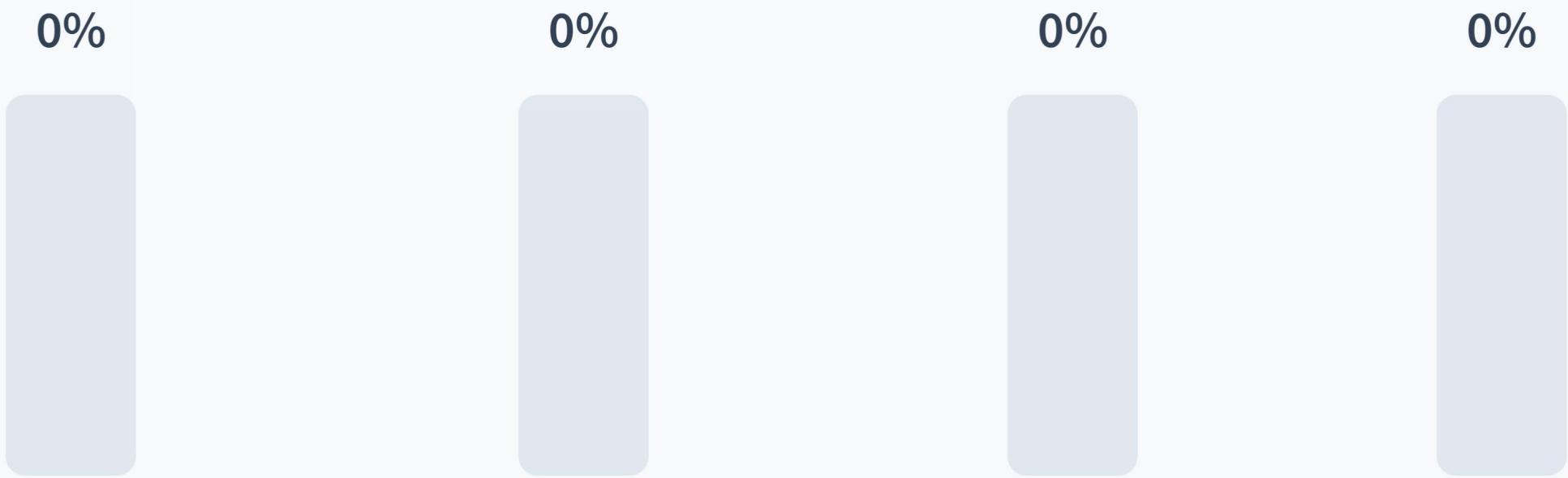
After controlling for ability, which student demographics consistently predict a teacher's rating of a student?



Cohen's d Effect Sizes for Statistically Significant Demographic Predictors and the Proportion of Level-1 Total (Residual) Variance Explained by All Included Demographics

District	Effect Size (Demographics)	Percentage of Residual (Total) Level-1 Variance Explained
C	-0.11 (Black)	0.52% (0.21%)
H	0.08 (Black)[a], -0.11 (FRL)	0.35% (0.21%)
M1	-0.17 (Asian)	1.90% (0.80%)
M2	-0.14 (EL)[a]	0.75% (0.37%)
M3	N/A	1.06% (0.54%)
O2	-0.12 (FRL), -0.18 (EL), 0.13 (Gender)	1.16% (0.60%)
O3	0.15 (Latinx), -0.14 (FRL), 0.11 (Gender)	1.20% (0.80%)

TRS Mean and SD, Between-Teacher SD, Teacher Effect Size, and 68% Plausible Values for an Average Student as a Function of Teacher

District	TRS Mean	TRS SD	Between-Teacher SD	Effect Size (Teacher)	68% Plausible Values
C	64.65	20.76	6.75	0.33	[57.90, 71.45]
H	57.52	25.09	12.39	0.49	[45.13, 69.91]
M1	35.33	10.94	4.77	0.44	[30.59, 40.33]
M2	35.41	11.41	5.63	0.49	[30.09, 41.36]
M3	25.34	11.05	5.54	0.50	[30.14, 41.23]
O2	3.28	2.80	1.07	0.38	[2.21, 4.34]
O3	2.87	2.76	1.06	0.38	[1.85, 3.97]

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What percentage of students who score in the top 10% on cognitive (ability) measures score in the top 10% on teacher ratings of students?

Almost all	Around 85%	Around 70%	Around 50%	Around 33%
0%	0%	0%	0%	0%

Comparison of Identified Students when Students' TRS is Decreased by 0.33 SD Units

District	Still ID	Not ID	Current	% No longer ID
C	708	163	871	**18.71%**
H	950	272	1,222	**22.26%**
M1	164	43	207	**20.77%**
M2	157	31	188	**16.49%**
M3	145	43	188	**22.87%**
O2	209	53	262	**20.23%**
O3	178	40	218	**18.35%**
Total	2,511	645	3,156	**20.44%**

Note. The Current column contains the number of students who would currently be identified if the district were to identify the top 10% of students on the mean of ability, achievement, and TRS. The Still ID column is the number of students who would still be identified if their TRS were decreased by 0.33 SD units. The Not ID column contains the number of students who would no longer be identified if their TRS were decreased by 0.33 SD units.

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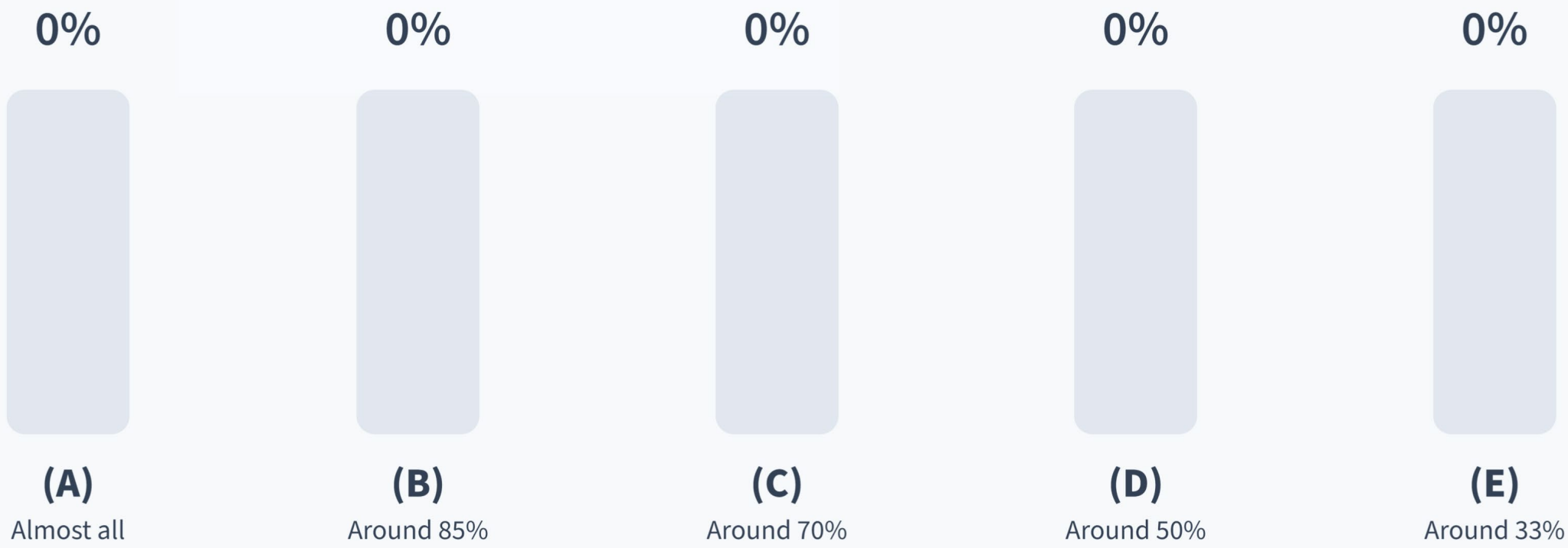
What percentage of students who score in the top 10% on cognitive (ability) measures score in the top 30% on teacher ratings of students?



(A) Almost all

(B) Around 85%

(C) Around 70%

(D) Around 50%

(E) Around 33%

Percentage of Students Who Are in the Top 10% of Their Districts on Cognitive Ability Who Score in the Top 10, 20, 25, and 30% of Their Districts on the TRS

District	Top 10% TRS	Top 20% TRS	Top 25% TRS	Top 30% TRS
C	39.1%	64.6%	72.6%	78.3%
H	26.5%	51.5%	57.9%	64.3%
M1	35.4%	58.4%	67.5%	74.6%
M2	35.0%	51.7%	58.9%	71.7%
M3	36.2%	55.1%	62.7%	71.9%
O2	36.3%	62.6%	72.5%	78.6%
O3	24.8%	42.7%	49.1%	54.1%
Overall	**32.4%**	**56.2%**	**63.6%**	**70.3%**

Take home message…

1

Never **use TRS as the sole universal screening instrument to determine which students move forward** to a second stage gifted identification process.

- Less than 1/3 of students who scored in the top 10% on the Ability measure also scored in the top 10% on the TRS.
- Even with a lenient TRS cut score, almost 30% of students who were in the top 10% on ability did not score in the top 30% on TRS. (And in some datasets, almost half of students who scored in the top 10% on ability were not in the top 30% on TRS.)

Take home message…

2

Provide frequent professional development for teachers to try to standardize TRS usage as much as possible. This should help to decrease the proportion of between-teacher variance.

- Talk explicitly about how you would like teachers to interpret the response scale.
- Provide a handout that details these response scale interpretations.
- Frequent probably means yearly! The training can be short.
- Think of this as “tuning”

Take home message…

3

Reflect on why are you including the TRS.

- Be **clear about the purpose** of including a TRS in the identification process
- Examine the TRS to **ensure that it is designed to elicit the kind of information you seek**.

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building norms

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Schools within a district are more different from each other than districts are different from each other in a state.

(A) True

0%

(B) False

0%

3X as much variance within districts as between districts

- Percentage of Gifted Students
- Percentage of Students Eligible for Free and Reduced-Price Lunch
- Average Reading Achievement
- Average Math Achievement

Building Norms

Instead of identifying students if they score high compared to a national normative group, we identify them compared to the rest of the same-grade students in the school

Building Norms: Benefits

- **Better alignment with most conceptual definitions of giftedness**
- **Makes conceptual sense given the purpose of most gifted services**
- **Improves the equity / proportionality of the students identified****

Building Norms:

Where they work

- Districts with a “decent size” underserved group (e.g., race, ethnicity, FRL)
- Districts that are segregated
- Districts where the mean achievement differences between groups aren’t “too big”

Building Norms:

Issues & Challenges

- Challenges with small samples (small schools, looking for the 95th percentile in a group of 18 kids)
- Challenges with two-stage systems, especially with AND and OR rules
- Challenges with bad measures (e.g., 15% of kids earning the highest score)
- Challenges with really large subgroup achievement differences (unless schools are VERY homogenous)
- Don’t work as well with twice-exceptional students (who are generally spread across schools, not clustered within schools)

Take home message…

If you have small schools, consider looking for the top X number of students rather than a percentage and consider multiple data points.

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multiple criteria

Universal Screening

With what?
How often?
One step? Two step?

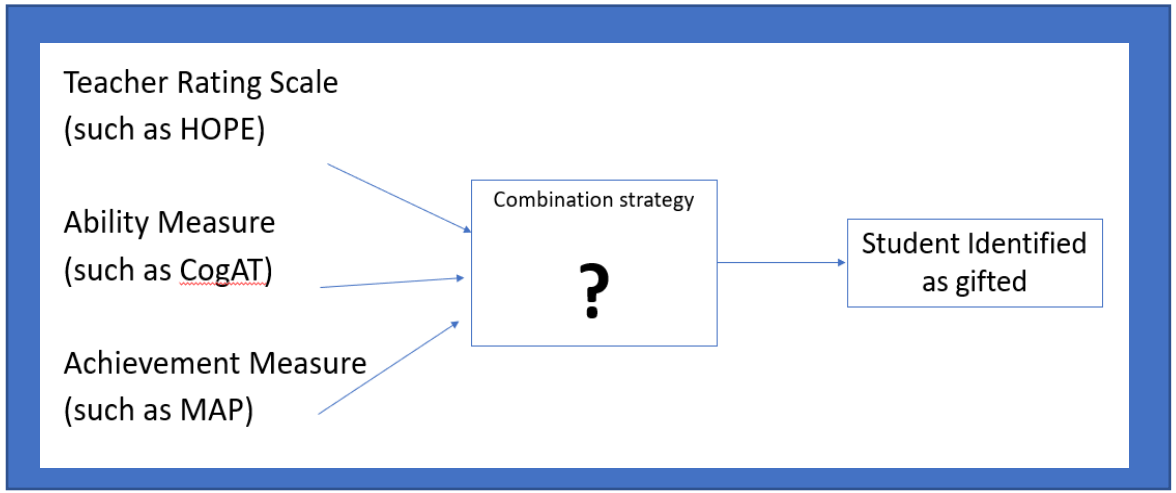
Two Stage System

Stage One: Screening

Stage Two: Identification

All Students Take a Screening Assessment

Students Selected for Stage Two based on a cut-off level on the screening assessment



When poll is active respond at **PollEv.com/delsiegle348** Send **delsiegle348** to **37607**

If your district uses a 2-phase system for identification, what do you primarily use as the Phase I screener/assessment?

Teacher recommendation / Teacher Rating Scale	Math and/or Reading Achievement Tests	Group cognitive ability measure (like the CogAT screener / CogAT)	Group non-verbal ability measure (like the Naglieri)	Other
0%	0%	0%	0%	0%

Two phase systems do miss students

- Of those that score in the top 20% on teacher rating scales (TRS), just over half score in the top 20% on CogAT (just under half do not).
- Of those that score in the top 20% on either TRS or CogAT, about 1/3 score in the top 20% on both, 1/3 score in the top 20% on CogAT, but not TRS, and 1/3 score in the top 20% on TRS, but not CogAT.
- Over 1/3 of students who score in the top 10% on CogAT do not score in the top 20% on TRS.
- About 1/3 of students who score in the top 10% on CogAT do not score in the top 20% on Reading.
- Over 1/4 of students who score in the top 10% on CogAT do not score in the top 20% on Math.

What makes two-phase systems worse?

- Lower screening percentages (lower % of students who move to Phase 2)
- Lower correlations between the screening variable and the ID variables
- Local norms
- AND rules and OR rules
- 2-Phase systems with local norms and AND rules-- you will identify MORE students with the two-phase system than you would with a single-phase system.

Take home message…

By not testing the students who did not screen positive in Phase 1, you are assuming that none of them would be top scorers on other assessments in Phase 2 (these students have a 0% chance of being selected.). For example, we miss lots of high CogAT students if we screen on math and reading achievement scores and teacher rating scales.

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the **details** MATTER

What we use and different combination strategies for multiple measures lead to dramatically different levels of student diversity, size of the gifted population, average ability, and average achievement.

Learn more today at Local Norms 2.0: Analytic Issues Implementing Local Norms in One and Two-Phase Systems

3:00 – 3:30 PM | 2AB

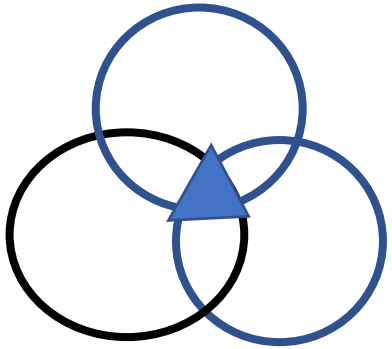
D. Betsy McCoach, **Daniel A. Long**, & **Lindsay Lee**

Different Approaches Used to Combine Multiple Measures

Conjunctive

<u>And Rule:</u>

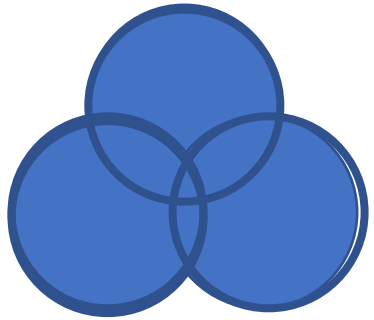
Student must meet criteria in all three tests



Disjunctive/Complementary

<u>Or Rule:</u>

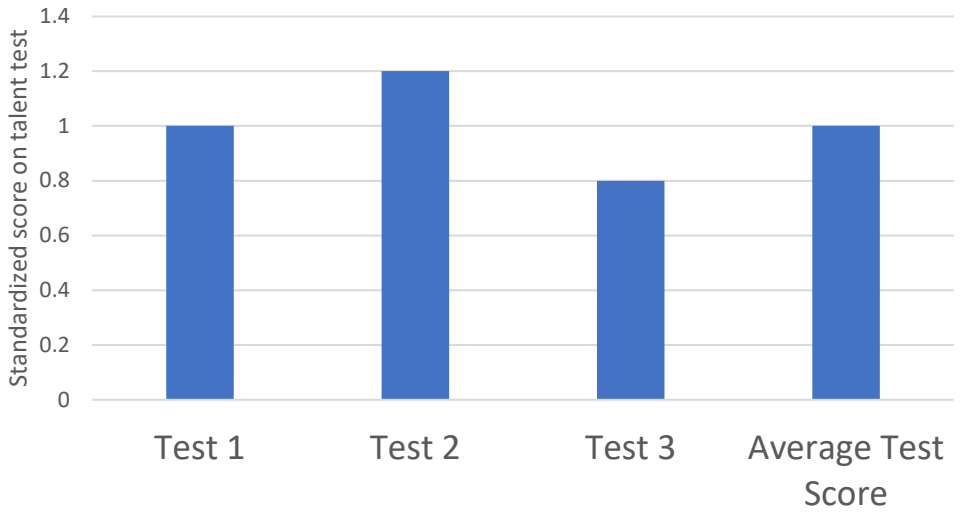
Student must meet criteria in at least one of three tests



Compensatory

<u>Mean Rule:</u>

Student's average scores must meet criteria

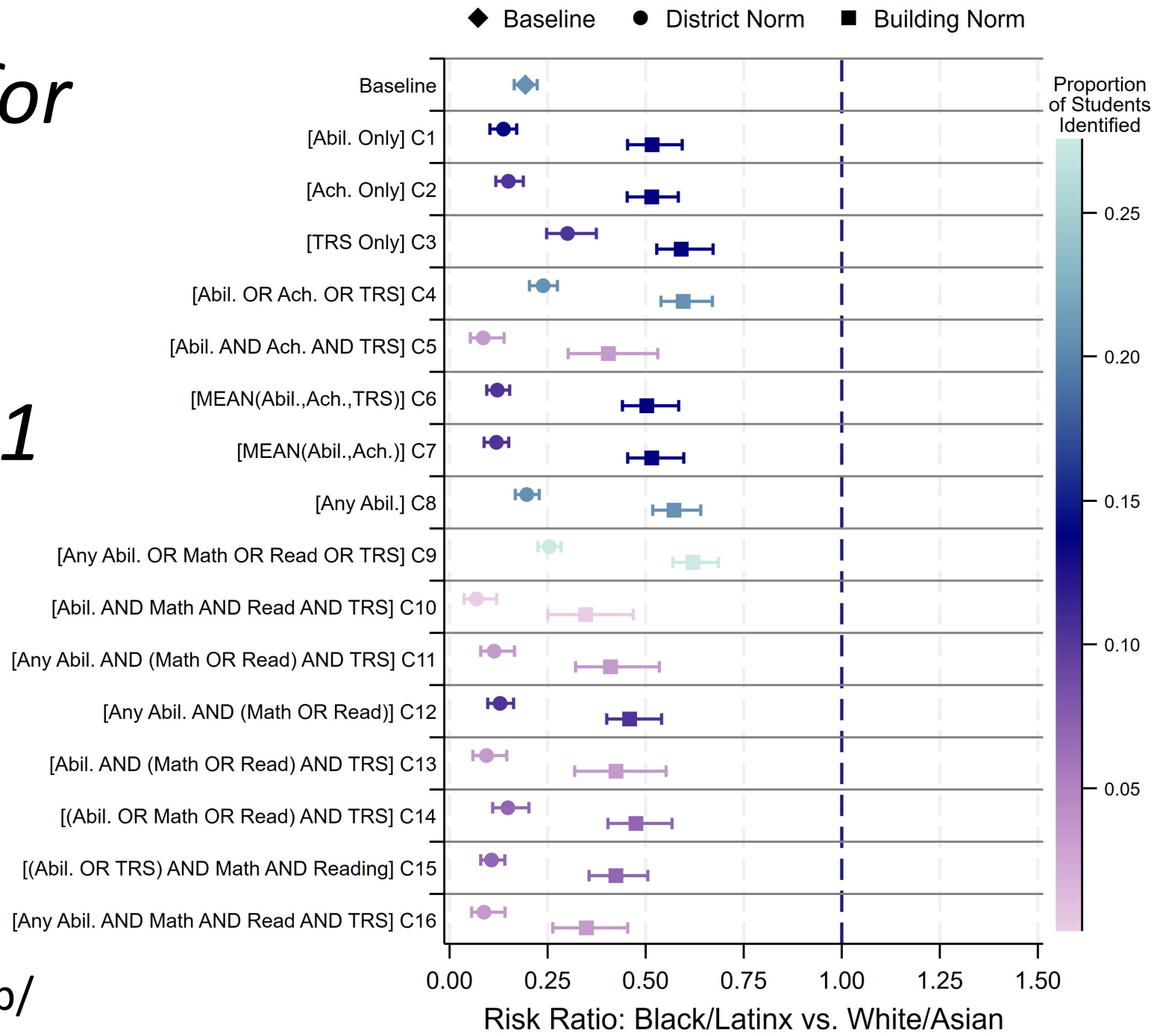


= Students identified as gifted

Racial/Ethnic RR for Each Gifted Identification System in District 1

App to compare combination rules…

Id-app.shinyapps.io/id_shiny_app/



Different combination rules may identify similar proportions of students with similar mean ability and mean achievement, but they aren't necessarily the same students.

#6: Mean of ability, achievement, teacher rating ***vs.*** *#12: At least one ability scale and math OR reading*

These two rules identify similar proportions of students, and the students have fairly similar average ability and achievement, ***BUT*** the proportion of identified students that match between the two systems is only slightly above 50% (50 - 64% for district norms and 52 - 56% for building norms).

Almost half of the students identified by 1 of these 2 rules are not identified by both rules.

Correlations Among Measures Could Vary by Group

1) The variability of the measures could vary across groups

2) The reliability of one or more of the measures could be higher in one group than another

3) the correlation among the true scores (i.e., the correlations of the latent constructs themselves) could vary across groups.

If the correlations among measures are lower for one group than another, the group with the lower correlations would be disadvantaged by conjunctive (AND) and compensatory (MEAN) rules (unless the compensatory rule computed shrinkage factors separately for each of the subgroups). However, they would be advantaged by disjunctive (OR) rules.

Correlations between ability, achievement, and TRS

District 1 Ability-	White	Black	Latinx	Asian
Math	0.71	0.71	0.63	0.75
Reading	0.70	0.70	0.62	0.72
TRS	0.56	0.53	0.49	0.60
Gifted	0.70	0.49	0.52	0.74
District 2	White	Black	Latinx	Asian
Math	0.58	0.49	0.50	0.64
Reading	0.54	0.50	0.49	0.59
TRS	0.43	0.35	0.35	0.49
Gifted	0.57	0.37	0.36	0.53
District 3	White	Black	Latinx	Asian
Math	0.70	0.61	0.77	0.73
Reading	0.63	0.52	0.61	0.67
TRS	0.50	0.37	0.48	0.49
Gifted	0.52	0.48	0.47	0.55
District 4	White	Black	Latinx	Asian
Math	0.88	0.83	0.80	0.82
Reading	0.87	0.81	0.80	0.80
TRS	0.58	0.50	0.47	0.54
Gifted	0.55	0.46	0.43	0.45
District 6	White	Black	Latinx	Asian
Math	0.79	0.81	0.80	0.72
Reading	0.79	0.80	0.80	0.75
TRS	0.38	0.44	0.46	0.50
Gifted	0.26	0.27	0.36	0.35

Take home message…

- Different combination rules can be implemented in a way that identifies similar overall percentages of students, but they aren't necessarily the same students.
- The correlations among identification measures do appear to vary somewhat across demographic groups, and this could have implications for how combination rules perform.
- No combination rule can create parity when the mean score differences across subgroups are quite large.

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talent scouting

EL reclassification is linked to gifted identification.

- Each year a student has EL services, he or she is 30% less likely to be identified as gifted.
- EL students exit EL programs faster in schools with greater percentages of gifted students.

…frequent screening is essential…

Take home message…

EL reclassification is linked to gifted identification, therefore frequent screening is necessary.

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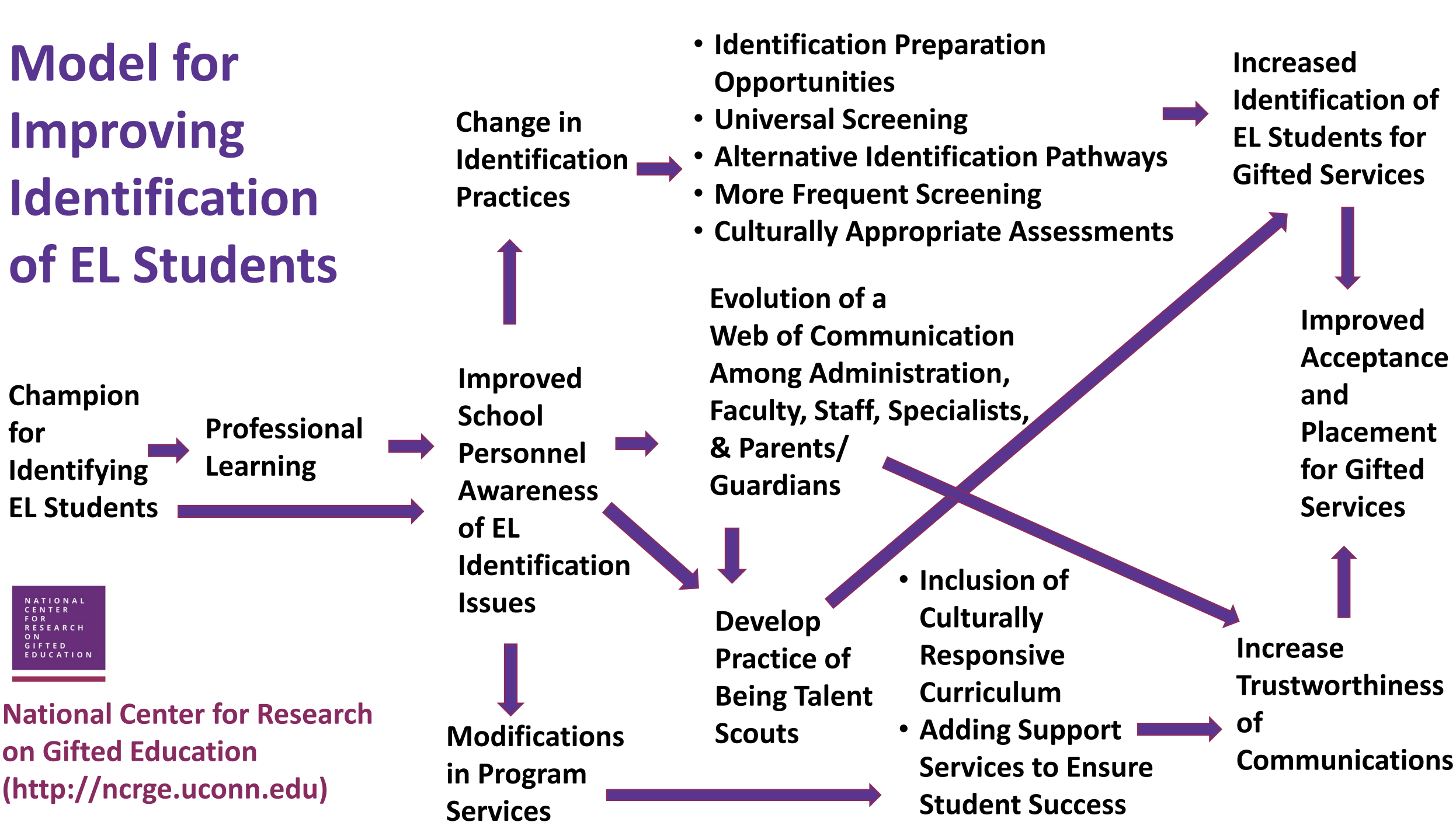
Model for Improving Identification of EL Students



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National Center for Research on Gifted Education (http://ncrge.uconn.edu)

Recommendations

from Qualitative Analysis of Case Studies

- Adopt Universal Screening Procedures
- Create Alternative Pathways to Identification
- Establish a Web of Communication
- View Professional Development as a Lever for Change

Learn more today at What Policies and Practices Can Help Identify and Nurture Giftedness Among English Learners? (Poster 74)

12:00 – 12:45 PM | 4B

Del Siegle, **Daniel A. Long**, **German A. Diaz**, & **Martha A. Lopez**

Take home message…

Talent scouts are effective in finding gifted underserved students; don't wait for underserved students to surface.

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Talent Scout

SEARCHING FOR POINTS OF PROMISE

acceleration


Subject-Specific Acceleration
Universally screen students to determine who has
• reading achievement scores in the top 10% locally
• math achievement scores in the top 10% locally

Subject Acceleration Study

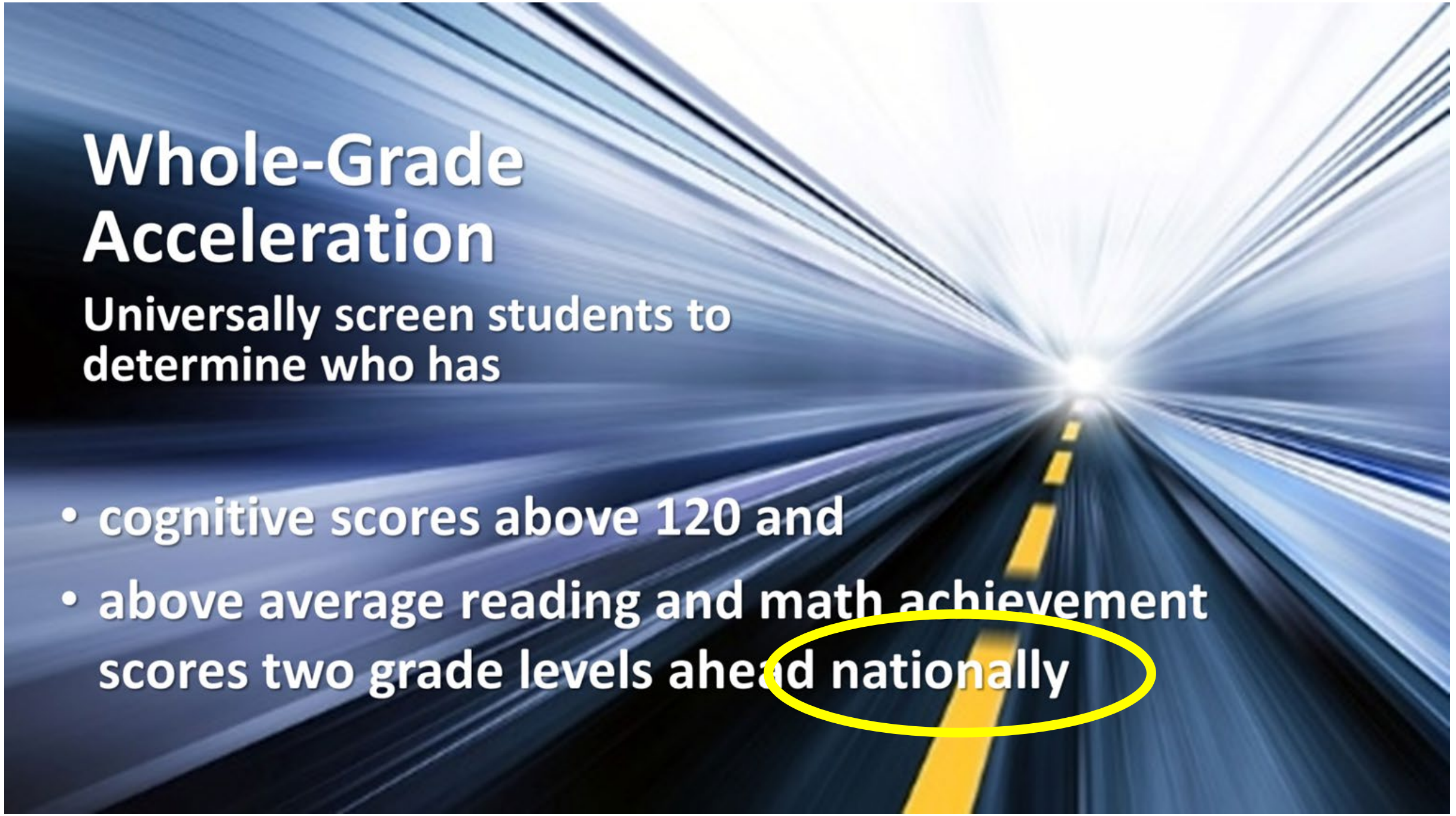
Trends in findings to date (11 interviews conducted to date across 6 states)

- **Positive perspectives** overall
- **Policy is important**, but limited policy details (except regarding identification)
- Most commonly used **for mathematics**
- Common challenges surround **scheduling** and logistics
- Demographic patterns reflect other gifted education issues with **underrepresentation**

Subject Acceleration Study

- **Variations among districts to date:**
  - **Grade-level assessments** (usually dictated by policy)
  - Relationship to **other advanced academic services**
  - Policies regarding **high school credit** and **GPA**
  - **Transportation** decisions
  - Attention to **transitions**

Learn more today at Implementation of Subject Acceleration
9:15 – 10:15 AM | 608
Catherine A. Little & Mei Zheng


Whole-Grade Acceleration
Universally screen students to determine who has
• cognitive scores above 120 and
• above average reading and math achievement scores two grade levels ahead nationally

Module Overview and Play-by-Play Document

Attachment: 9.19Module Play by Play.docx.pdf (0.11 MB)

Module 1: What is Acceleration? Why is it Needed?

Image from: Vecteezy

What is Acceleration?

Acceleration is an educationally effective and cost-effective option for meeting academically advanced students' needs. It involves moving students through an educational program at rates faster or at ages younger than convention.

In this module you will learn to

- Understand and explain why acceleration is a useful approach, with focus on the classroom challenges and learning needs that can be addressed through acceleration.
- Identify the two major types of acceleration and key features.
- Understand research findings on acceleration related to achievement and social and emotional outcomes.
- Access and use high-quality resources on acceleration.

Four 45-minute Online Modules

Receive $100 Amazon certificate for Completing

- 1st - What is acceleration and why is it needed
- 2nd – Types of evidence to consider in acceleration decisions
- 3rd - How to conduct an Integrated Acceleration System meeting
- 4th - What are best practices for transition

Integrated Acceleration System

- Guided decision-making process
  - Subject-specific acceleration
  - Full-grade acceleration
- Includes consideration of:
  - Academic factors
  - Social-emotional factors
  - Student attitude toward acceleration
  - Extracurricular involvement
  - Student developmental factors

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Is your school interested in doing acceleration better?

NCRGE is seeking schools serving grades 2-5 interested in ***FREE PROFESSIONAL LEARNING OPPORTUNITIES*** and ***assistance in making acceleration decisions***.

ncrge.uconn.edu/acceleration

questions?