Center for Education Policy Research

HARVARD UNIVERSITY

Recent Teacher Effectiveness Findings and the Strategic Data Project

August 2012

Outline

- CEPR Overview
- Four Findings from the Measures of Effective Teacher Project + One
- The Strategic Data Project – From Measurement to Strategy

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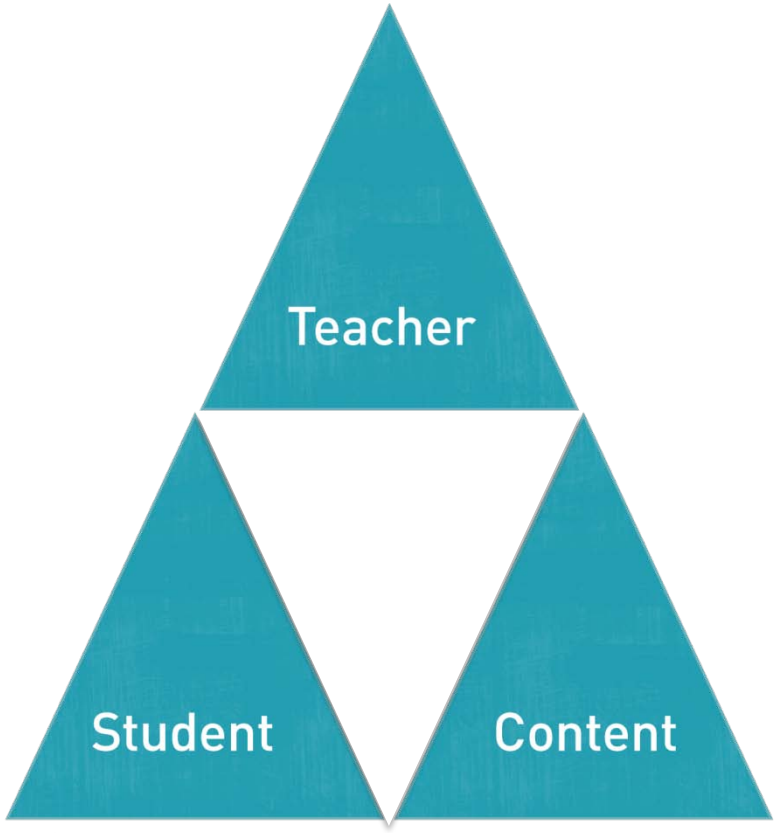
MET project

Gathering Feedback for Teaching

Combining High-Quality Observations with Student Surveys and Achievement Gains

BILL & MELINDA GATES foundation

Multiple Measures of Teaching Effectiveness



The MET project is unique …

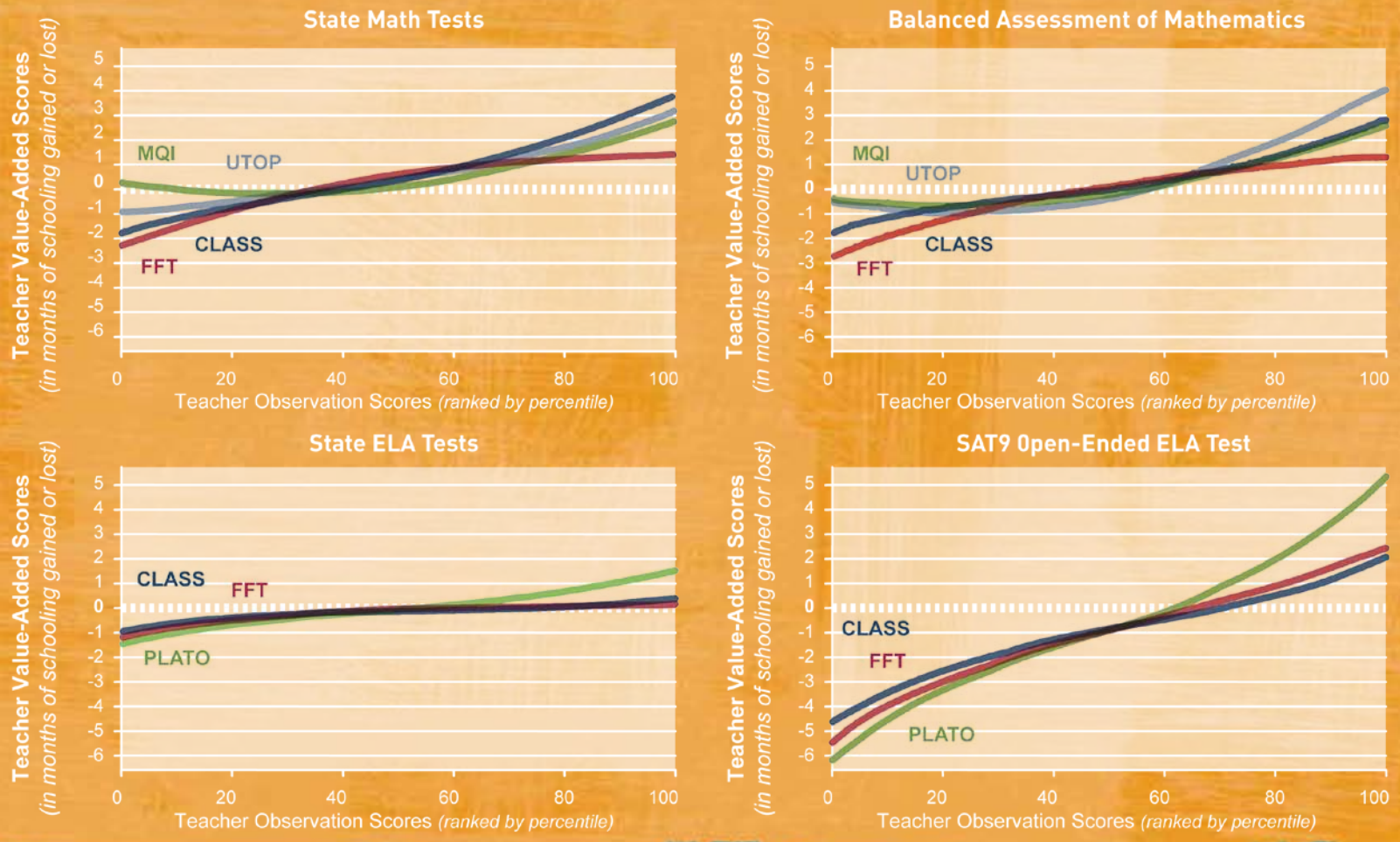
- in the variety of indicators tested,
  - 5 instruments for classroom observations
  - Student surveys (Tripod Survey)
  - Value-added on state tests
- in its scale,
  - 3,000 teachers
  - 22,500 observation scores (7,500 lesson videos x 3 scores)
  - 900 + trained observers
  - 44,500 students completing surveys and supplemental assessments
- and in the variety of student outcomes studied.
  - Gains on state math and ELA tests
  - Gains on supplemental tests *(BAM & SAT9 OE)*
  - Student-reported outcomes (effort and enjoyment in class)

Four Findings

1. Observational rubrics tested do align with student achievement gains

Step 4: Verify Alignment with Outcomes

Teachers with Higher Observation Scores Had Students Who Learned More



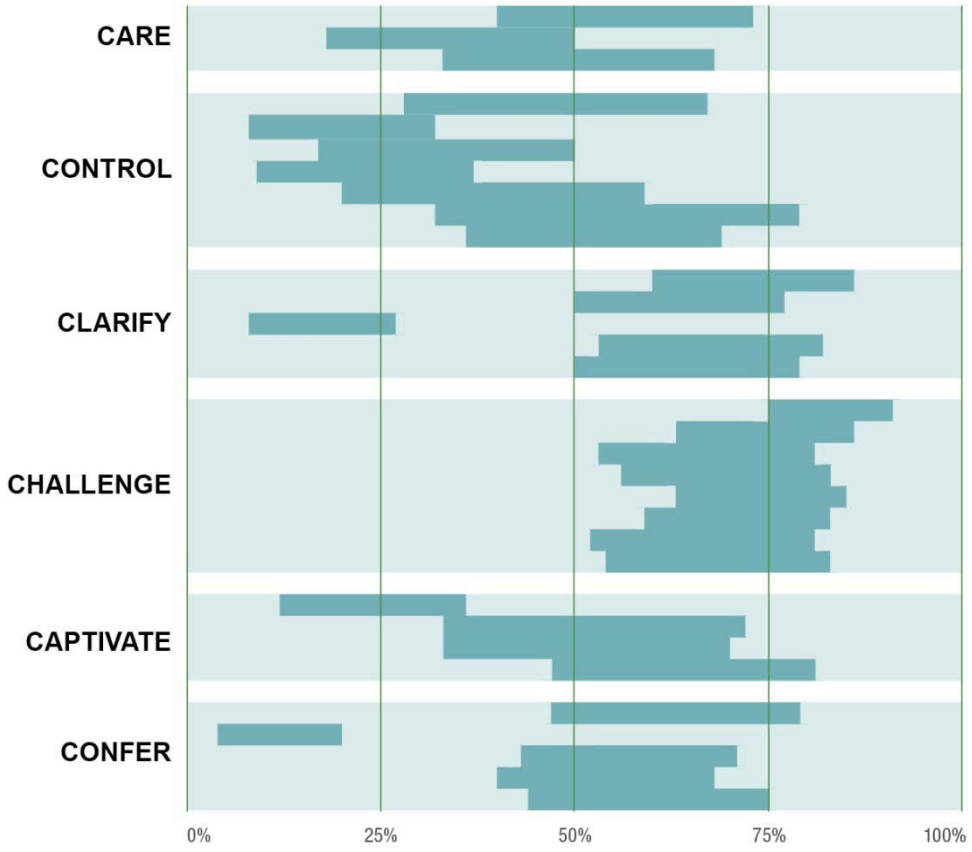
NOTES: Value-added estimated in student-level standard deviation units and converted to months of schooling using conversion factor of 0.25 standard deviations = 9 months of schooling. Slopes were calculated as running regressions. Teachers' value-added scores and observation scores from working with different groups of students.

Four Findings

1. Observational rubrics tested do align with student achievement gains
2. Students distinguish between teachers on surveys – with a high degree of reliability

Students Distinguish Between Teachers

Percent of Students by Classroom Agreeing



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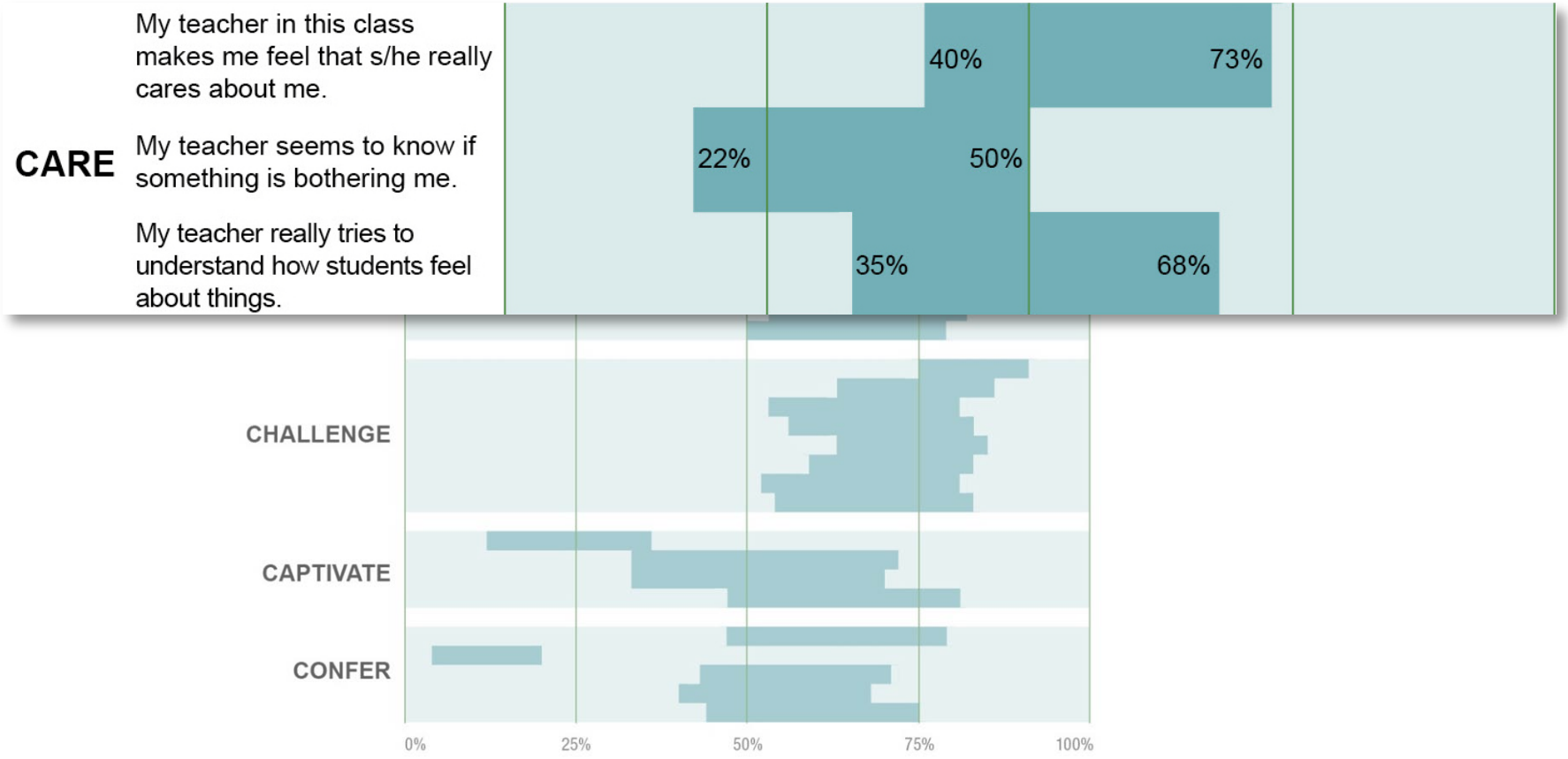

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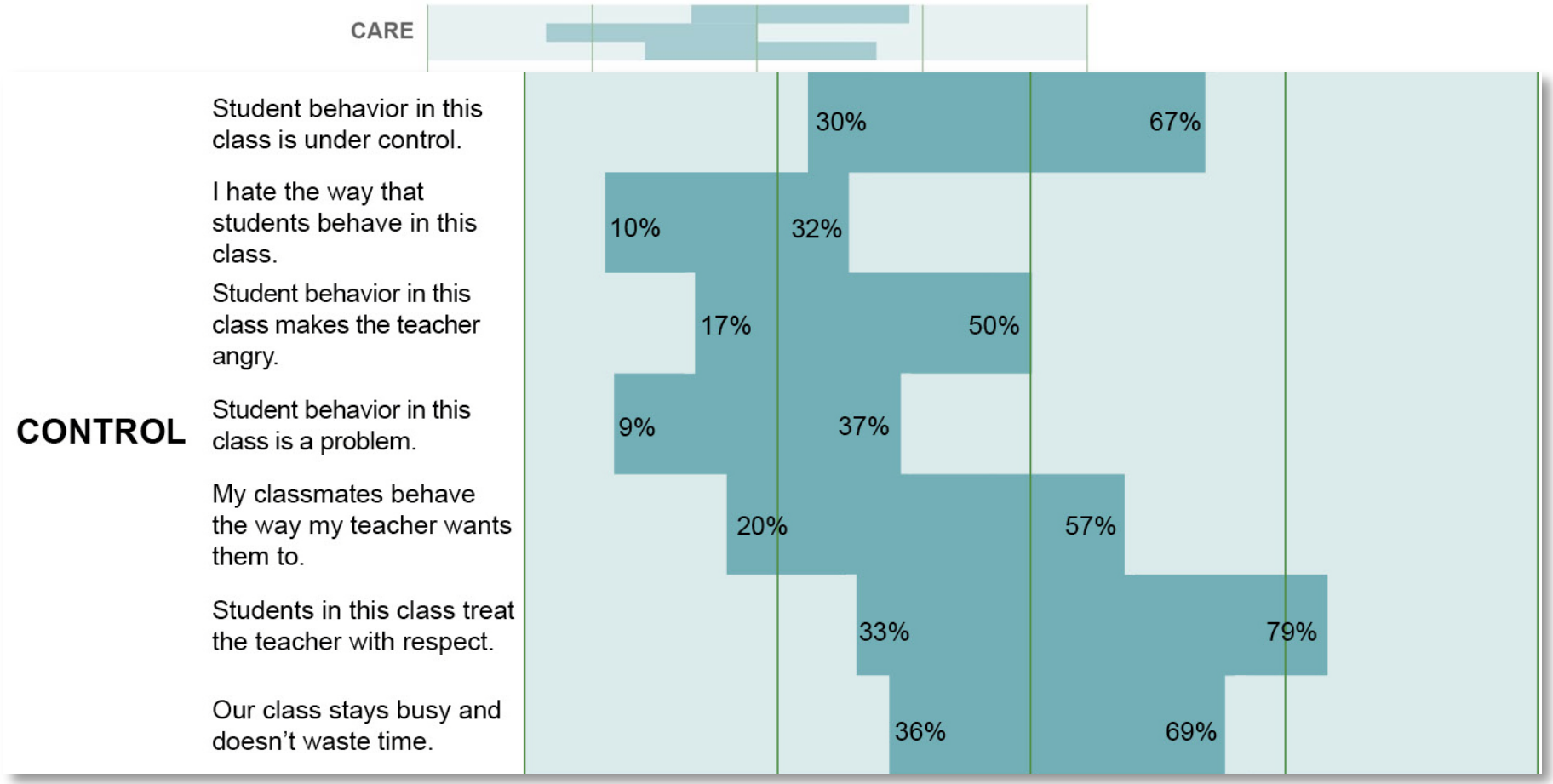


Four Findings

1. Observational rubrics tested do align with student achievement gains
2. Students distinguish between teachers on surveys – with a high degree of reliability
3. Different measures have different strengths and uses

TEACHING INDICATORS
from each teacher working with ONE GROUP of students:

- Classroom Observations
- Student Surveys
- Gains on State Tests
- Combination of Indicators

STUDENT OUTCOMES
from same teacher working with ANOTHER GROUP of students:

- Gains on State Tests
- Gains on Supplemental Tests
- Positive Student Feedback

Three Criteria:

Predictive power: Which measure could most accurately identify teachers likely to have large gains when working with another group of students?

Reliability: Which measures were most stable from section to section or year to year for a given teacher?

Potential for Diagnostic Insight: Which have the potential to help a teacher see areas of practice needing improvement? (We've not tested this yet.)

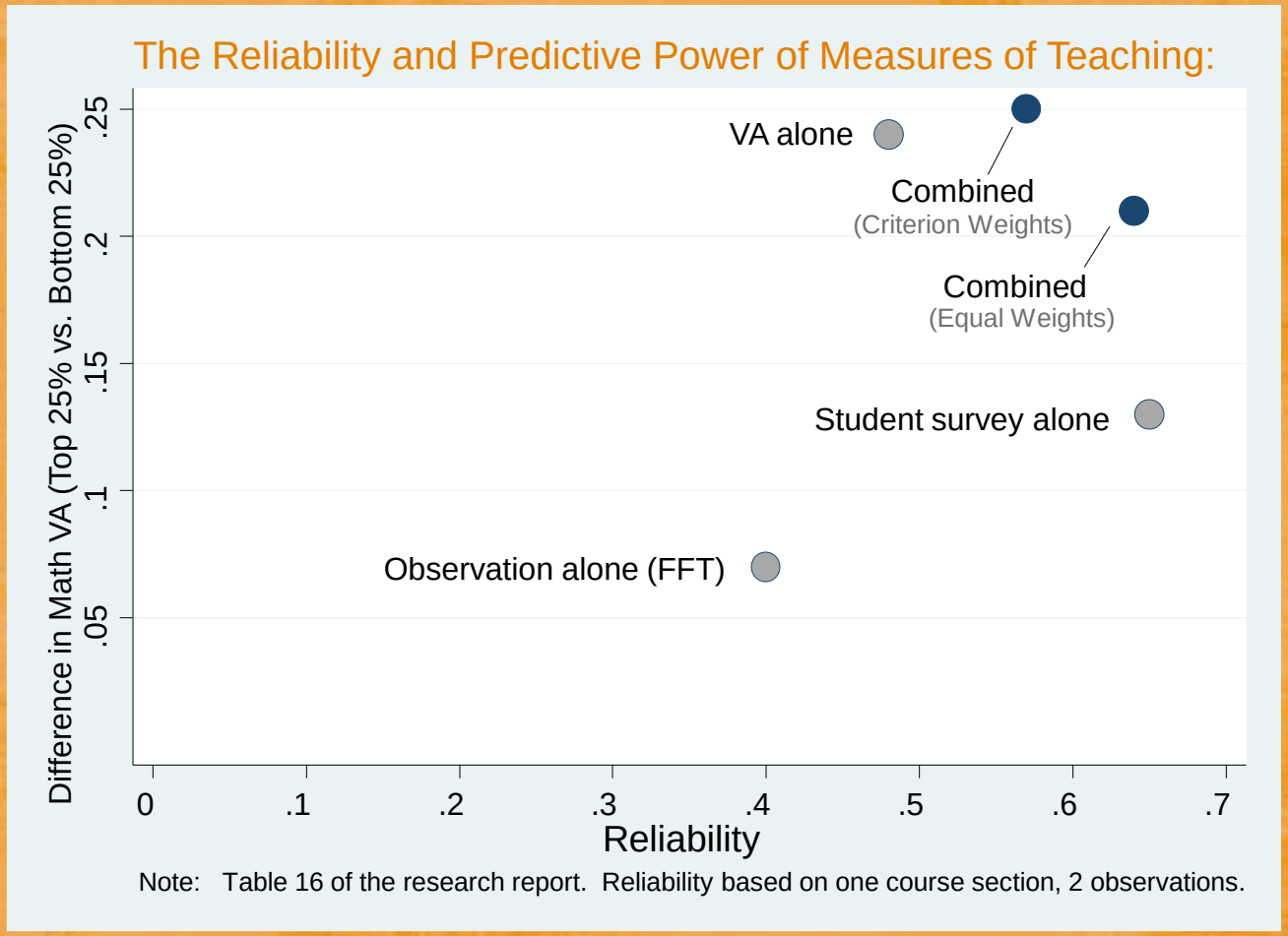
Measures have different strengths …and weaknesses

Measure	Predictive power	Reliability	Potential for Diagnostic Insight
Value-added	H	M	L
Student survey	M	H	M
Observation	L	M/H	H

Four Findings

1. Observational rubrics tested do align with student achievement gains
2. Students distinguish between teachers on surveys – with a high degree of reliability
3. Different measures have different strengths and uses
4. Used together, the measures are superior to "paper" measures of teacher quality

Combining Measures Improved Reliability as well as Predictive Power

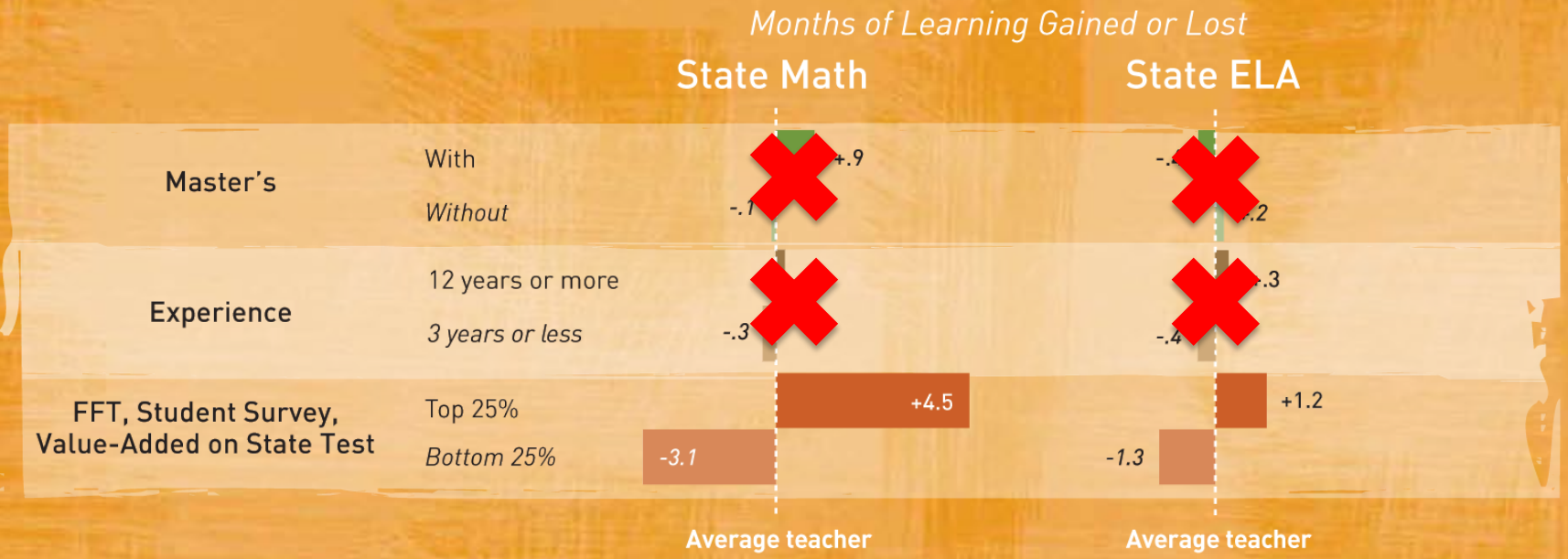


Note: Table 16 of the research report. Reliability based on one course section, 2 observations.

Note: For the equally weighted combination, we assigned a weight of .33 to each of the three measures. The criterion weights were chosen to maximize ability to predict a teacher's value-added with other students. The next MET report will explore different weighting schemes.

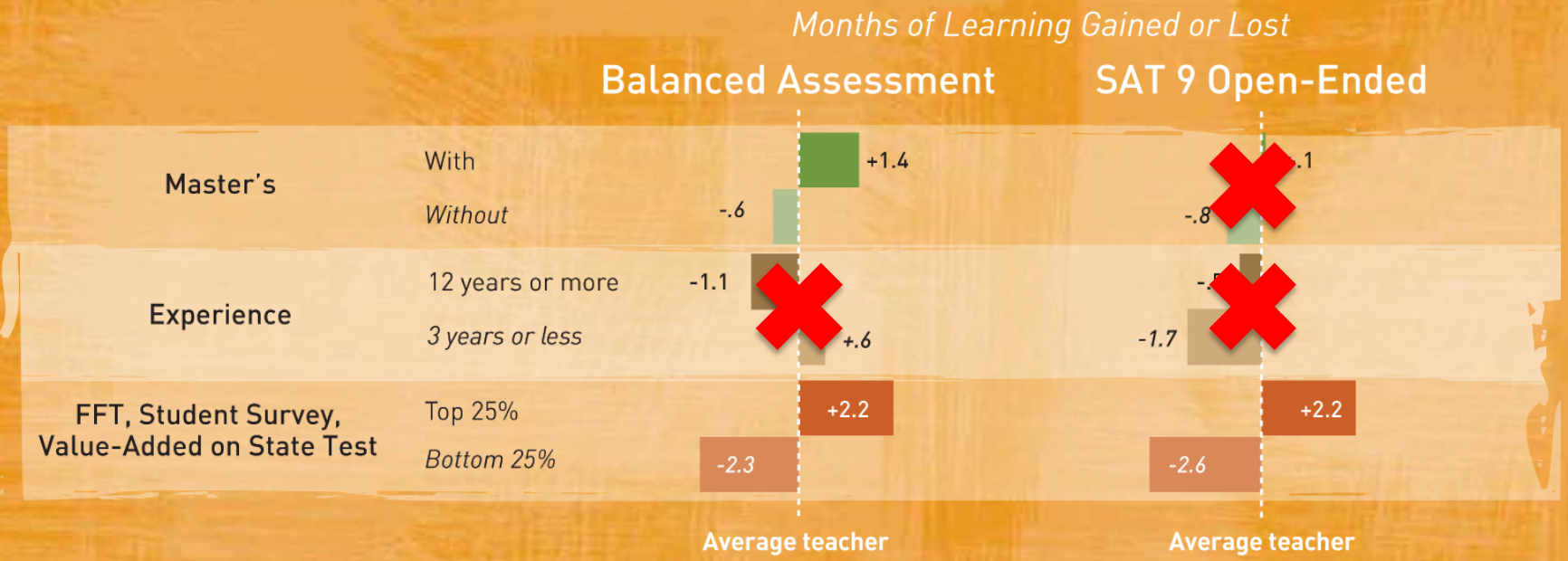
Compared to MA Degrees and Years of Experience, the Combined Measure Identifies Larger Differences

… on state tests



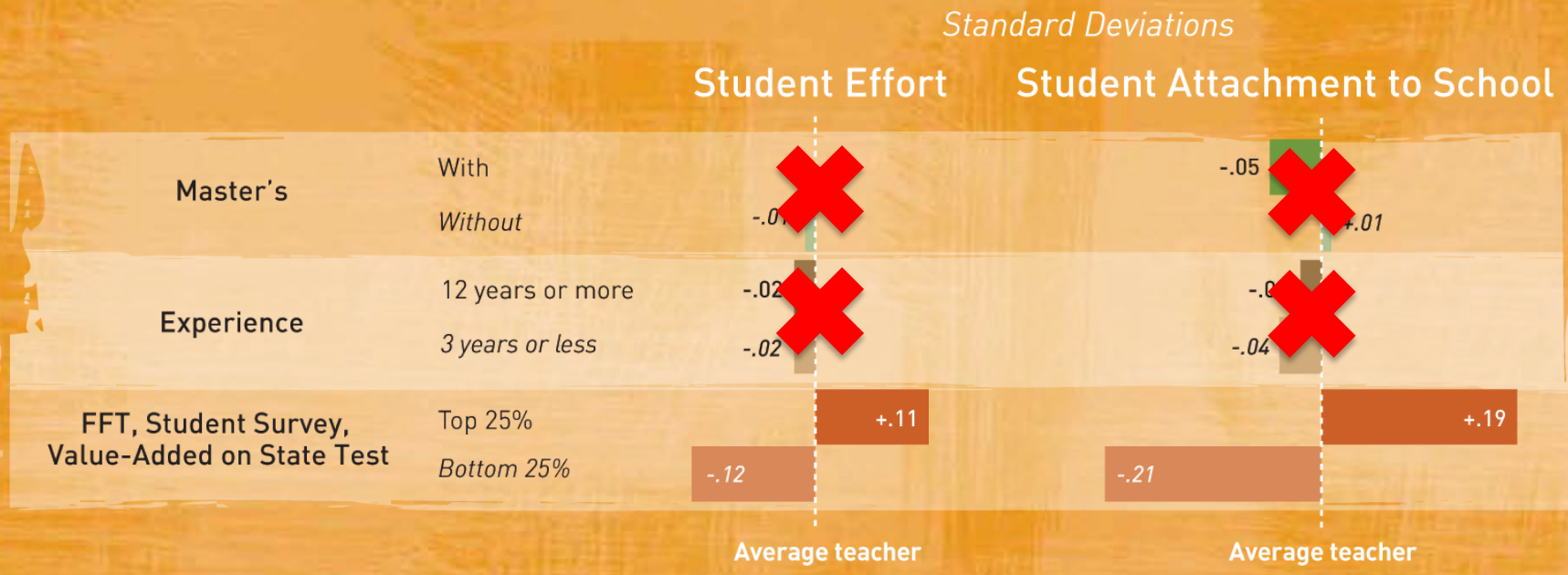
NOTES: Value-added estimated in student-level standard deviation units and converted to months of schooling using conversion factor of 0.25 standard deviations = 9 months of schooling. Teachers' value added scores and scores of measures from working with different groups of students. Combined measure created with equal weights.

…and on low stakes assessments



NOTES: Value-added estimated in student-level standard deviation units and converted to months of schooling using conversion factor of 0.25 standard deviations = 9 months of schooling. Teachers' value added scores and scores of measures from working with different groups of students. Combined measure created with equal weights.

…as well as on student-reported outcomes.

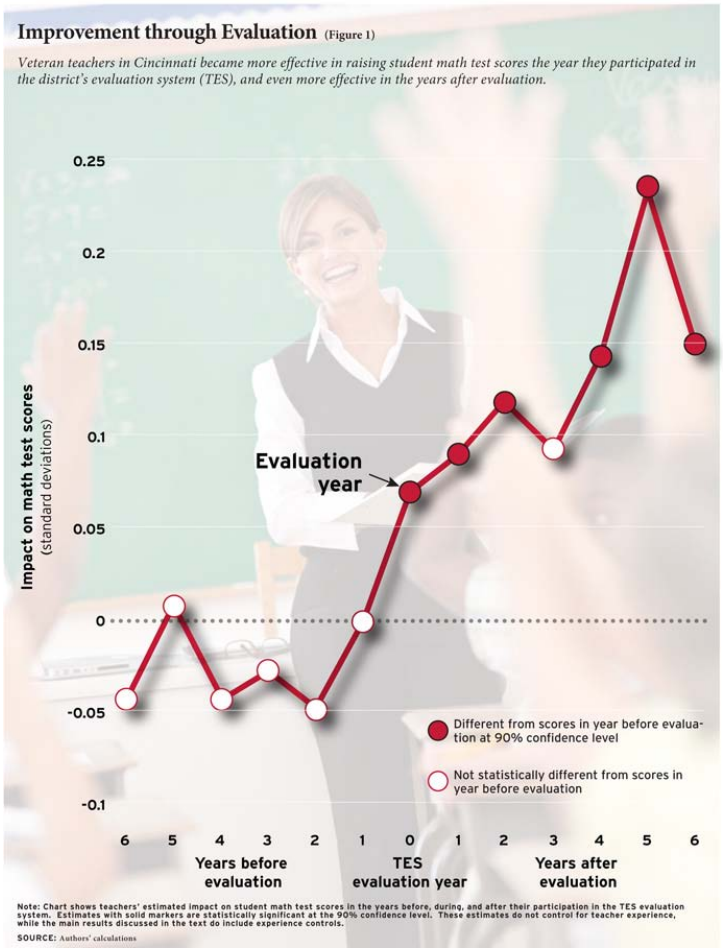


NOTES: Value-added estimated in student-level standard deviation units and converted to months of schooling using conversion factor of 0.25 standard deviations = 9 months of schooling. Teachers' value added scores and scores of measures from working with different groups of students. Combined measure created with equal weights.

Four Findings + One!

1. Observational rubrics tested do align with student achievement gains
2. Students distinguish between teachers on surveys – with a high degree of reliability
3. Different measures have different strengths and uses
4. Used together, the measures are superior to "paper" measures of teacher quality
5. Robust evaluation systems themselves improve teaching outcomes

Robust evaluation systems themselves improve teaching outcomes



Source: Eric S. Taylor and John H. Tyler, "Can Teacher Evaluation Improve Teaching?" *Education Next,* Fall 2012

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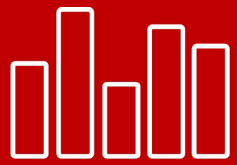


STRATEGIC DATA PROJECT

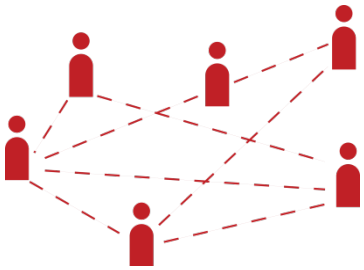
MISSION

Transform the use of data in education to improve student achievement.

Core Strategies

I. Fellows

Place and support **analytic leaders** in agencies



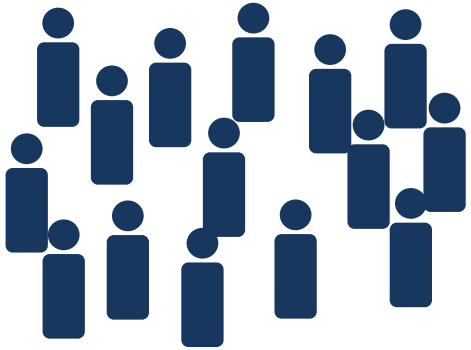
who will influence policy at the local, state, and national levels.

2. Diagnostics

Create **policy- and management-relevant standardized analyses** for districts and states.

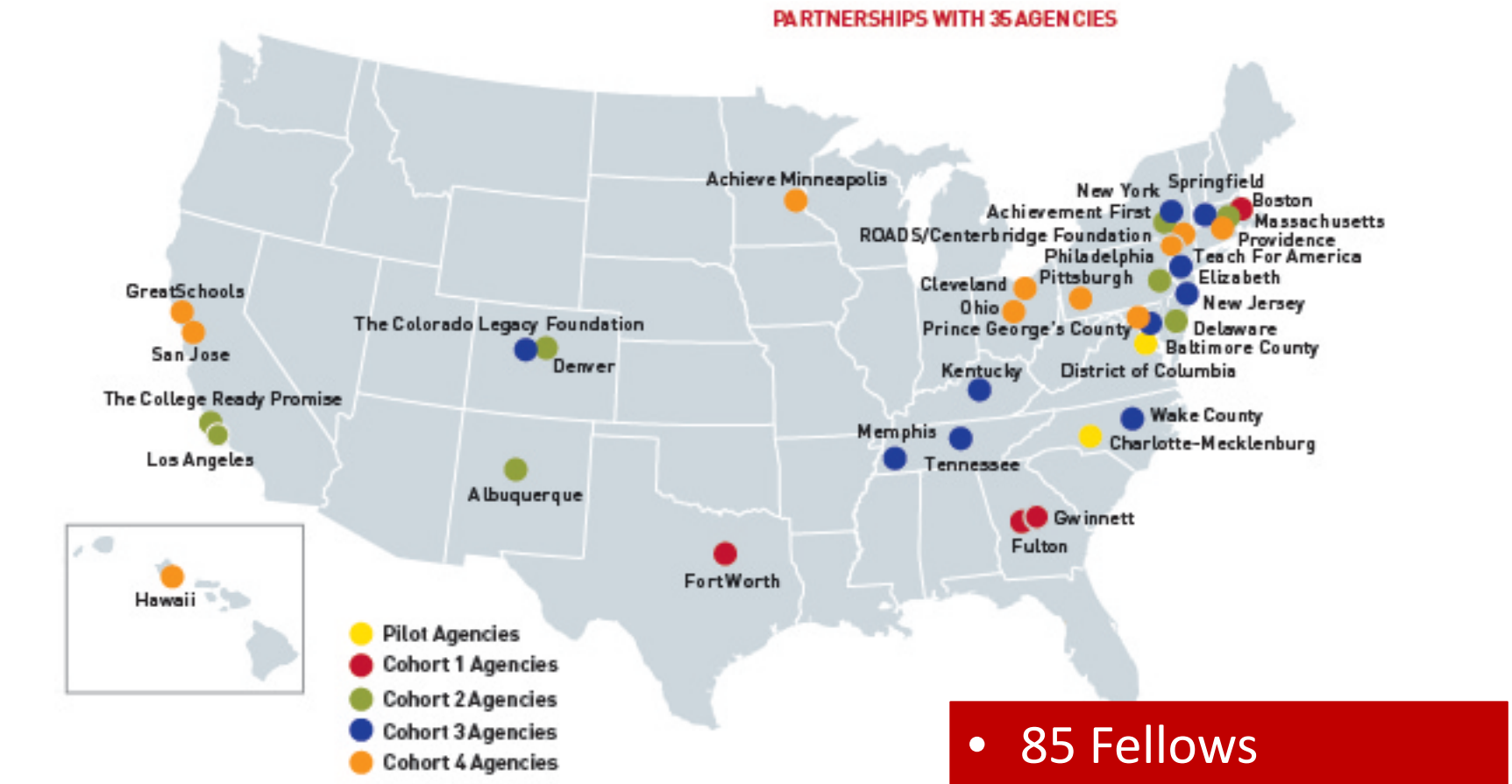
3. Scale

Improve the way data is used in the education sector.



Achieve broad impact through wide dissemination of analytic tools, methods, and best practices.

The SDP Family



- 85 Fellows
- 25 Alumni

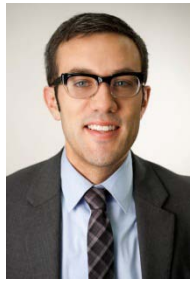
STRATEGIC DATA PROJECT

Fellow Profiles

- Using new **teacher evaluation data** to inform development, implementation and analysis of teacher support/professional development, and to refine teacher selection and placement process
- On the Transition Planning Commission working on strategic staffing: determining "must-haves" for **Teacher Effectiveness Initiative (TEI)** in school district consolidation recommendations

Kacey Guin, Memphis City Schools

- Co-project manager for state-wide development and implementation of **growth/value-added model** for educator evaluation
- Working with a team to develop **higher education data profiles**, providing input related to the use of growth and value-added data in these profiles



Joshua Marland, New York State Education Department

Chung Pham, Denver Public Schools

- Leading development of **school-level graduation targets** that utilize weighted factors based on each school's demographic characteristics
- Leading project to identify potential breakdowns in the **college preparation process**
- Led study that investigated the relationship between **first-generation student-counselor ratios** and college enrollment

Sade Bonilla, Albuquerque Public Schools

- Working with team on new **School Improvement Grant Teacher Evaluation and Compensation Pilot** that will use VAM (individual & school-wide), student learning goals, student surveys and principal observations to determine performance based bonus pay
- Led analytics to identify keys to success on **Algebra I performance**
- Worked on a team to develop a common set of metrics to allow district to better understand and monitor the achievement gap over time

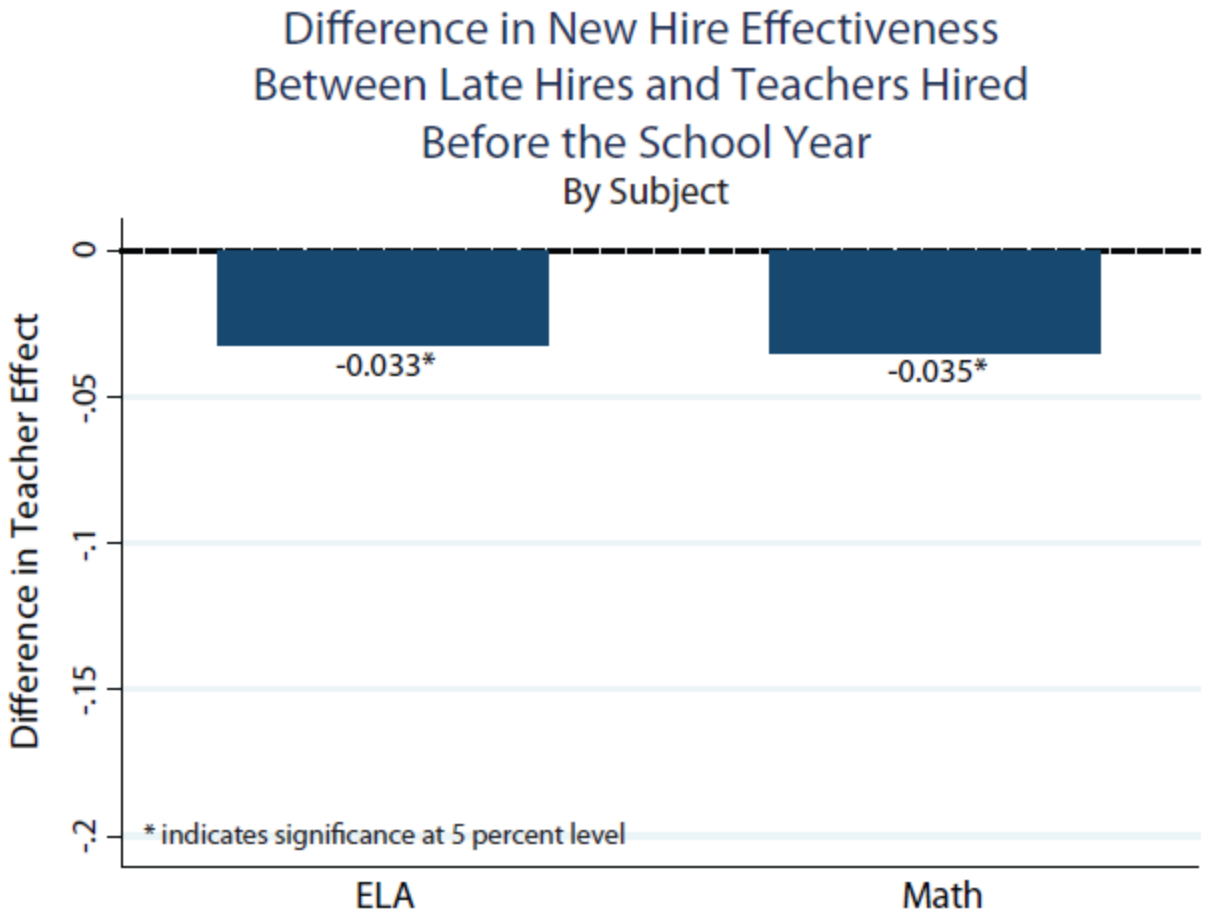
Diagnostic Analyses

- Two areas of focus
  - Human Capital, College-Going
- Deliver salient, actionable findings
- Create a “demonstration project”
- Develop comparable body of work
- **Conducted in 8 districts; embarking on DE, MA, NY and CO currently**

The Human Capital Diagnostic

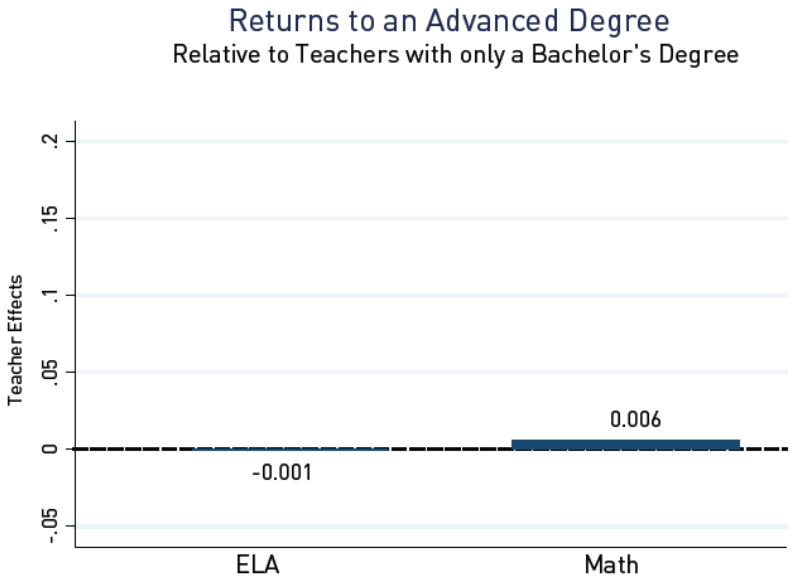
HUMAN CAPITAL DIAGNOSTIC PATHWAY				
				
RECRUITMENT	PLACEMENT	DEVELOPMENT	EVALUATION	RETENTION/ TURNOVER

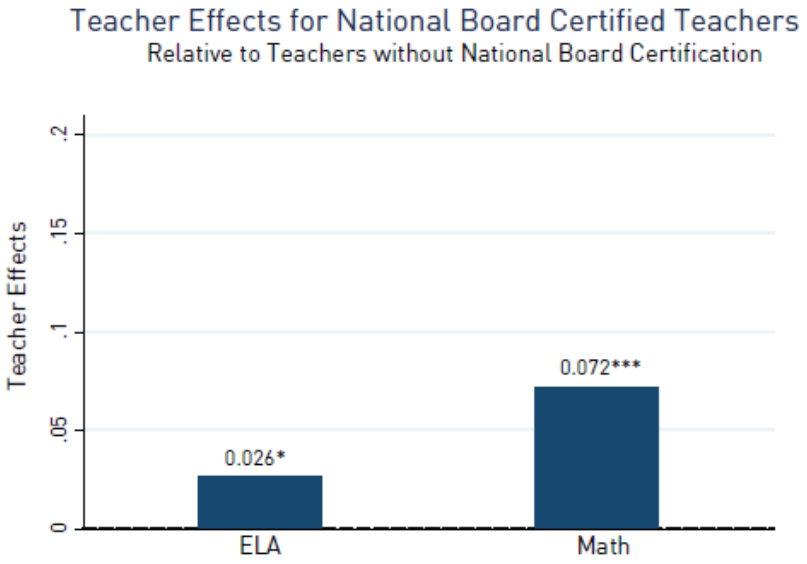
Recruitment



Source: Strategic Data Project, *Learning about Teacher Effectiveness: SDP Human Capital Diagnostic, Gwinnett County Public Schools, Georgia*, May 2012

Development





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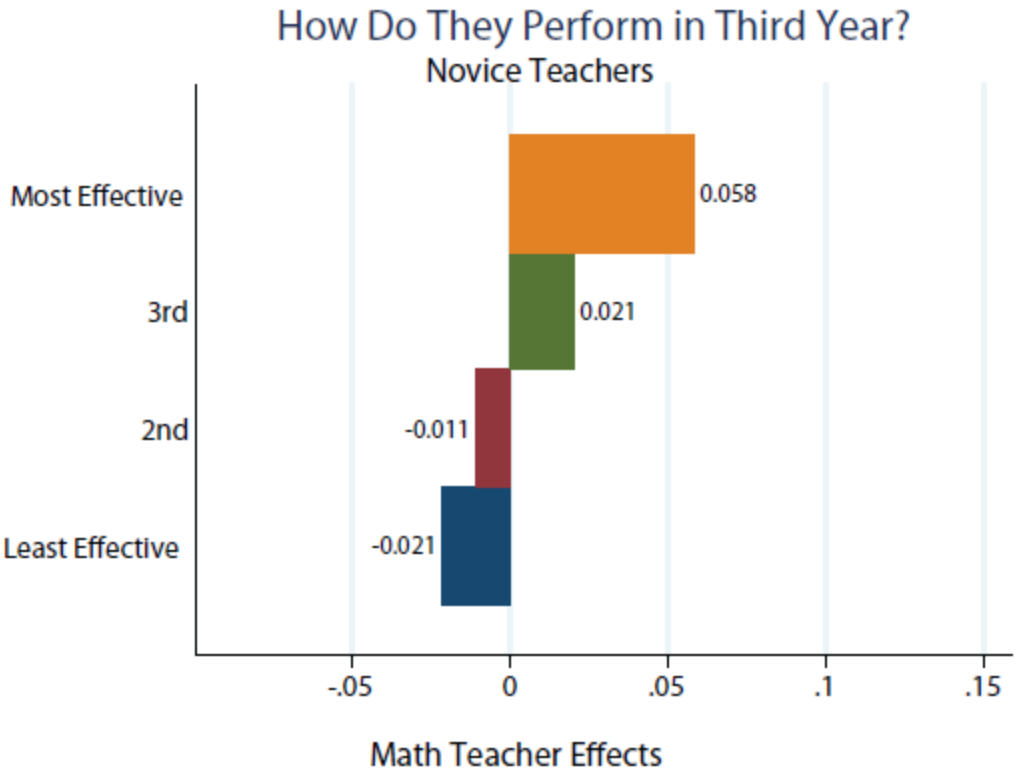
Evaluation



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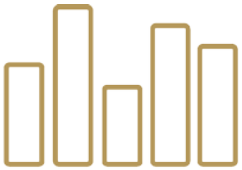


STRATEGIC DATA PROJECT

Strategic Performance Indicators

What are Strategic Performance Indicators (SPI's)?

SPI's are standardized measures that reveal policy and management levers that have the potential to improve student outcomes. Think of them as parallel to financial ratios in the private sector.

What do they have to do with partner agencies?

SPI's provide a benchmark against which agencies can assess the health of their organization in the areas of human capital and college-going success.

What do SPI's have to do with this conference?

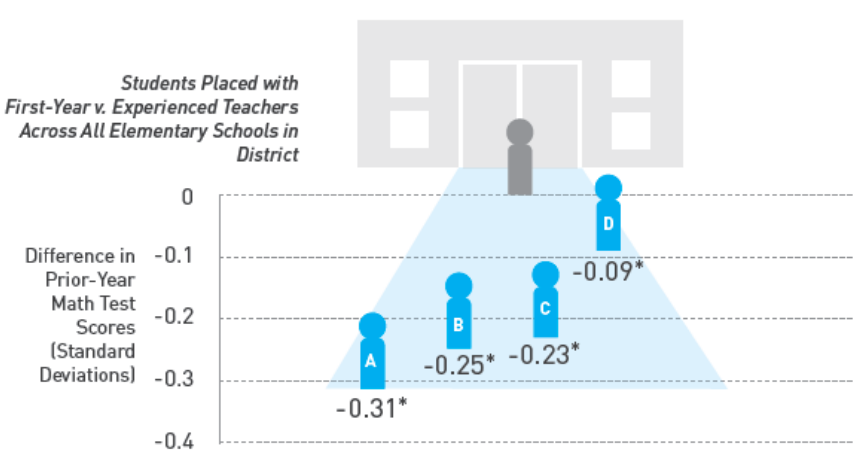
Like the diagnostics, SPI's require robust student-teacher linkages!

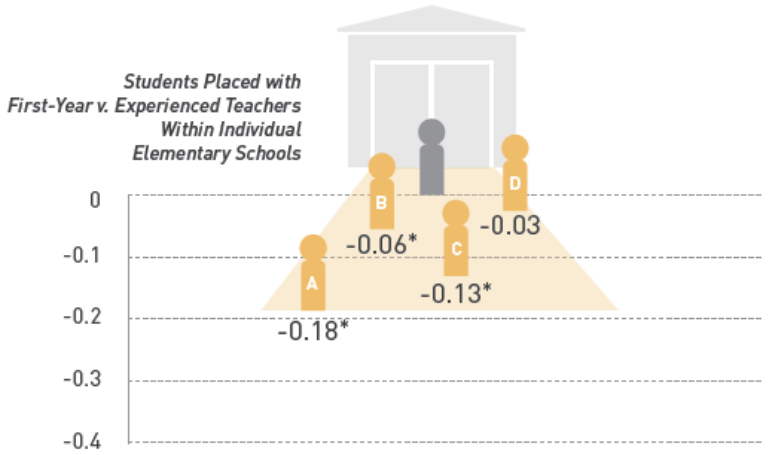
The Novice Teacher Placement Pattern

Strategic Performance Indicator

What are the results across SDP partner districts?

The graphs below present *The Novice Teacher Placement Pattern* results in four SDP partner districts. In each district, students who are placed with first-year teachers start the year academically behind their peers placed with experienced teachers, both across all schools in the district and within individual schools.





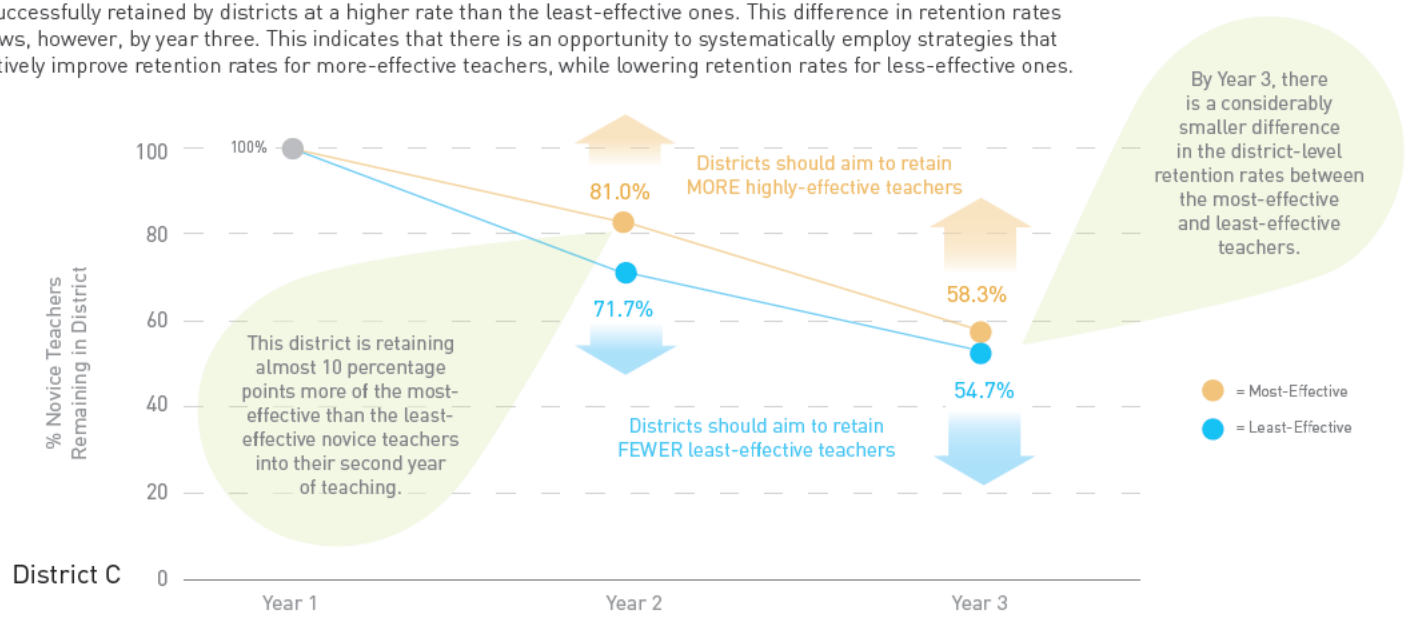
NOTE: * indicates statistical significance at the 5% level. The result within schools for District D is not statistically significant and therefore may not be different than zero.

The Effective Teacher Retention Rate
Strategic Performance Indicator

Do Retention Patterns Differ Between the Most- and Least-Effective Novice Teachers?

Yes, but not as much as they could.

The Strategic Performance Indicator *The Effective Teacher Retention Rate* examines how retention rates for novice teachers differ by level of effectiveness. It reveals that after their first year of teaching, the most-effective novice teachers are successfully retained by districts at a higher rate than the least-effective ones. This difference in retention rates narrows, however, by year three. This indicates that there is an opportunity to systematically employ strategies that selectively improve retention rates for more-effective teachers, while lowering retention rates for less-effective ones.



STRATEGIC DATA PROJECT

SDP TOOLKIT

FOR EFFECTIVE DATA USE

A GUIDE FOR CONDUCTING DATA ANALYSIS IN EDUCATION AGENCIES

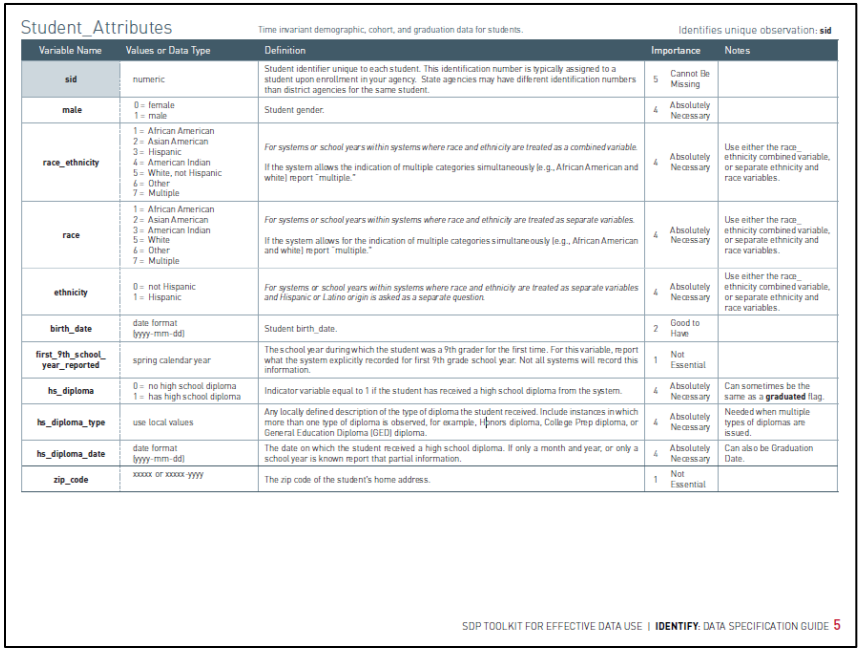
IDENTIFY: DATA SPECIFICATION GUIDE

www.gse.harvard.edu/sdp/tools

VERSION: 1.0
Last Modified: April 12, 2012

Toolkit Documents

Toolkit Snapshot



Student_Attributes

Time invariant demographic, cohort, and graduation data for students.

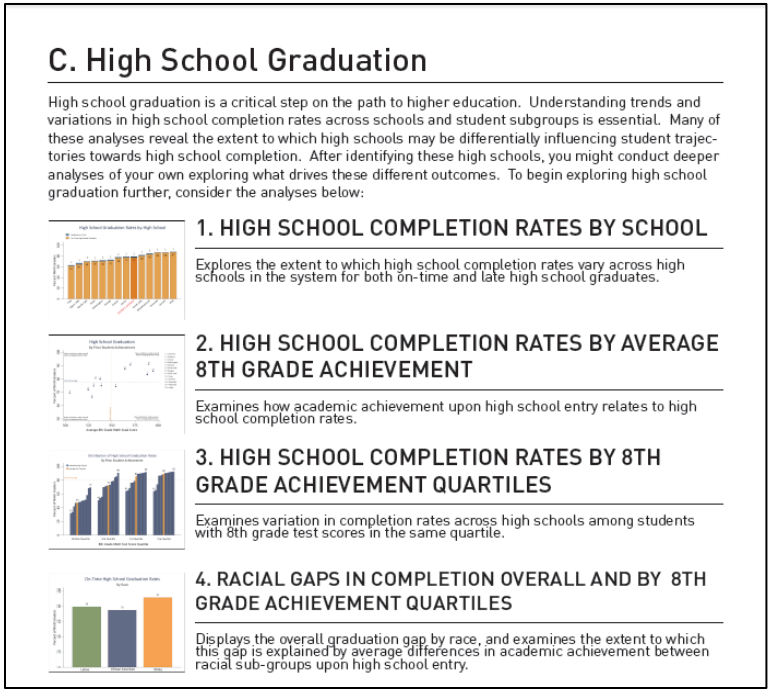
Identifies unique observation: **sid**

Variable Name	Values or Data Type	Definition	Importance		Notes
sid	numeric	Student identifier unique to each student. This identification number is typically assigned to a student upon enrollment in your agency. State agencies may have different identification numbers than district agencies for the same student.	5	Cannot Be Missing	
male	0 = female 1 = male	Student gender.	4	Absolutely Necessary	
race_ethnicity	1 = African American 2 = Asian American 3 = Hispanic 4 = American Indian 5 = White, not Hispanic 6 = Other 7 = Multiple	*For systems or school years within systems where race and ethnicity are treated as a combined variable.* If the system allows the indication of multiple categories simultaneously (e.g., African American and white) report "multiple."	4	Absolutely Necessary	Use either the race_ ethnicity combined variable, or separate ethnicity and race variables.
race	1 = African American 2 = Asian American 3 = American Indian 5 = White 6 = Other 7 = Multiple	*For systems or school years within systems where race and ethnicity are treated as separate variables.* If the system allows for the indication of multiple categories simultaneously (e.g., African American and white) report "multiple."	4	Absolutely Necessary	Use either the race_ ethnicity combined variable, or separate ethnicity and race variables.
ethnicity	0 = not Hispanic 1 = Hispanic	*For systems or school years within systems where race and ethnicity are treated as separate variables and Hispanic or Latino origin is asked as a separate question.*	4	Absolutely Necessary	Use either the race_ ethnicity combined variable, or separate ethnicity and race variables.
birth_date	date format (yyyy-mm-dd)	Student birth_date.	2	Good to Have	
first_9th_school_ year_reported	spring calendar year	The school year during which the student was a 9th grader for the first time. For this variable, report what the system explicitly recorded for first 9th grade school year. Not all systems will record this information.	1	Not Essential	
hs_diploma	0 = no high school diploma 1 = has high school diploma	Indicator variable equal to 1 if the student has received a high school diploma from the system.	4	Absolutely Necessary	Can sometimes be the same as a **graduated** flag.
hs_diploma_type	use local values	Any locally defined description of the type of diploma the student received. Include instances in which more than one type of diploma is observed, for example, Honors diploma, College Prep diploma, or General Education Diploma (GED) diploma.	4	Absolutely Necessary	Needed when multiple types of diplomas are issued.
hs_diploma_date	date format (yyyy-mm-dd)	The date on which the student received a high school diploma. If only a month and year, or only a school year is known report that partial information.	4	Absolutely Necessary	Can also be Graduation Date.
zip_code	xxxxx or xxxxx-yyyy	The zip code of the student's home address.	1	Not Essential	

SDP TOOLKIT FOR EFFECTIVE DATA USE | **IDENTIFY**: DATA SPECIFICATION GUIDE 5

List of data elements that are useful in rigorous analysis of college-going…and many other analyses

Sample analyses with code for producing analyses and graphs



C. High School Graduation

High school graduation is a critical step on the path to higher education. Understanding trends and variations in high school completion rates across schools and student subgroups is essential. Many of these analyses reveal the extent to which high schools may be differentially influencing student trajectories towards high school completion. After identifying these high schools, you might conduct deeper analyses of your own exploring what drives these different outcomes. To begin exploring high school graduation further, consider the analyses below:

1. HIGH SCHOOL COMPLETION RATES BY SCHOOL

Explores the extent to which high school completion rates vary across high schools in the system for both on-time and late high school graduates.

2. HIGH SCHOOL COMPLETION RATES BY AVERAGE 8TH GRADE ACHIEVEMENT

Examines how academic achievement upon high school entry relates to high school completion rates.

3. HIGH SCHOOL COMPLETION RATES BY 8TH GRADE ACHIEVEMENT QUARTILES

Examines variation in completion rates across high schools among students with 8th grade test scores in the same quartile.

4. RACIAL GAPS IN COMPLETION OVERALL AND BY 8TH GRADE ACHIEVEMENT QUARTILES

Displays the overall graduation gap by race, and examines the extent to which this gap is explained by average differences in academic achievement between racial sub-groups upon high school entry.