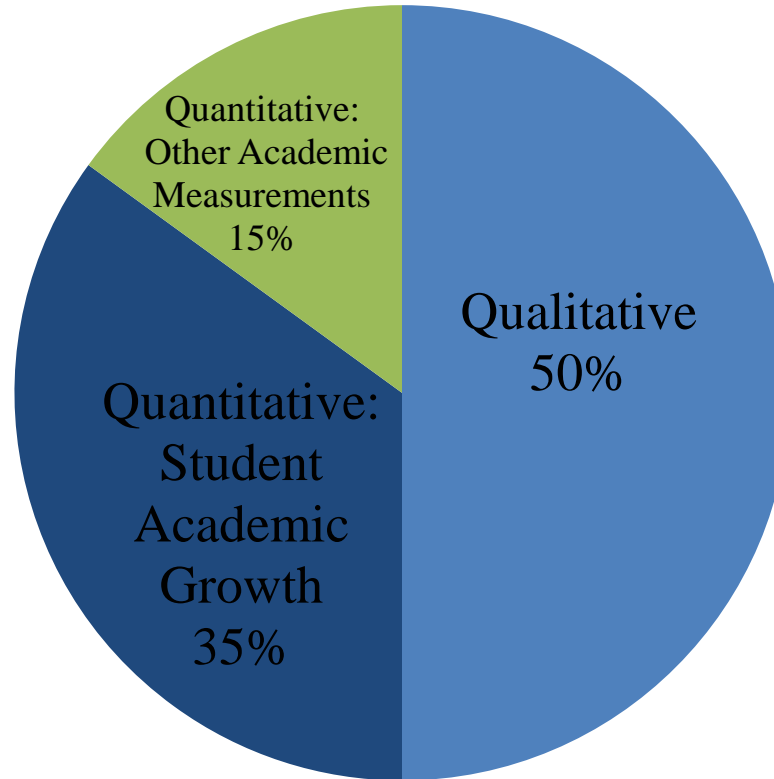# Statutory Requirements

Quantitative Measures (35% of Total TLE)

The State Board voted to use a Value Added Model to measure student academic growth for teachers and leaders in grades and subjects for which multiple years of standardized test data exist.

5 Myths about Value-Added Models

MYTH

- Value-added isn't fair to teachers who work in high-need schools where students tend to lag far behind academically.

FACT

- Value-added controls for students past academic performance and demographic factors.
- Value-added looks at progress over a course of a school year and not at a single test score on a single day.

5 Myths about Value-Added Models

MYTH

- Value-added scores are too unpredictable from year-to-year to be trusted.

FACT

- Value-added scores are about as stable as batting averages in baseball and many other widely-accepted performance measures.

- Teachers who earn high value-added scores early in their career rarely go on to earn low scores later, and vice versa.

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5 Myths about Value-Added Models

MYTH

- There is no research behind value-added.

FACT

- Value-added has been researched for nearly three decades by leading academics and economists.
- Value-added models have been used by school districts beginning in the 1990's.

5 Myths about Value-Added Models

MYTH

- Using value-added means that teachers will be evaluated based solely on standardized test scores.

FACT

- Oklahoma Teacher and Leader evaluations are a system. The total evaluation will take into account many factors in determining the final evaluation score.
  - 50% Qualitative Measures
  - 35% Value-Added Score
  - 15% Other Academic Measures

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5 Myths about Value-Added Models

MYTH

- Value-added is useless because it is imperfect- it has a margin of error.

FACT

- No measure of teacher performance is perfect. However, a value-added model provides crucial information on how well teachers are doing at their most important job-helping students learn.

Educator Evaluation: Value-Added Model Selection Process

Foundation for Excellence in Education

Christy Hovanetz, Ph.D.

Senior Policy Fellow

April 4, 2012

Agenda

- Purpose and definition of value-added
- Process for selecting a value-added model

Purpose for Using Growth Models

- Schools have students who enter with different levels of proficiency and characteristics
- Therefore, simply compare status scores across schools is not reasonable because the status scores simply reflect the students who entered the school, not the impact of the school
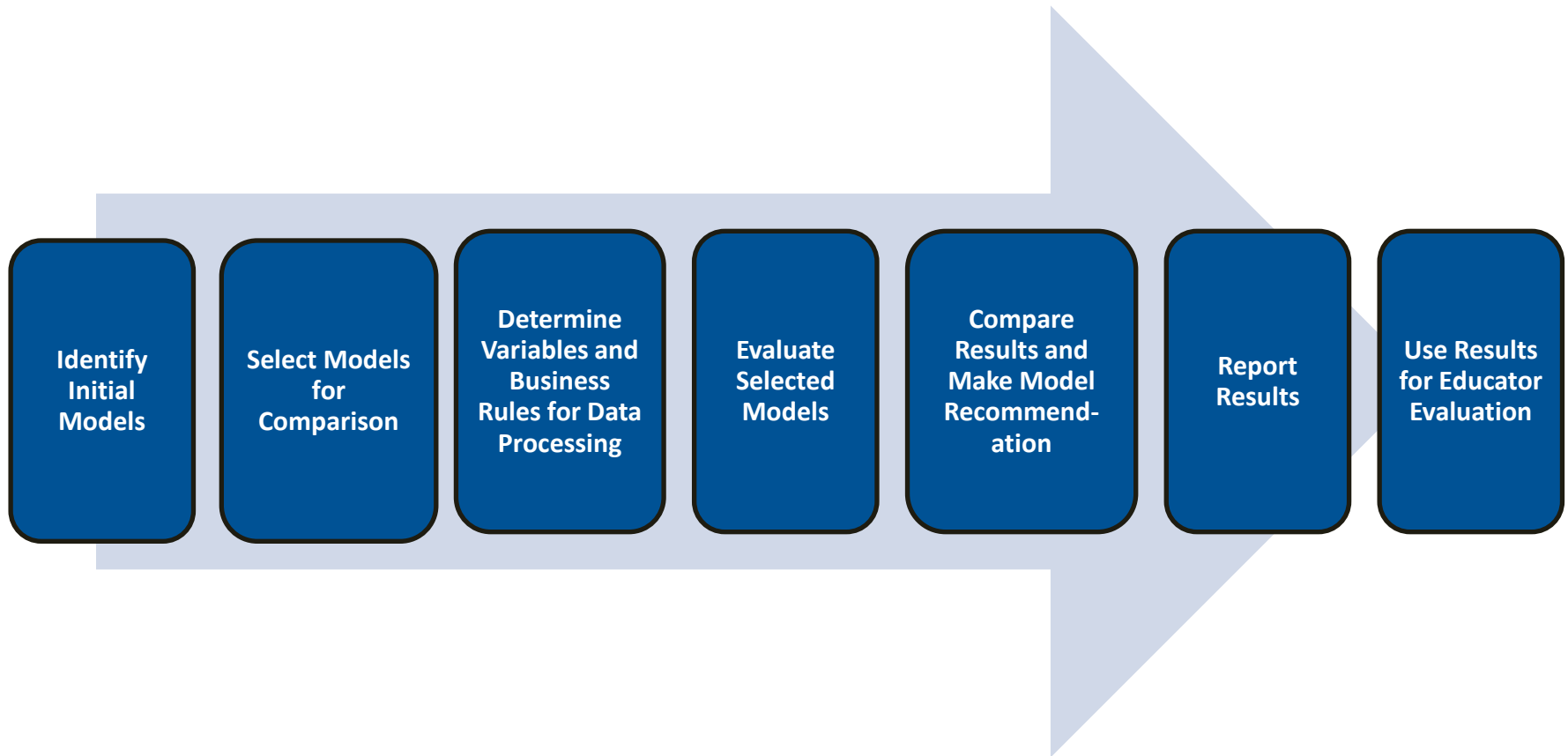
Purpose for Using Growth Models

- Growth models are designed to mitigate the influence of differences among the entering students
- In other words, growth models try to "level the playing field" so that teachers do not have advantages or disadvantages simply as a result of the students in their class

Steps to Developing a Statewide Value-Added Model

| Identify Initial Models | Select Models for Comparison | Determine Variables and Business Rules for Data Processing | Evaluate Selected Models | Compare Results and Make Model Recommend-ation | Report Results | Use Results for Educator Evaluation |

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Different Methods for Measuring Growth

Status Methods
- Simply compute averages or percent proficient using a single year of test score data
- Comparisons can be made from one year to the next, but these are based on different groups of students

Simple Growth Models
- Measure change in a student's performance from test to test (e.g., gain from grade 3 to 4)

Value-Added Models
- Statistical model estimates the portion of the student's gain that is attributable to the school or teacher

Student Growth Percentiles
- The quantile model estimates "growth percentiles" among students who started at a similar level
- Performance is judged entirely relative to that of other students, not against a learning criterion

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Status Models

Using one year of data comparisons can be made between 2010 third graders and 2011 third graders to determine if there was "growth" in the percent of proficient third graders

Subject	Grade	2010 percent proficient	2011 percent proficient	"Growth" Improvement
Reading	3	81	83	2
Reading	4	75	78	3
Reading	5	72	71	-1

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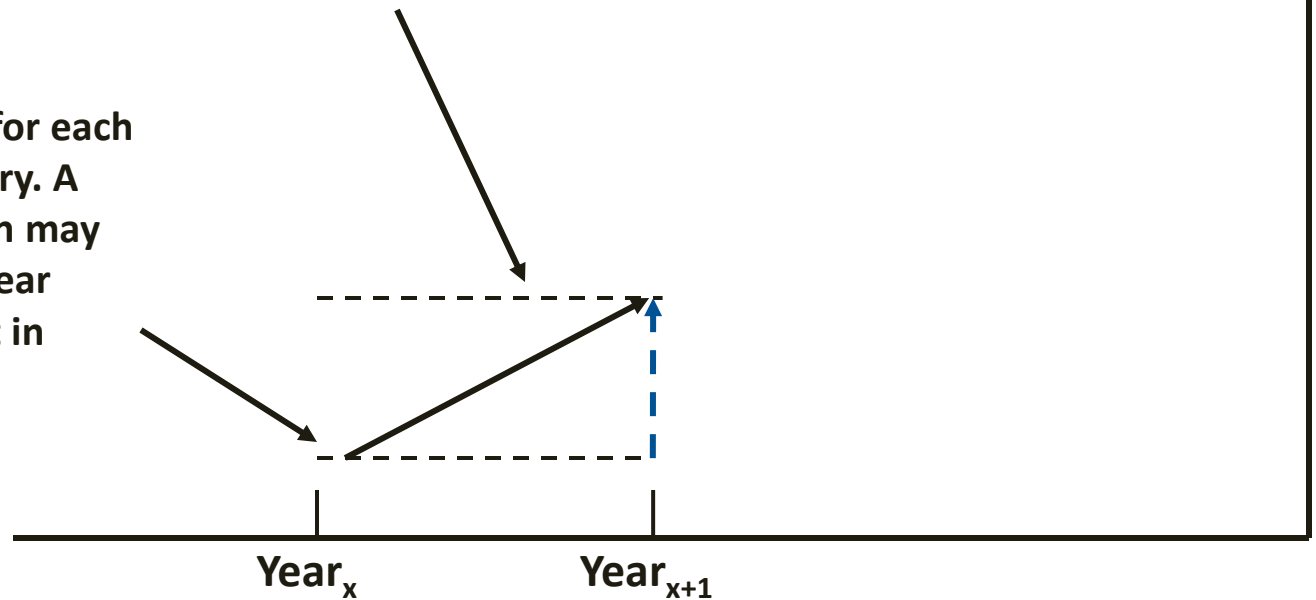Foundation for Excellence in Education

Growth Models

Growth

(Simplified "generic" example)

Performance after a specified period of time (i.e., in one school)

At least two scores for each student are necessary. A starting point (which may be more than one year earlier) is important in a growth model.

Year$_x$ Year$_{x+1}$

Source: CCSSO Policymaker's Guide to Growth Models
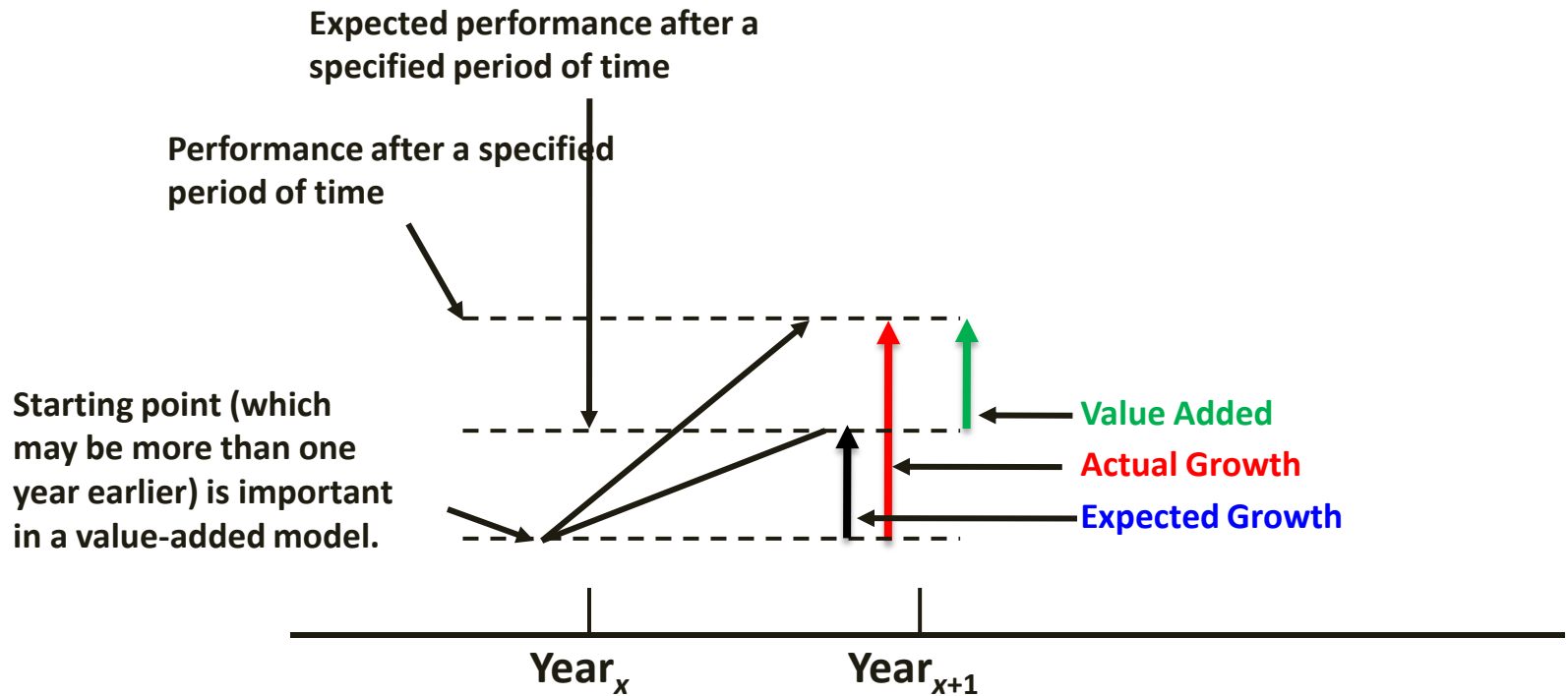
Value-Added Models

- All value-added models are growth models.

- A value-added model must use at least two test scores for each student.

- A statistical model estimates the *portion* of the student's gain that is attributable to the classroom teacher.

- Level the playing field by accounting for differences in the proficiency and characteristics of students assigned to teachers

Value-added models

Value-Added Models

(Simplified "generic" example)

Expected performance after a
specified period of time

Performance after a specified
period of time

Starting point (which
may be more than one
year earlier) is important
in a value-added model.

Value Added

Actual Growth

Expected Growth

Year$_x$ Year$_{x+1}$

Source: CCSSO Policymaker's Guide to Growth Models

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Student Growth Percentiles

Growth targets are determined based on the performance of other schools in the state

- Growth expectations are set annually
- Growth expectations shift based on statewide performance

Percentile	All Students - Median Growth			
	2009	2010	2011	2012
5th percentile	-50	-55	-49	?
40th percentile	15	11	17	?
55th percentile	26	24	29	?
60th percentile	30	26	31	?
90th percentile	40	35	42	?

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Advantages of a value-added model

- Teachers teach classes of students who enter with different levels of proficiency and possibly different student characteristics

- Value-added models level the playing field by accounting for differences in the proficiency and characteristics of students assigned to teachers

Advantages of a value-added model

Value-added models are designed to mitigate the influence of differences among the entering classes; teachers do not have advantages or disadvantages simply as a result of the students who attend a school and are assigned to a class

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Contact Information

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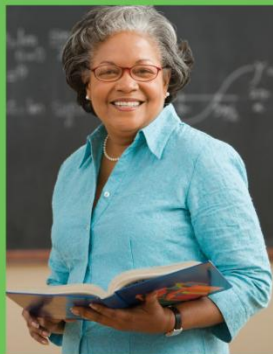Senior Policy Fellow

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Value-Added:
Deepening Your Understanding

Who is Battelle for Kids?

– Not-for-profit, educational-improvement organization that believes in:

- **The Right People**

  – Having highly effective educators throughout the system to maximize student opportunities.

- **The Right Measures**

  – Measuring Educator and Employee Effectiveness

- **The Right Practices**

  – Researching and Supporting Effective Educational Practices

- **The Right Messages**

  – Engaging Stakeholders for Strategic Improvement and Managing Change.

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Technical: Value-Added

Self-Assessment

| 1 Roadie | 5 Back-up Singer | 10 Rock Star |

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The Power of Two

Achievement & Value-Added

Achievement

Compares students' performance to a standard

Does not factor in students' background characteristics

Measures students' performance at a single point in time

Critical to students' post secondary opportunities

A more complete picture of student learning

Value-Added

Compares students' performance to their own prior performance

May factor in students' background characteristics

Measures students' academic growth between two points in time

Critical to ensuring students' future academic success

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for Kids
Bringing clarity to school improvement

Opportunity

To provide a clearer understanding of where your strengths and challenges are allowing you to create more focused improvement efforts

Examples:

Your district 6th grade math performance is low, but your schools that are configured (K-6 or K-8) are show positive value added results.

Your previously high achieving 7th grade reading students in your building are not meeting growth predictions.

Opportunity

To evaluate where your curriculum or programs are being more or less effective

Examples:

Your math value-added results across an entire grade level in your district demonstrated low value-added.

Students in your gifted magnet school demonstrated less academic growth than similar students in traditional schools.

Opportunity

To improve your placement of teachers and students

Examples:

Your value-added results indicate that 4 of your most ineffective math teachers are in the same middle school.

A 4th grade teacher in your building has very high value-added effects in math but very poor value-added effects in reading.

An opportunity

To maximize the impact of your best teachers and principals

Examples:

You identify really highly effective teachers and share what makes them successful with others.

You identify new ways use highly effective teachers to reach more students, high needs students, or lead the development of other teachers.

An opportunity

To target professional development at needs of the teacher or group of teachers
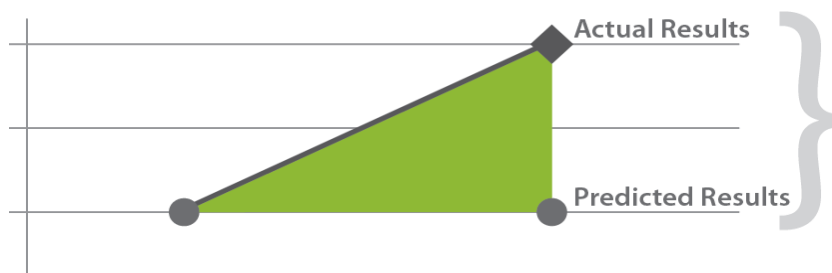
Examples:

Develop protocols that lead teachers through a data inquiry, root cause analysis, and goal setting process.

Align professional development to your instructional framework and promote collaboration across the organization.

Deepening Your Understanding

- Value-Added

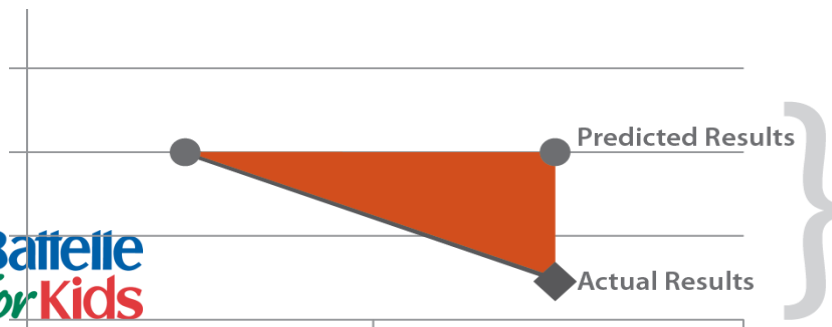- Predictions

- Control Variables

Value-Added: Actual minus Predicted

Value-Added Above Prediction

Value-Added At Prediction

Value-Added Below Predicted

Prediction

Predictions are more like magic than science.

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Predictor Tests: Pre/Prior/Post

☐ In subjects that are contiguously tested, such as reading and math, it is easy to understand how:

- ☐ A prior reading test can be predictive of reading
  - ■ E.g., 3rd grade reading predicts 4th grade reading

- ☐ A prior math test can be predictive of math
  - ■ E.g., 4th grade math predicts 5th grade math

Prediction – You Try!

- What about 5th grade science?
    - As a science teacher in 5th grade, what might you predict about the following students' performance in your class?
        - Select from: Strong, Average, Struggle

	Valerie	Ann	Matt
Reading (1000)	755	275	450
Science	?	?	?

How certain are you? Would more information be helpful?

Prediction – Try again!

☐ Let's expand the information:
- Select from: Strong, Average, Struggle

	Valerie	Ann	Matt
Reading	755	275	450
Math	720	220	775
Science	?	?	?

Did your answer change for any student?
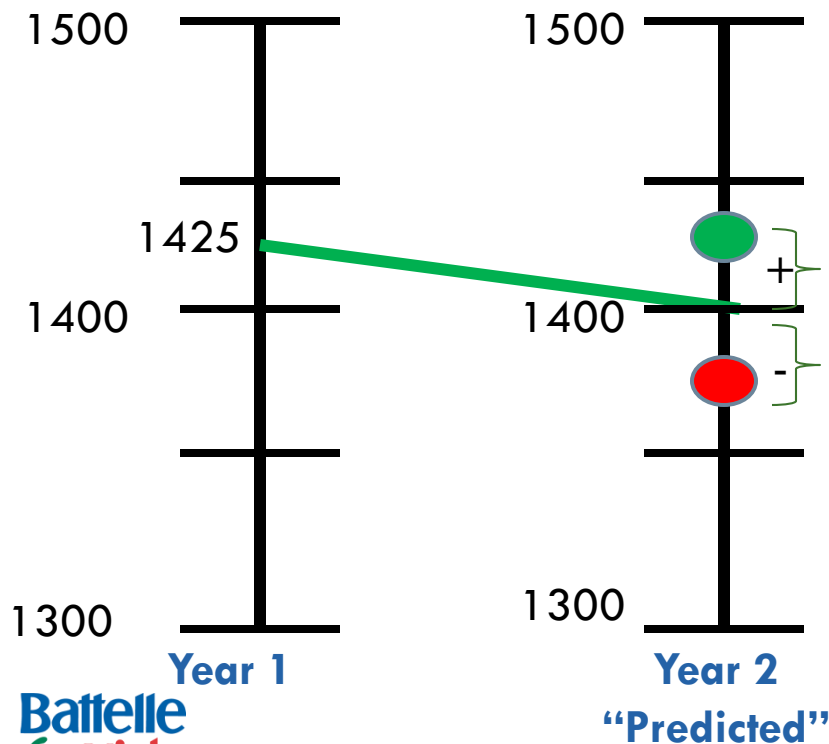
How confident are you?

Predictors for Non-Contiguous

☐ Predictor tests must have a strong relationship to the test being analyzed.

	SCI-04	SOC-04	MATH-04	READ-04	SCI-05	SOC-05	MATH-05	READ-05
SCI-04	1	0.67	0.64	0.62	0.85	0.68	0.64	0.58
SOC-04		1	0.70	0.70	0.56	**0.72**	0.44	0.68
MATH-04			1	0.64	**0.74**	0.65	**0.91**	0.61
READ-04				1	**0.72**	0.64	0.59	**0.83**
SCI-05					1	0.70	0.65	.55
SOC-05						1	0.67	0.64
MATH-05							1	0.58
READ-05								1

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Let's Look at SIMPLE Prediction

A math score of 1425 would be "advanced."

1500 — 1500 —

1425

1400 — 1400 —
+
-

1300 — 1300 —

Year 1

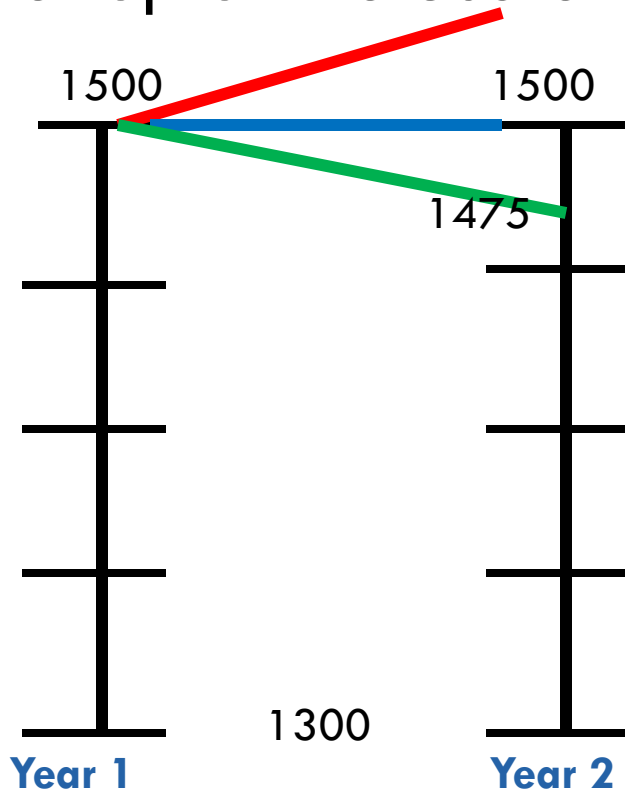Year 2
"Predicted"

- Basic prediction assumes the student who scored 1425 in Year 1 would score similar to all others students who scored 1425.
- If all students who scored 1425 in Year 1 score 1400 in Year 2, the models would predict the student would perform similar – that is scoring **lower** than the previous year.
- If the student scores **above the prediction**, we have *value-added*

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The Perfect Students...

The top of the scale is a score of 1500.

1500   1500

1475

1300

Year 1   **Year 2**

What are the chances of these students scoring above 1500?
- Impossible

At 1500?
- Possible, but improbable

Below 1500?
- Possible and probable

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for **Kids**
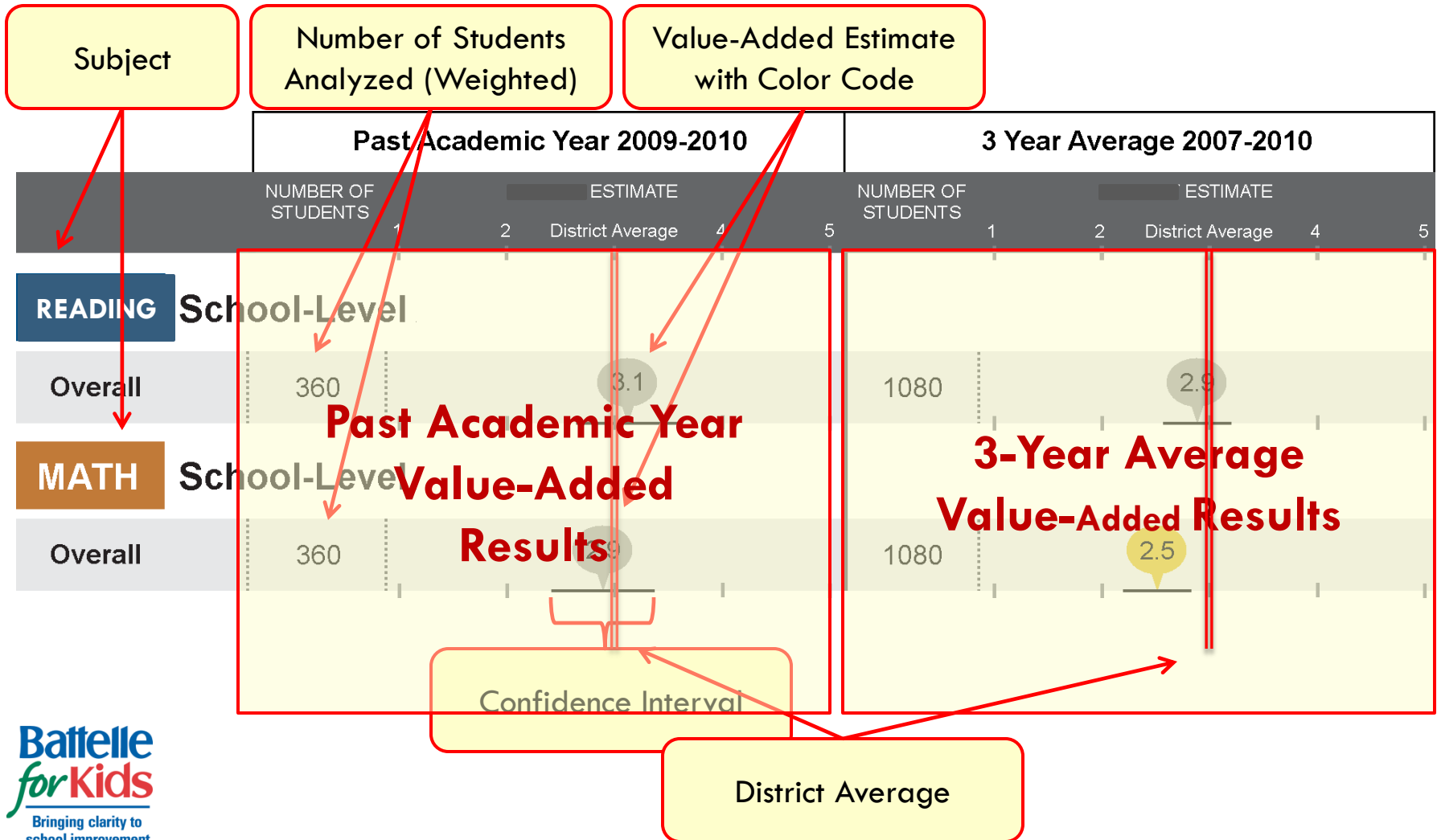**Bringing clarity to school improvement**

Control Variables

- Control variables help to make the predictions more accurate and relevant to a student.
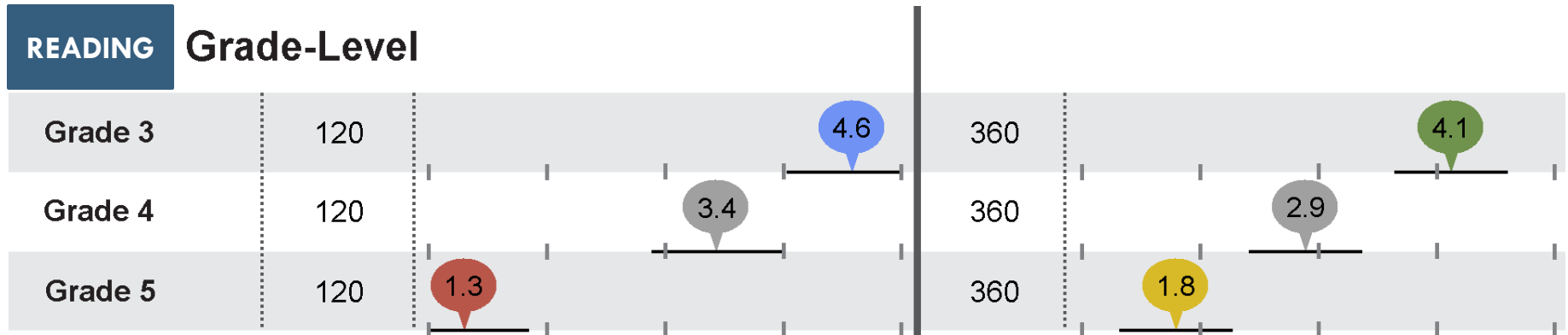- Aren't always perfect.

Checking for Understanding

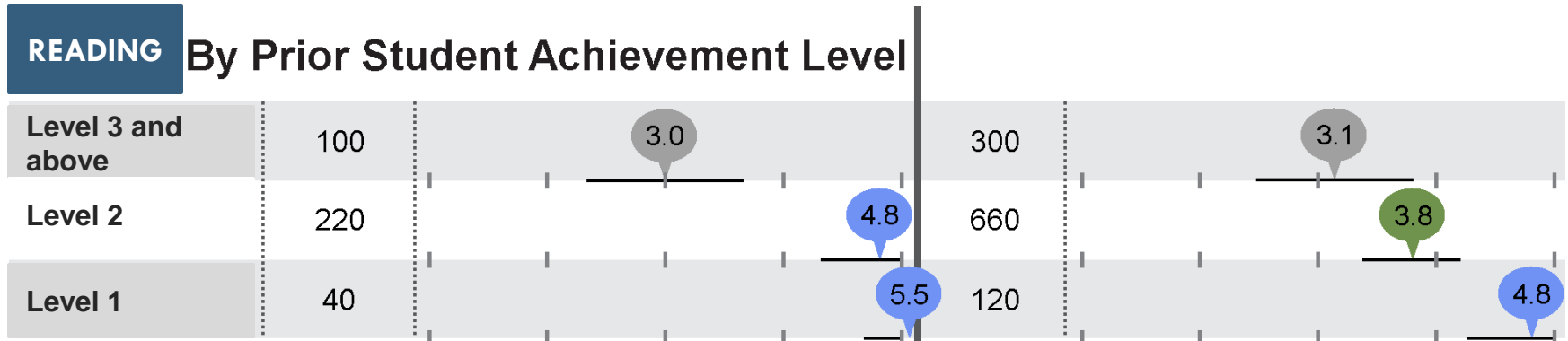# Example Reporting

Value-Added Reporting

Grade-Level Results

READING	Grade-Level			
Grade 3	120	4.6	360	4.1
Grade 4	120	3.4	360	2.9
Grade 5	120	1.3	360	1.8

- In the previous slide, this school's overall ELA was 3.1 – at the district average or predicted performance.

- Is the grade-level performance in ELA consistent with the overall result?

- What could be contributing to our strengths? Our problems? Develop a hypothesis.

Teacher Effectiveness

READING	By Prior Student Achievement Level		
Level 3 and above	100	3.0	300 · 3.1
Level 2	220	4.8	660 · 3.8
Level 1	40	5.5	120 · 4.8

Hypothesize & report out a potential problem related to:

1. Planning and Preparation
   - Standards-based activities
   - Student assessment for learning

3. Instruction
   - Questioning & discussion techniques
   - Engage students in learning
   - Assessment in instruction to advance student learning

Checking for Understanding

www.BattelleforKids.org

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