Assessing Character:

Measuring noncognitive factors that matter for school performance

Character Education for a Challenging Century
October 23, 2014

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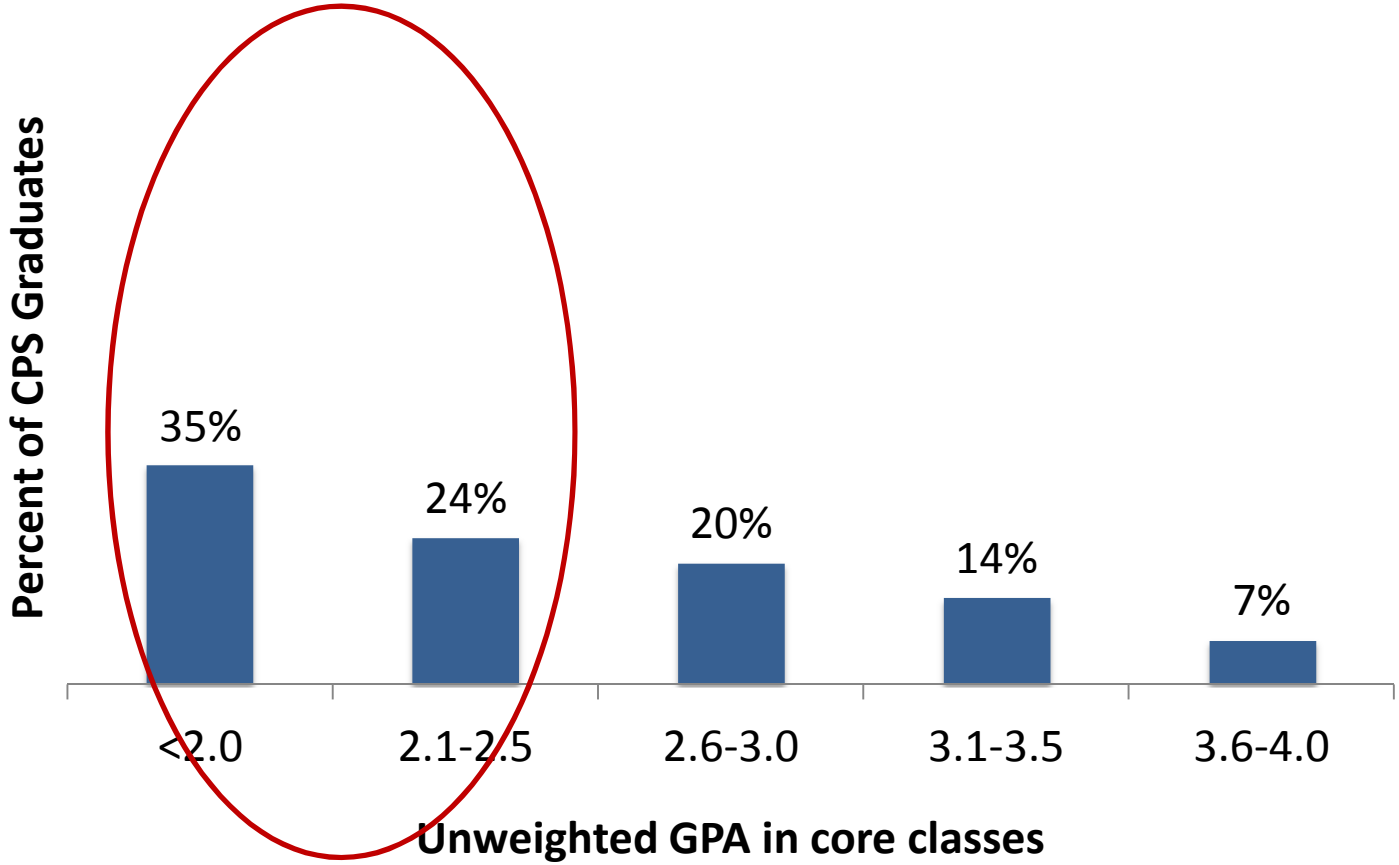
Today

- What are “noncognitive performance character factors,” and how does the research on noncognitive factors challenge our understanding of character?

- How do we assess the noncognitive performance character factors that shape school experiences and outcomes?

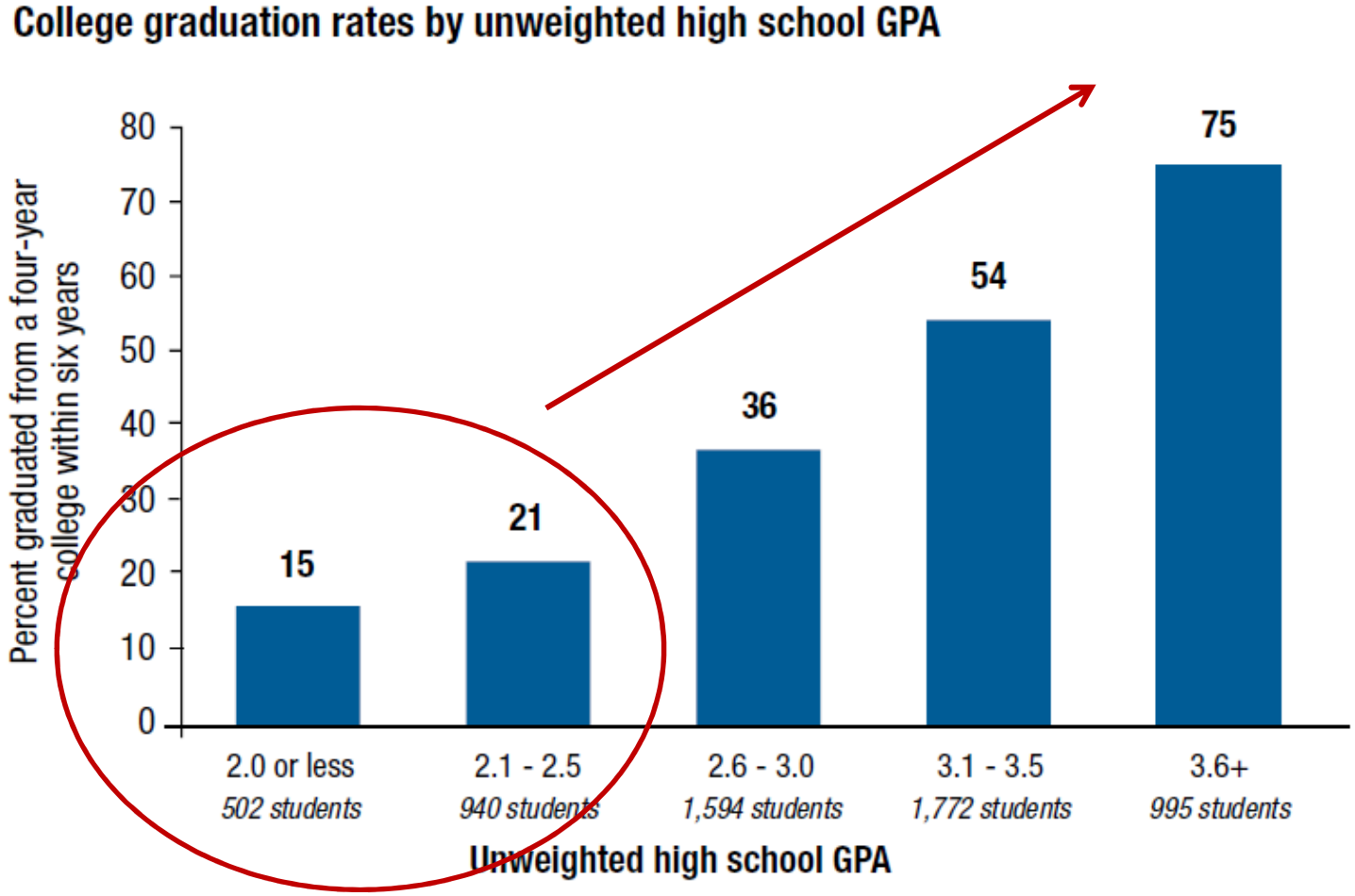
Grades are VERY LOW in Chicago public high schools

Over 50 percent of CPS *graduates* finish school with a high school GPA of 2.5 or less in their core classes.



Chicago Public Schools
2002 and 2003 graduates

Students who enroll in a four-year university with a high school GPA of 2.5 or lower are very unlikely earn a university degree



Note: These were CPS alumni who enrolled full time in a four-year college by spring following their high school graduation and enrolled in a college for which we have graduation information.

Grades

- Grades are better predictors than test scores of long-term **educational outcomes** (high school graduation, university enrollment, university graduation)
- Grades are better predictors of **life outcomes** (wages, health, longevity, civic participation)
- Grades are where we observe growing **gaps** by race/ethnicity, socio-economic status, and gender

The Good News

- **Grades are malleable**
  - **Students** have a lot of control over their grades
  - **Teachers** have a lot of control over conditions that support high grades

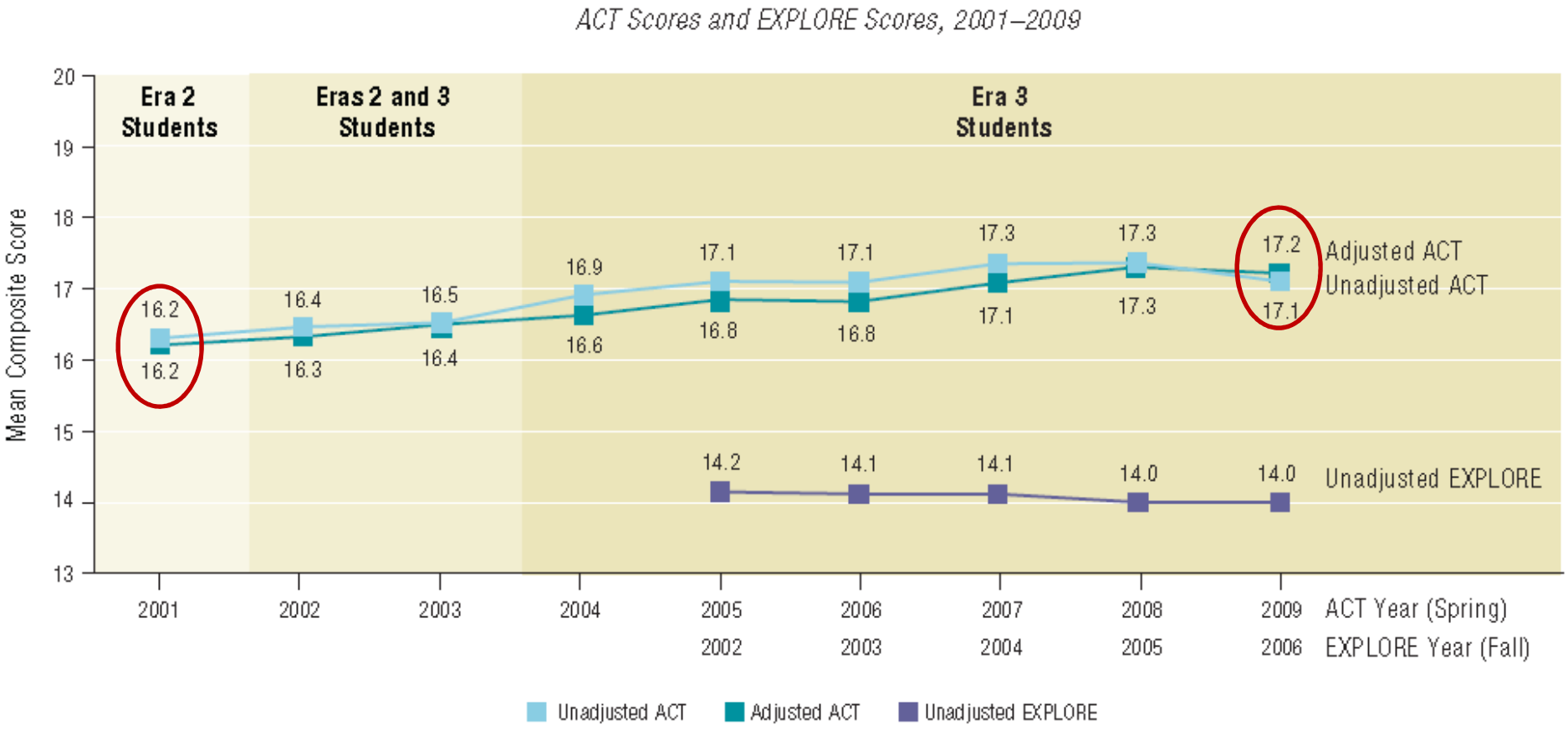
Bad News:
Era of Test-based Accountability

- Standardized tests used to assess students' content knowledge and academic skills
- Standardized tests are used to rate the quality of schools and teachers
- Enormous pressure on schools/teachers to raise test scores → primary goal of instruction

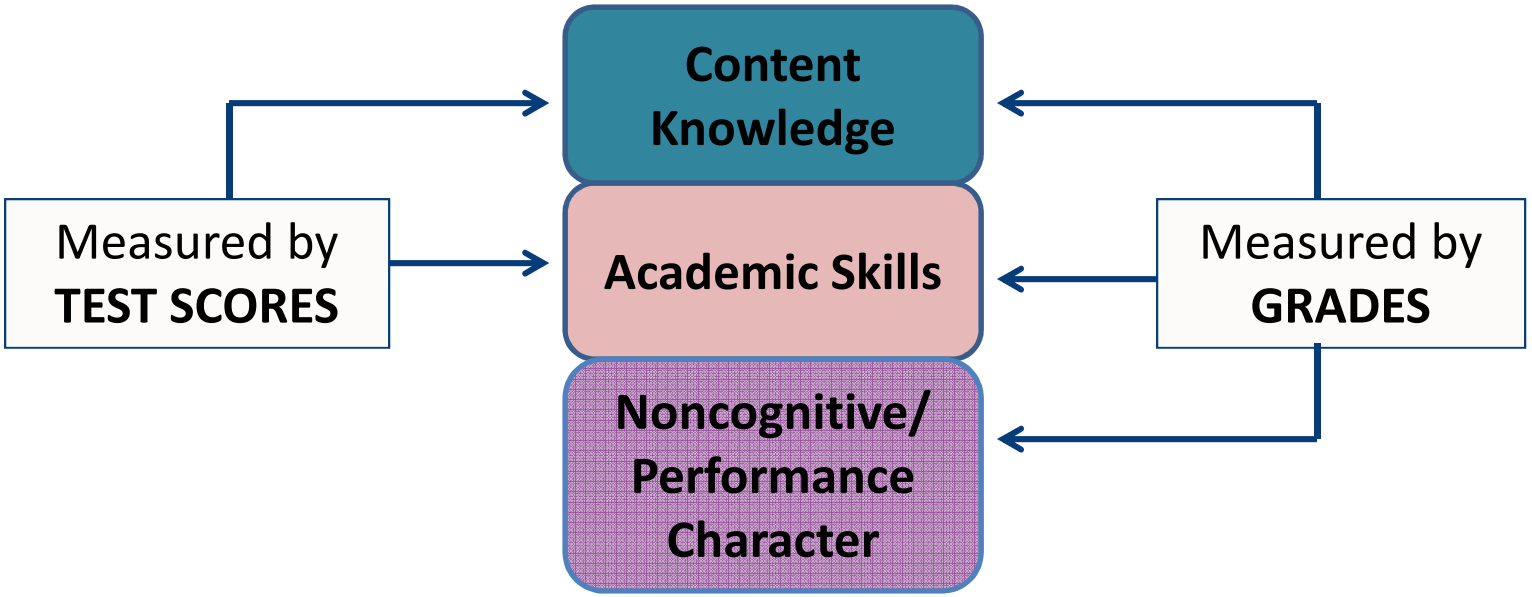
from CCSR report: *Trends in Chicago's Schools across Three Eras of Reform: Summary of Key Findings* (Luppescu, Allensworth, Moore, de la Torre, & Murphy, 2011)

FIGURE 9

Eleventh grade ACT scores have been rising, even though entering ninth grade EXPLORE scores have been flat



What makes a Grade?



Noncognitive Performance Character vs Cognitive Factors

- *Not measured by cognitive tests* (achievement or IQ tests)
  - Not content knowledge
  - Not core academic skills
- Other skills, behaviors, strategies, beliefs, attitudes related to school performance

Noncognitive Performance vs Noncognitive Moral Character

- Moral factors:
  - integrity, ethics, gratitude,
  - what makes good or bad *people*
- Performance factors:
  - "qualities that allow individuals to regulate their thoughts and actions in ways that support achievement in a particular endeavor"[1]
  - contributing to successful or unsuccessful *student*

– (Lickona & Davidson, 2005)

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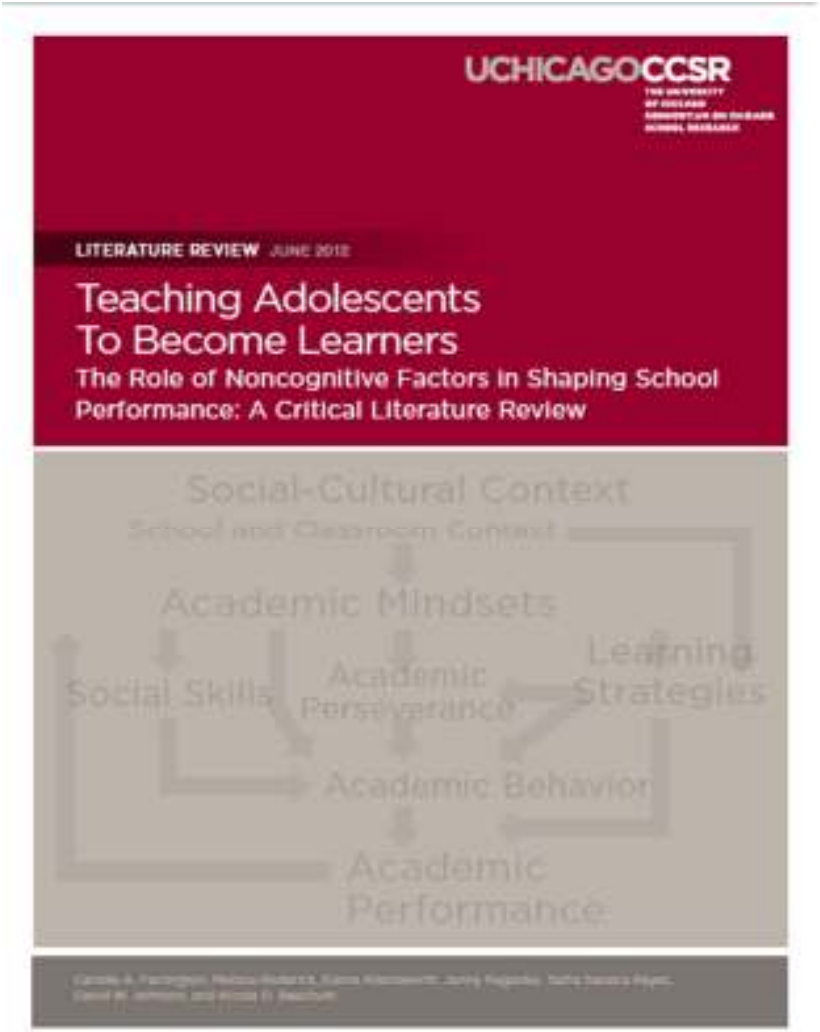
Jenny Nagaoka, Tasha Seneca Keyes, David W. Johnson, Nicole O. Williams



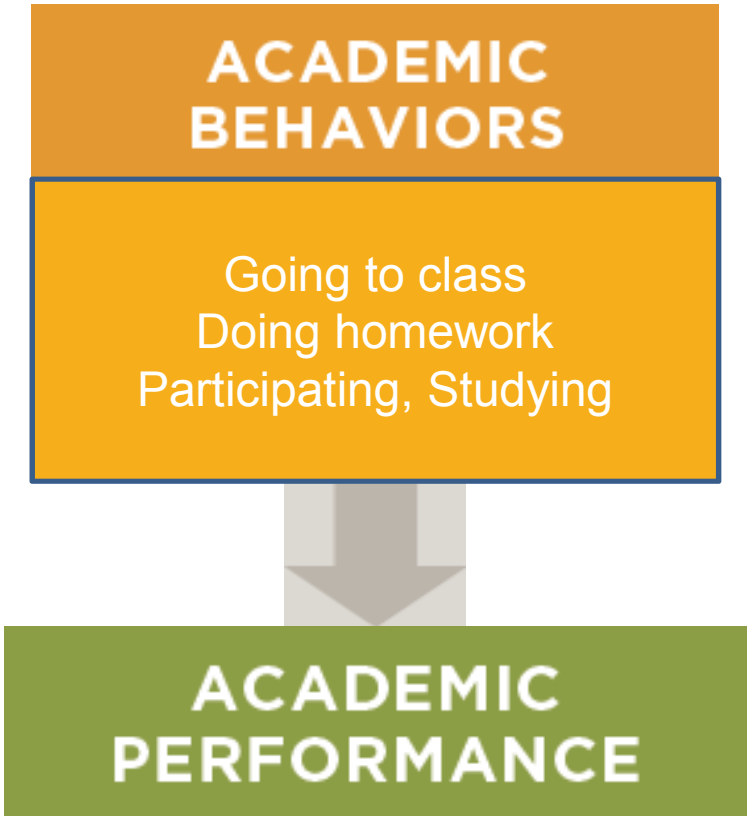
Literature Review Goals

- What noncognitive character factors matter for performance?

- Address practitioner demand for understanding the leverage points and mechanisms for grade improvement in the classroom?

Key Findings of Literature Review

1. Improving students' grades requires improving their **academic behaviors** and building their **academic perseverance**



Academic Behaviors

- Going to class
- Doing homework
- Participating
- Studying
- *Improving academic behaviors is the only way to improve grades!*

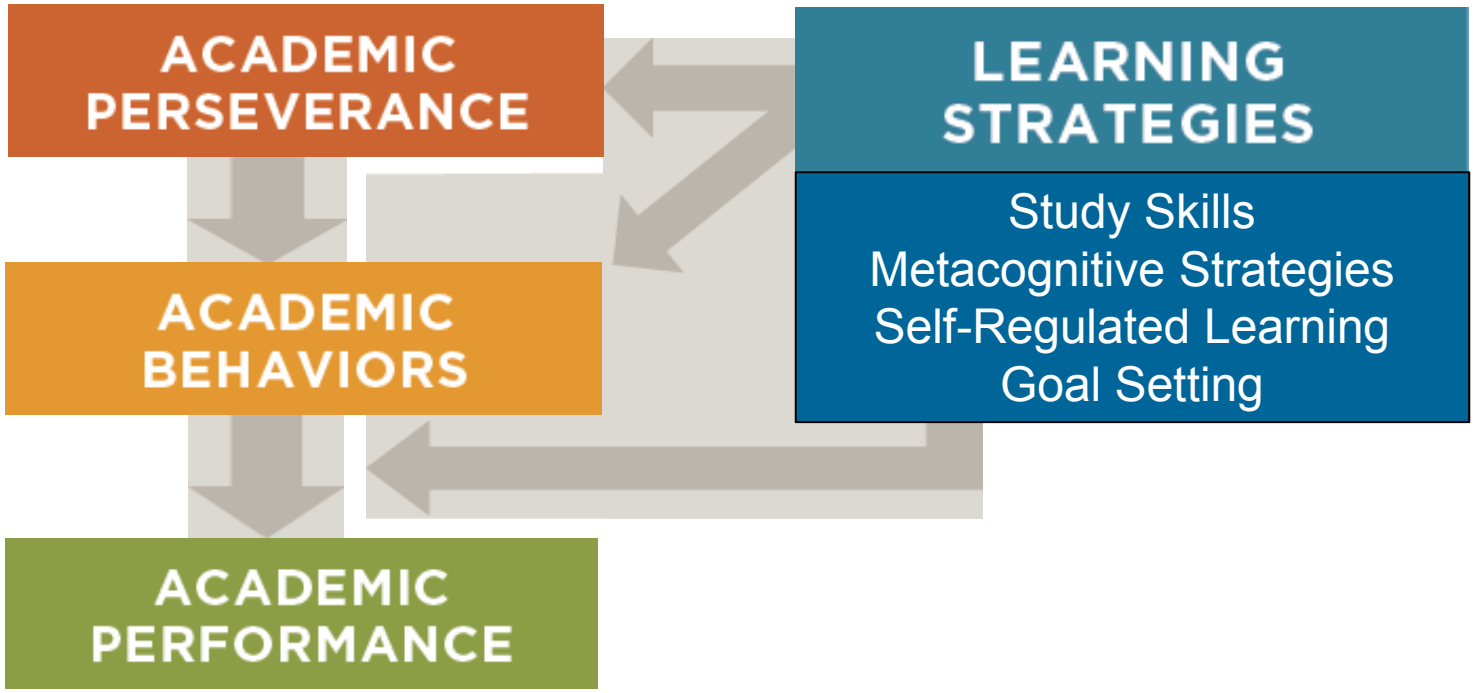
Academic Perseverance

- Self-Control
- Academic Delay of Gratification
- *Ability and tendency to see things through to completion despite distractions or obstacles*

Key Findings of Literature Review

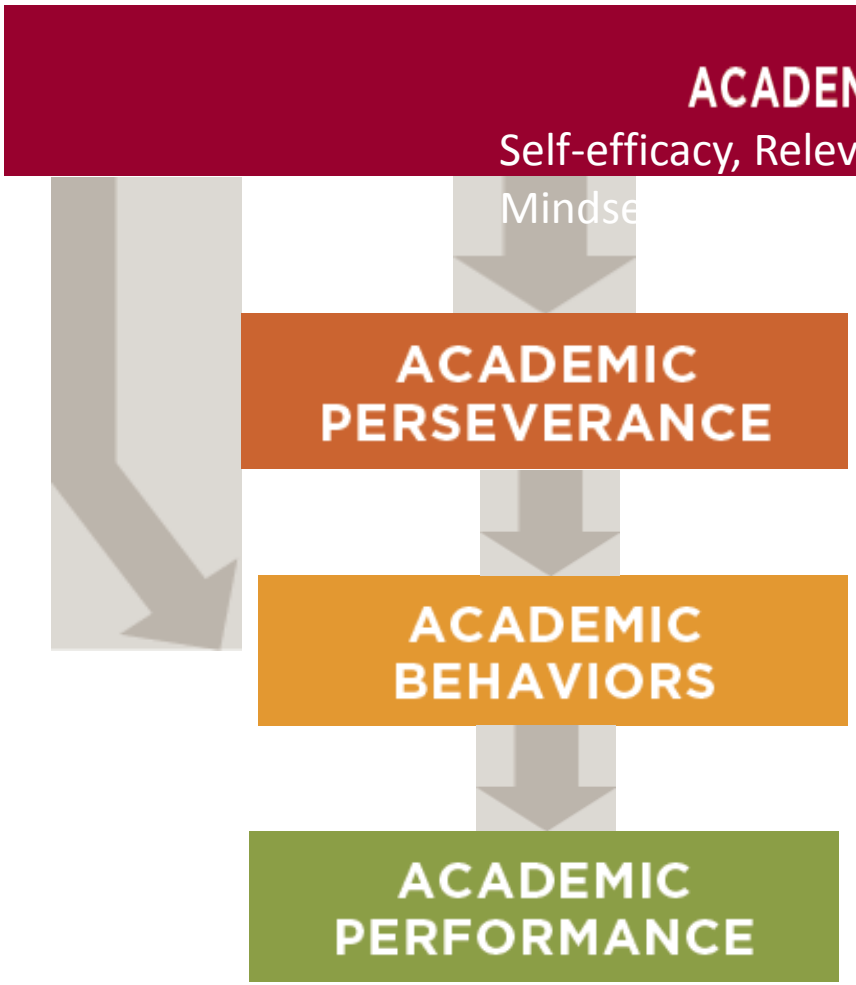
1. Improving students' grades requires improving their **academic behaviors** and building their **academic perseverance**

2. **Academic mindsets and learning strategies** are key levers for improving students' **academic behaviors** and **academic perseverance** (and hence for raising their grades)



Learning Strategies

- Goal setting/Time management
- Identifying Task Demands
- Monitoring



Academic Mindsets

Beliefs about oneself in relation to academic work.

My ability and competence grow with my effort

Key Findings of Literature Review

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3. **Classroom context** and **teacher instructional practices** play a crucial role in fostering **mindsets, strategies, and thus, character**

Effect of the Classroom Context

- Noncognitive Performance Character is a property of the person? YES!
  - Genetics
  - Social learning
  - Development over time

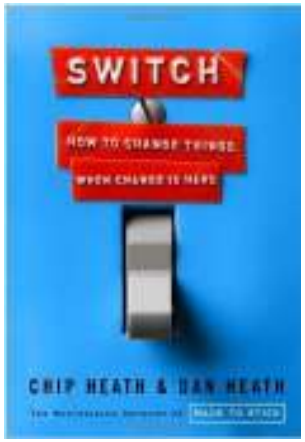
Effect of the Classroom Context

- Walter Mischel
  - ✓ The importance of the situation!

- Heath & Heath, *Switch*
  - ✓ The power of the situation!
  - ✓ Gluttony is as extreme as the popcorn tub is deep

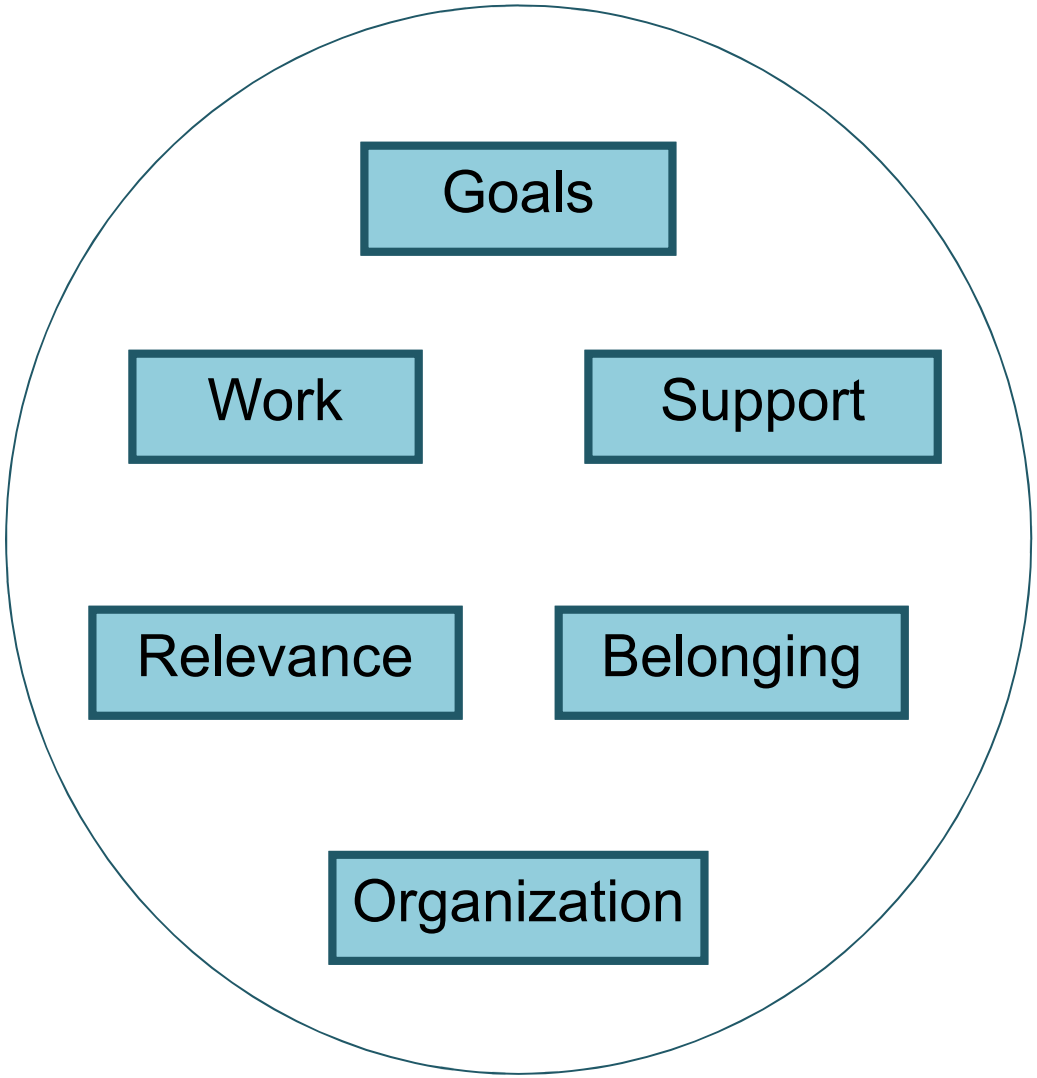
Effect of the Classroom Context

- Explicit messages are important:
  - Direct the Rider
  - Drink 1% or Skim

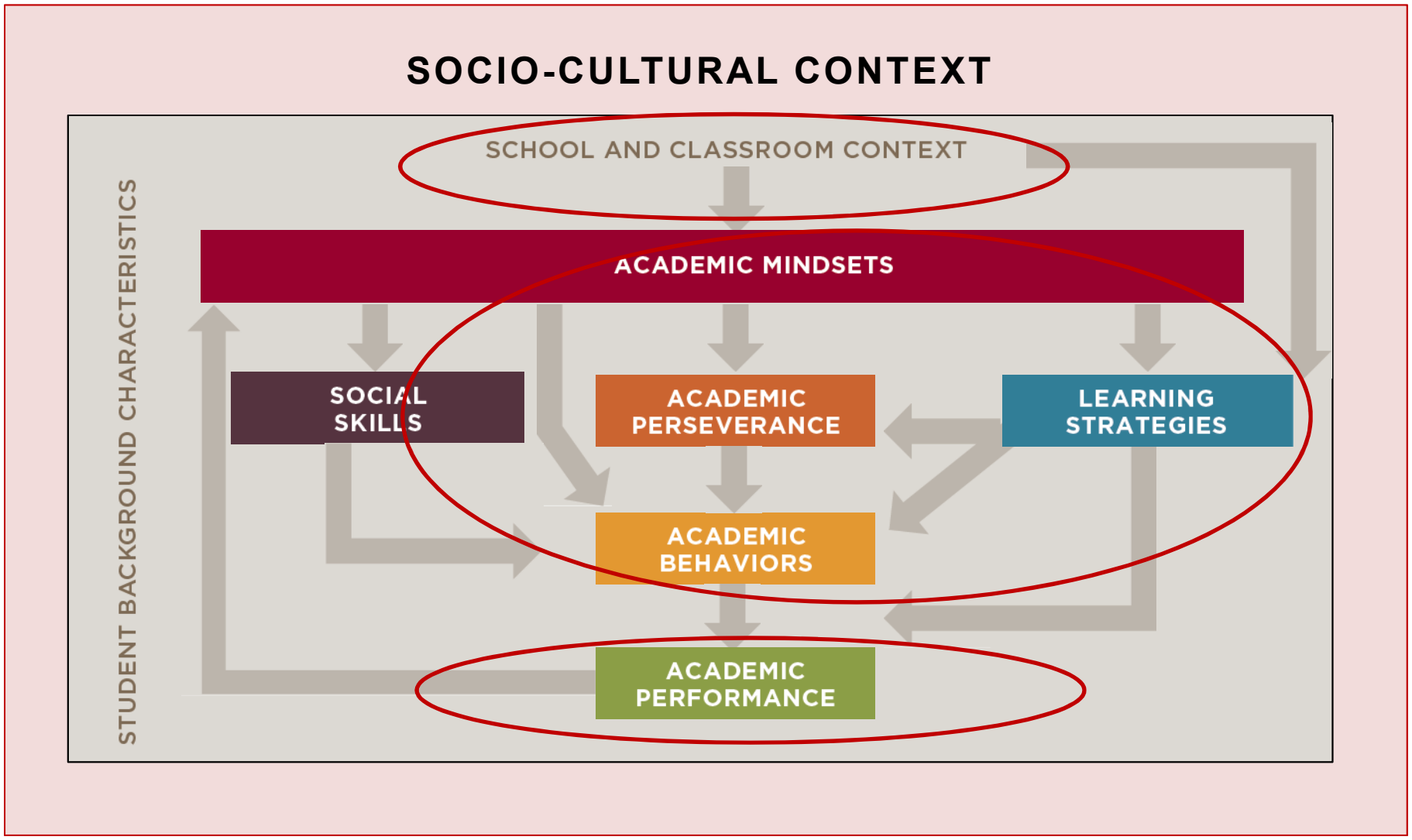


- Implicit messages are important:
  - Shape the pathway
  - Classroom systems, structures, policies, practices, opportunities, interactions, values, & norms

Classroom Context Variables measured by *Becoming Effective Learners* Student Survey



CCSR Model: The Role of Noncognitive Factors in School Performance



Key Gaps Identified

- There is **no single existing instrument** that measures the factors that research suggests are important for student performance in *the context of the classroom*
  - Disambiguated, separable measures
  - Mechanisms, leverage points, and how it all fits together

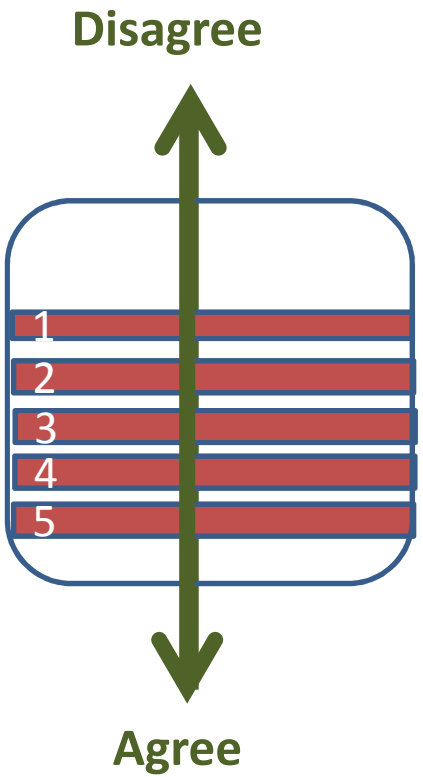
Filling the Gap

- Best Measures of NPCF Must be able to capture:
  - The “heart” of the construct/concept
  - Both **properties of individual students** and **influence of students’ contexts**

RASCH measurement
versus
Traditional survey measurement
of psychological constructs

Traditional psychological survey measurement:

1. Define a construct, sometimes “fuzzy”
2. Develop series of closely similar items to gauge the stability of person’s responses
3. Differentiate between people using response scales: focus on magnitude



Example: Measuring Growth vs. Fixed Mindset

(using Carol Dweck's items)

How true are the following statements*:*

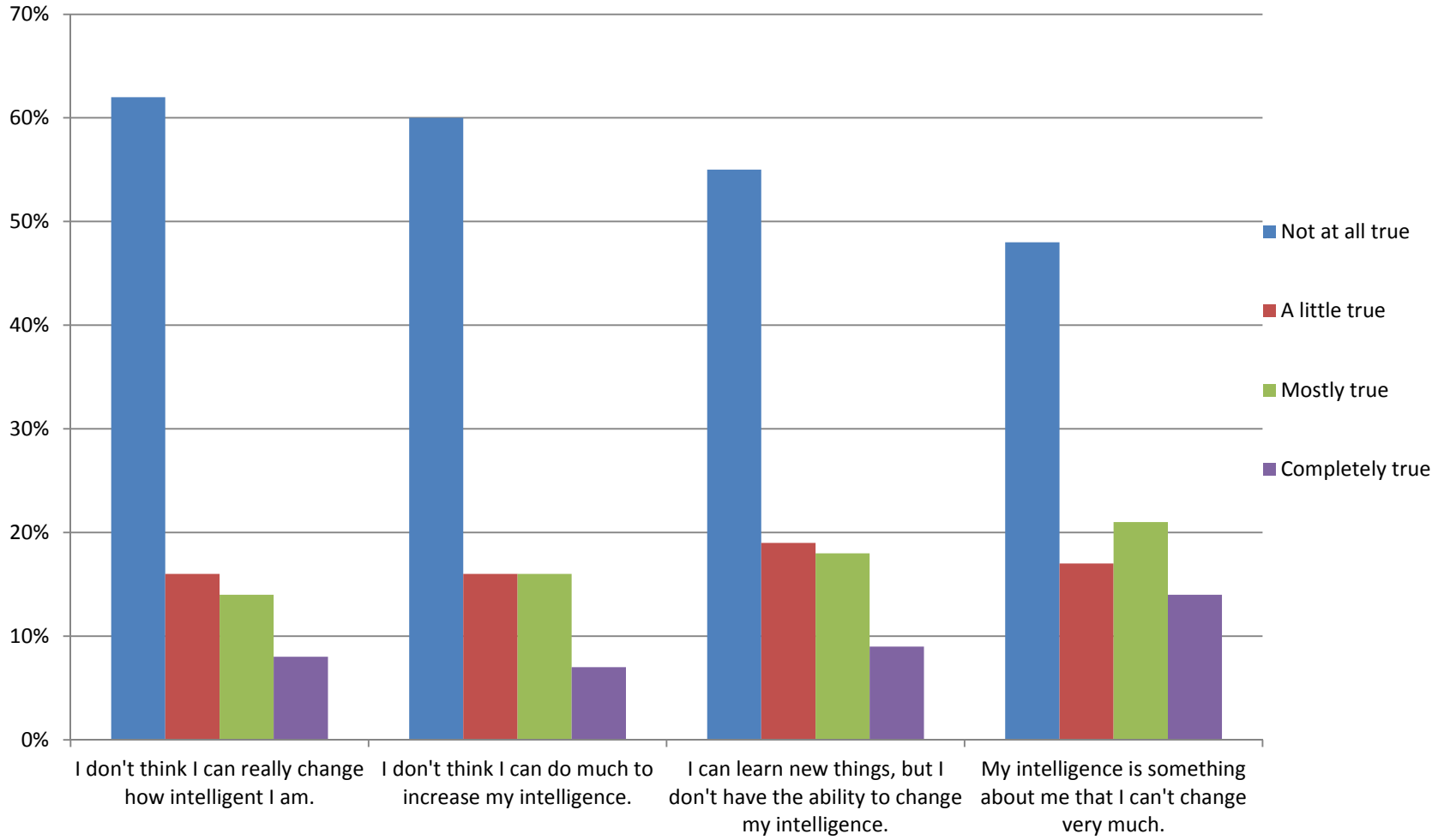
- My intelligence is something about me that I can't change very much.
- I don't think I can really change how intelligent I am.
- I can learn new things, but I don't have the ability to change my intelligence.
- I don't think I can do much to increase my intelligence.

Not at all true, A little true, Mostly true, Completely true

Becoming Effective Learners Student Pilot

- Large-scale web survey of students in grades 6-12
    - Part of sample responded about 2 different classrooms for many of the constructs
- 30 US Charter schools (N, 8000)
- 9 Chicago Public Schools (N, 600)

Theories of Intelligence: Fixed Mindset



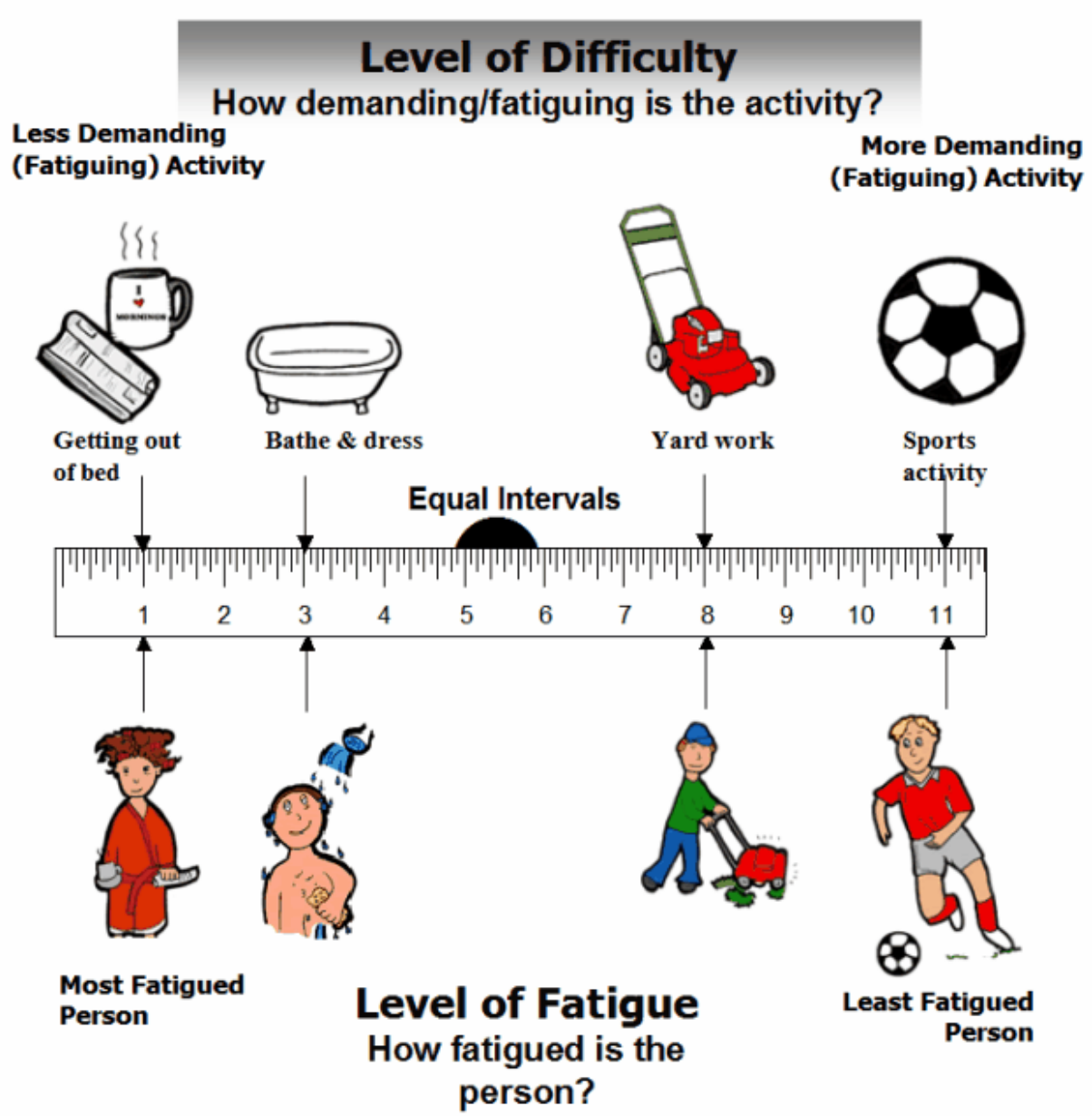


Figure: Measurement map of Fatigue. (Mallinson, 2001)

Rasch Measurement

- Using items of varying difficulty increases the accuracy of measurement

- Developed for cognitive assessments (standardized tests)
  - Difficulty on cognitive assessments vs. psychological assessments

Example:

Measuring a student's grasp of multiplication

Please select the correct answer for each of the following multiplication problems:

1) 9 x 5 =
2) 4 x 3 =
3) 8 x 2 =
4) 6 x 1 =

Example:

Measuring a student's grasp of multiplication

Please select the correct answer for each of the following multiplication problems:

1) 9 x 5 =
2) 4 x 31 =
3) 8.2 x 2.6 =
4) 637 x 428 =
5) 3/5 x 2/3 =

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(using Carol Dweck's items)

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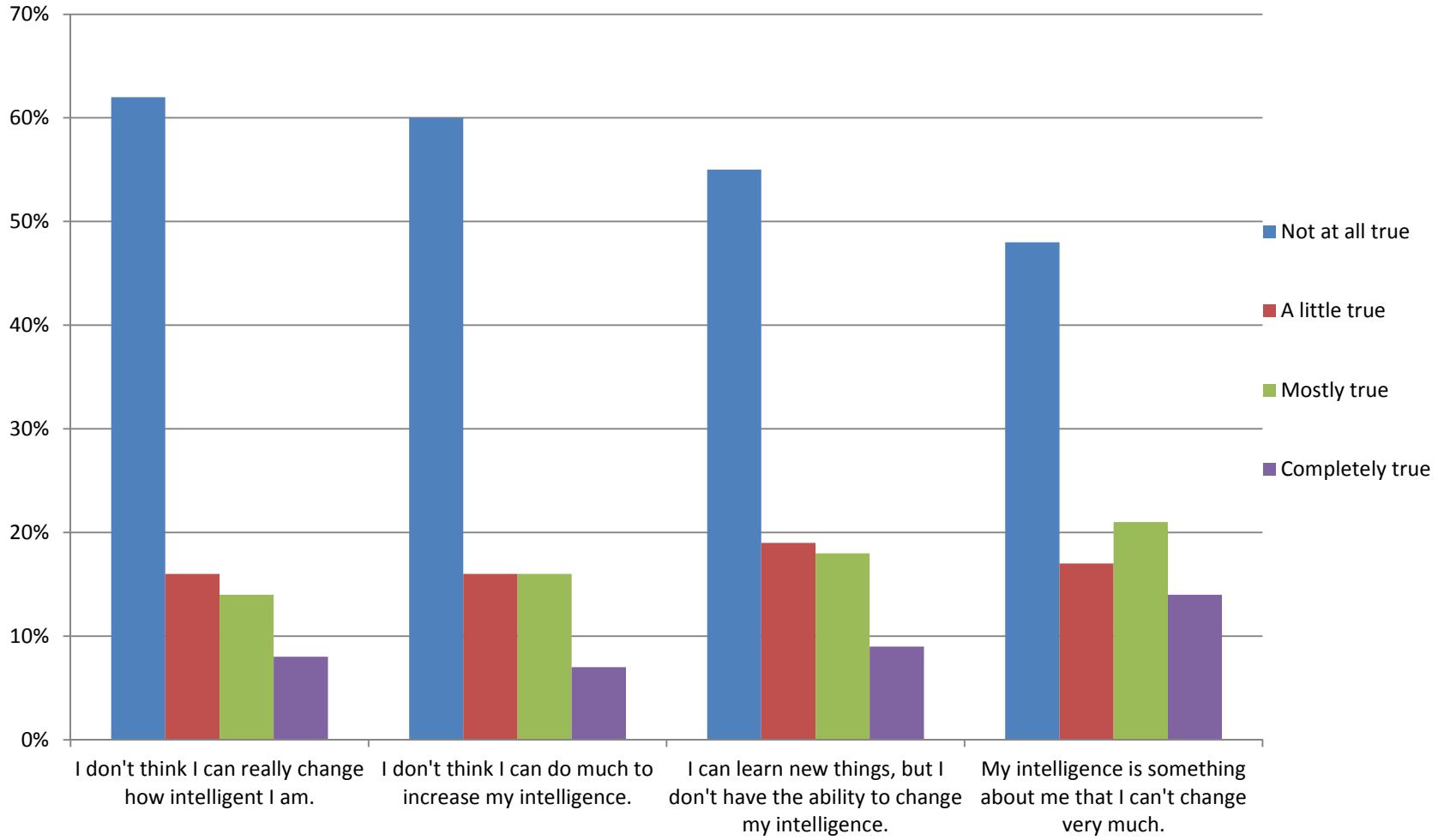


Item Difficulty in Rasch

- Tried to rewrite items of increasing difficulty when creating the survey using original scale as foundation
  - Needed to add EASIER items

- Difficulty is how easy or hard it is for someone to agree (endorse an item)

Example:

Fixed (Growth) Mindset

Revised Measure *BEL-S* Fall 2013 Theories of Intelligence: Fixed Mindset

How true are the following statements:

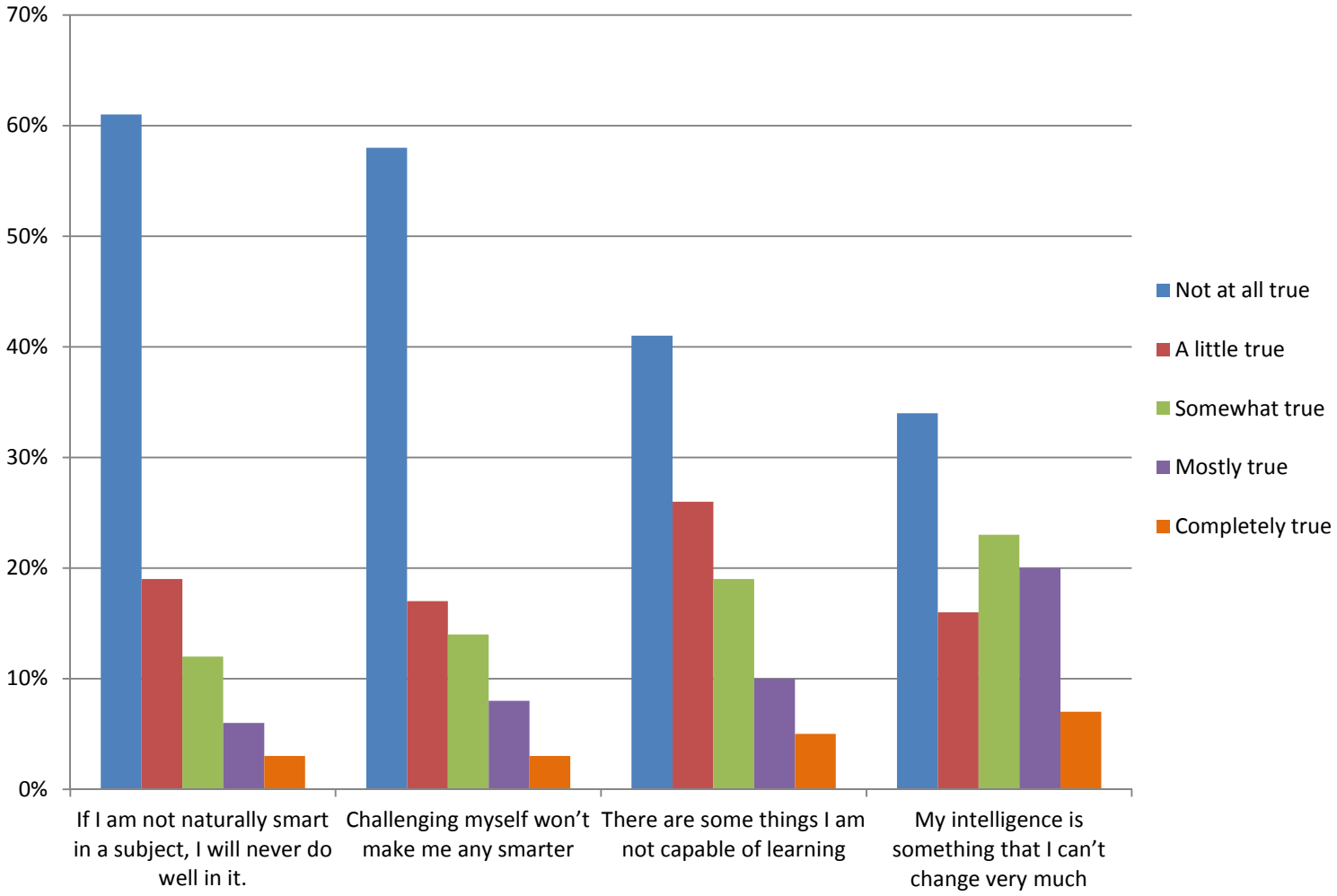
- My intelligence is something that I can't change very much.
- There are some things I'm not capable of learning.
- Challenging myself won't make me any smarter.
- If I'm not naturally smart in a subject, I will never do well in it.

Not at all true, A little true, Somewhat true, Mostly true, Completely true

Becoming Effective Learners T1

- Large-scale web survey of students in grades 6-12
- US charter schools (N, 8000)
- Chicago Public Schools (N, 650)

Theories of Intelligence: Fixed Mindset



Classroom Belonging Context

- Accuracy of category
- Assess qualitative differences

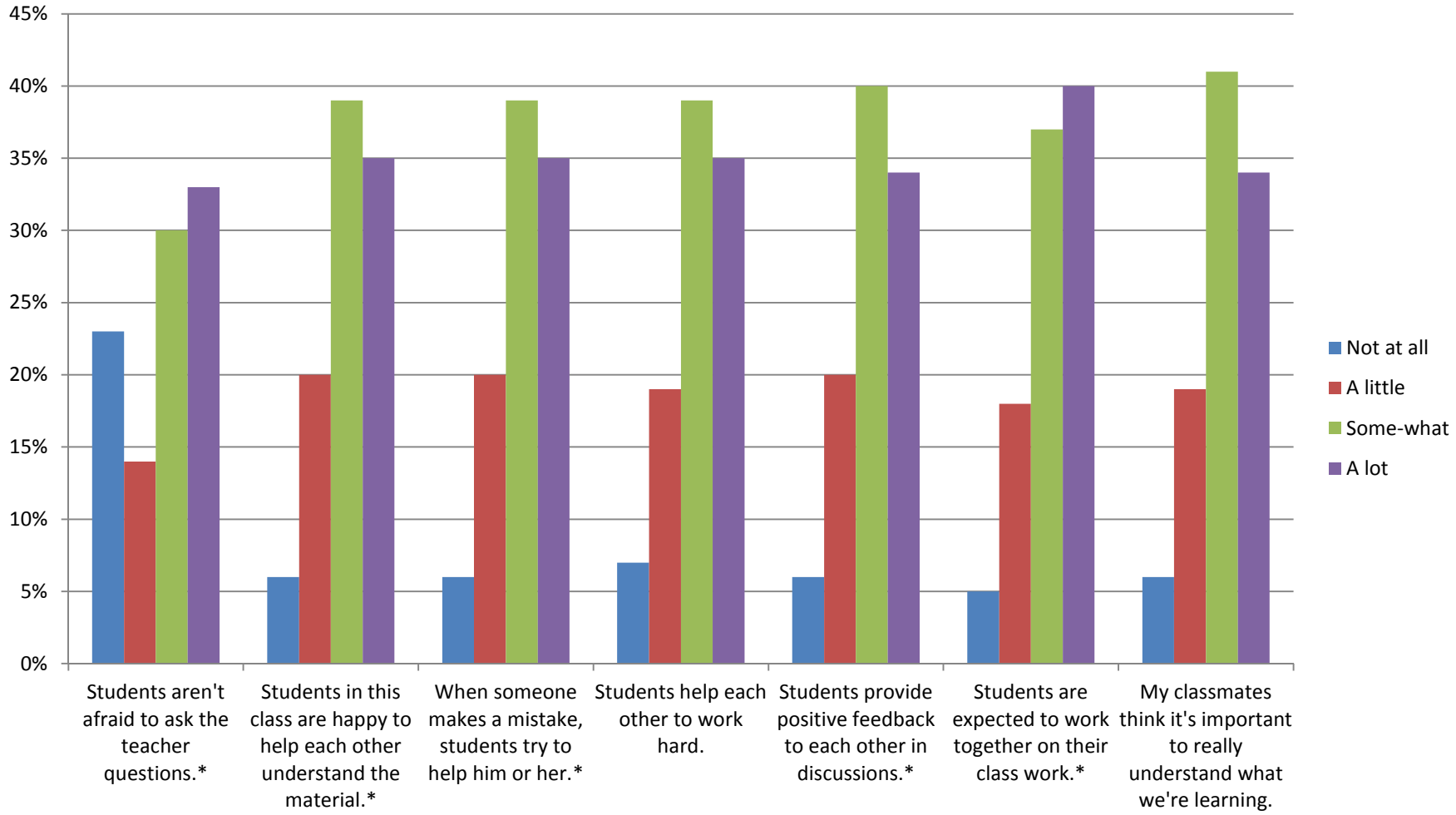
Belonging as a Classroom Condition

How much do the following statements describe your classmates in your [TARGET CLASS]?

- Students aren't afraid to ask the teacher questions.
- Students in this class are happy to help each other understand the material.
- When someone makes a mistake, students try to help him or her.
- Students help each other to work hard.
- Students provide positive feedback to each other in discussions.
- Students are expected to work together on their class work.
- My classmates think it's important to really understand what we're learning.

Not at all, A little, Somewhat, A lot

Belonging as a Classroom Condition



Classroom Belonging Context

- Needed to create a scale that layered the qualitative differences that exist in “high belongingness” classrooms versus “low belongingness” classrooms

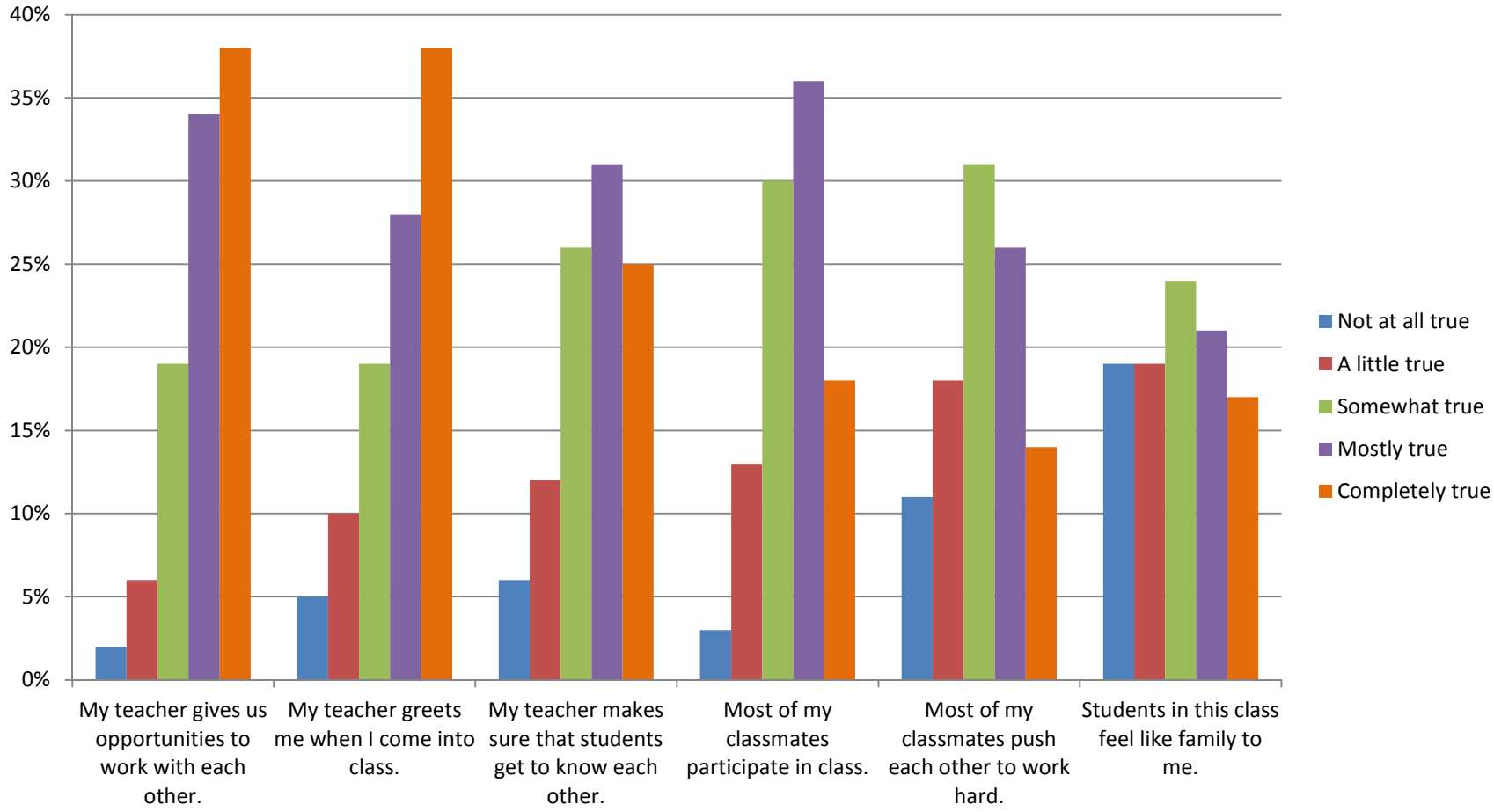
Belonging as a Classroom Condition

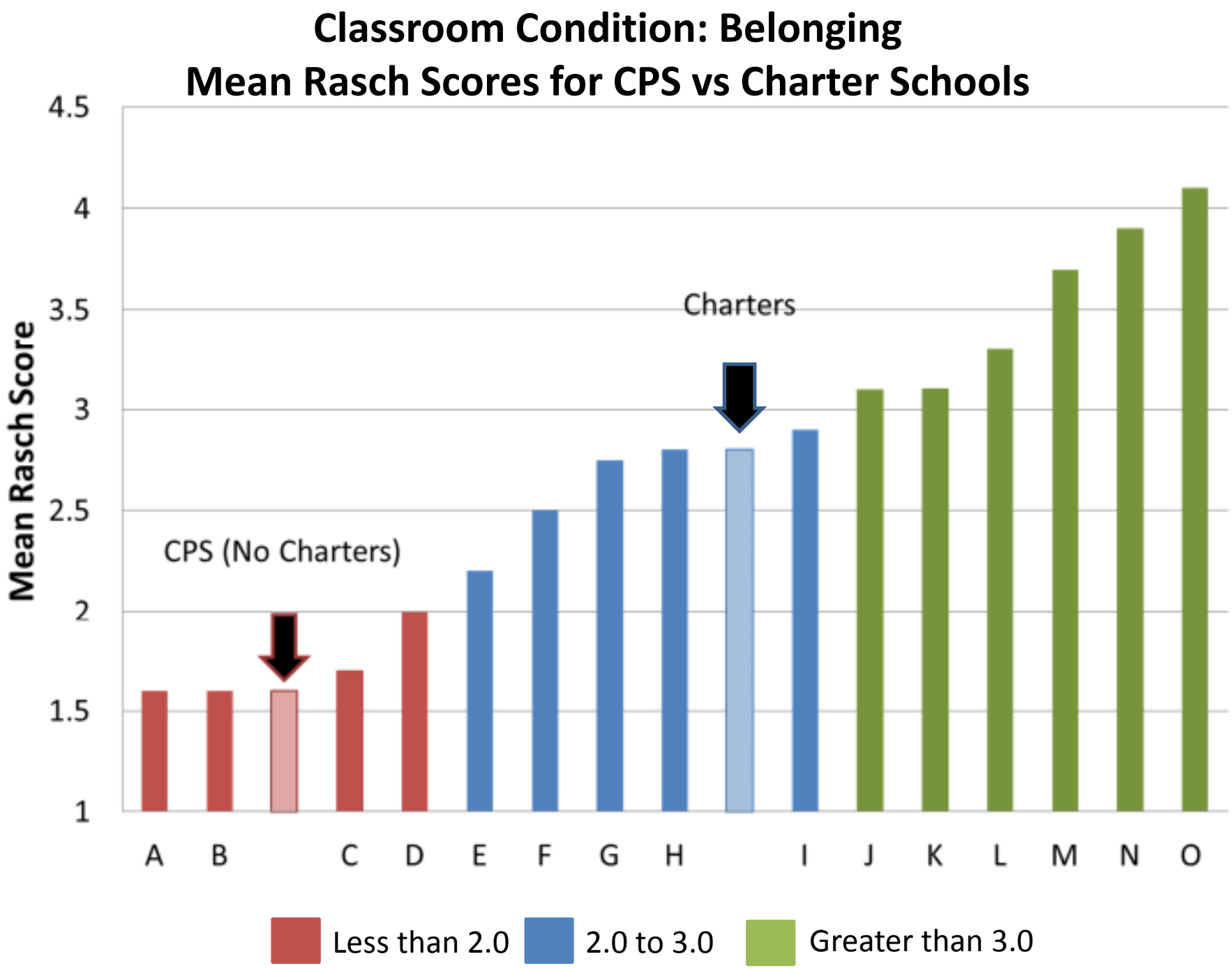
How true are the following in your [TARGET] class?

- My teacher gives us opportunities to work with each other.
- My teacher greets me when I come into class.
- My teacher makes sure that students get to know each other.
- Most of my classmates participate in class.
- Most of my classmates push each other to work hard.
- Students in this class feel like family to me.

Not at all true, A little true, Somewhat true, Mostly true, Completely true

Belonging as a Classroom Condition




Classroom Condition: Belonging
Mean Rasch Scores for CPS vs Charter Schools
Mean Rasch Score
4.5
4
3.5
3
2.5
2
1.5
1
Charters
CPS (No Charters)
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
Less than 2.0
2.0 to 3.0
Greater than 3.0

Take-aways: Rasch Measurement

- Range of item difficulties helps us to articulate quantitative & qualitative differences between contexts/people

- Improving precision also helps us better conceptualize the context or noncognitive construct
  - Distinctions among constructs
  - Understand how they're related to one another

Next Steps

- Analyses to test the model
  - Relative importance of various character factors for grades
  - Relative importance of various context factors for character

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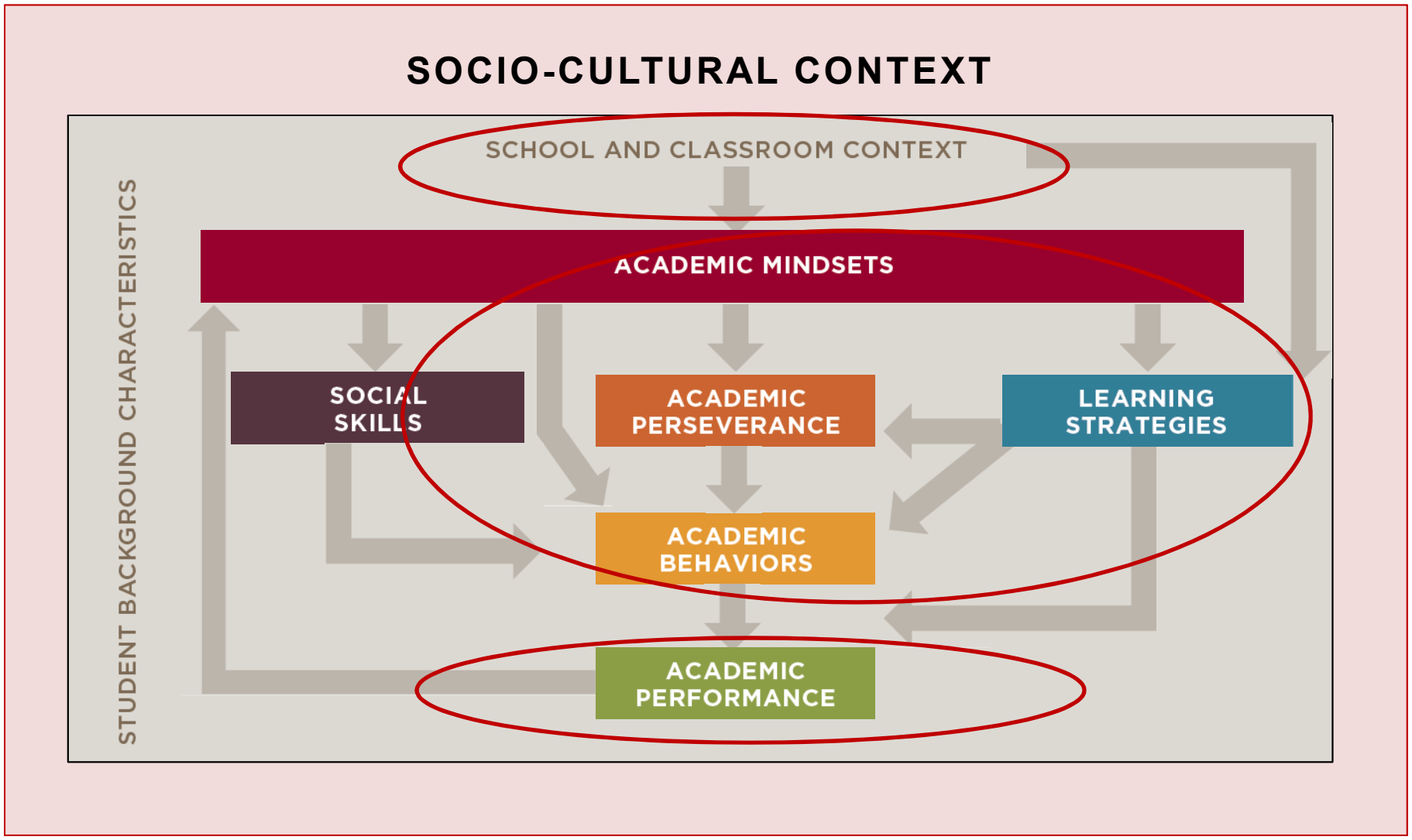

Challenges Ahead

- Measurement *has* improved
- Survey self-report still has a long way to go
  - Science of measurement ≠ Demand
- Go, be researchers (or at least work with them)!
  - Addressing problems of practice

Thank you!

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