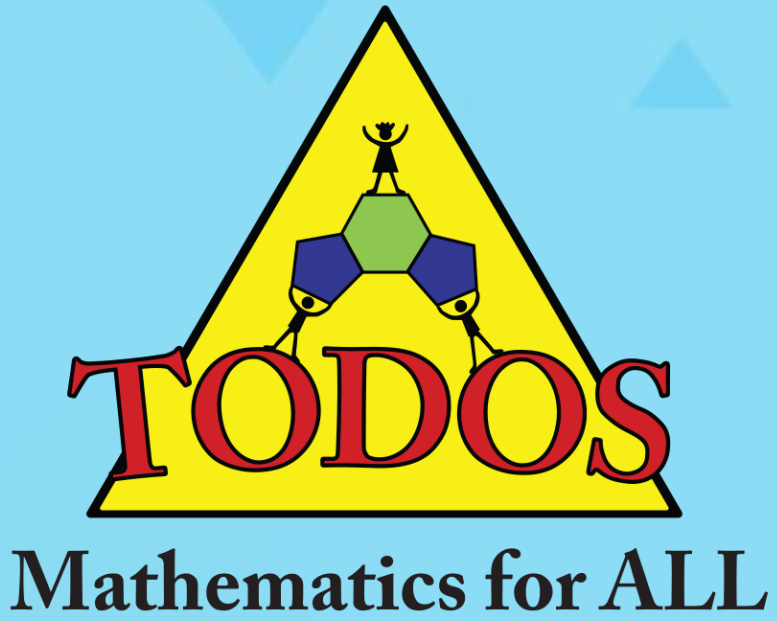
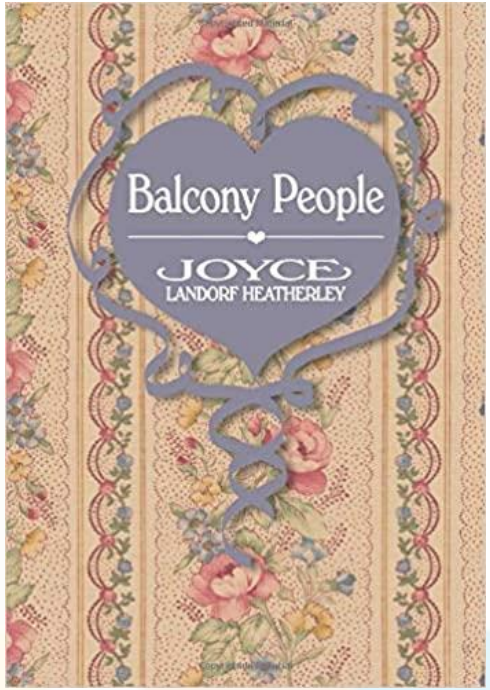


Changing the Narrative by Shifting Data Discussions

John W. Staley, @jstaley06
Baltimore County Public Schools
johnstaley64@gmail.com

Welcome



Some people are in the "balcony" of your life, cheering you on, energizing you with their affirmation.

Introduce yourself

- City, grade level, …
- ***Who is your "Balcony" person?***

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Christian
Black Man
Husband
Father
Educator
Leader
Advocate
Author

John W. Staley, Ph. D.
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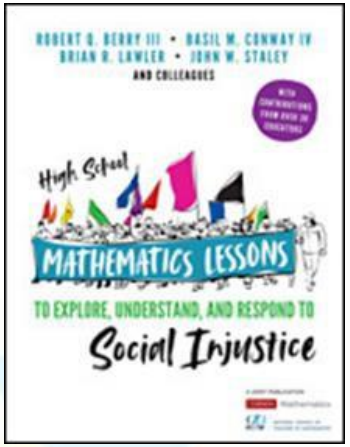
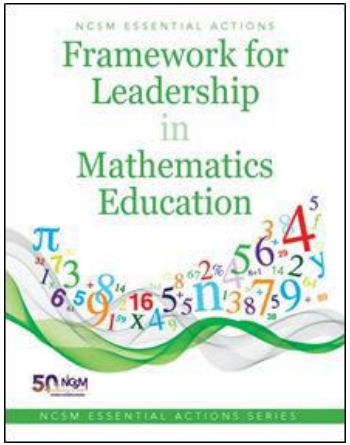
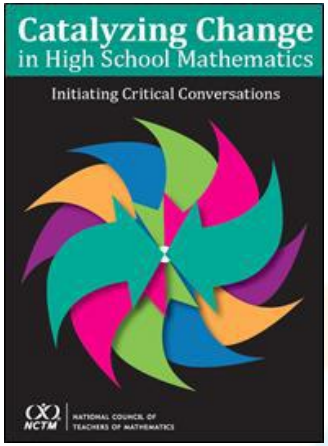


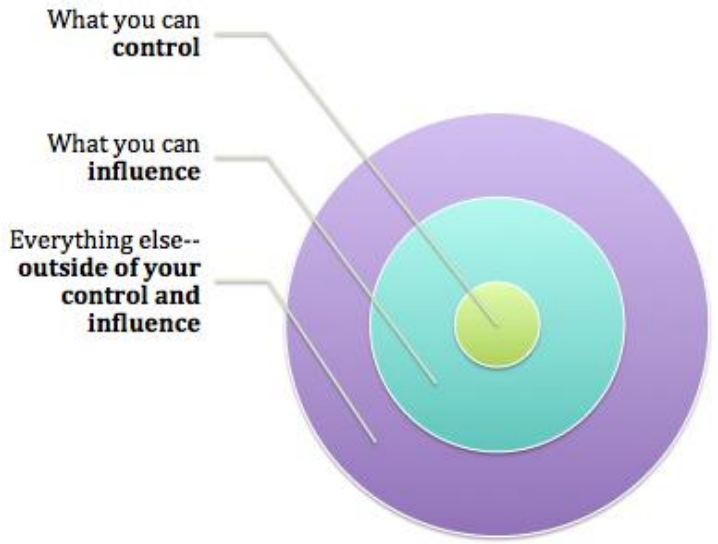




Engaging in the conversation

How might we…?

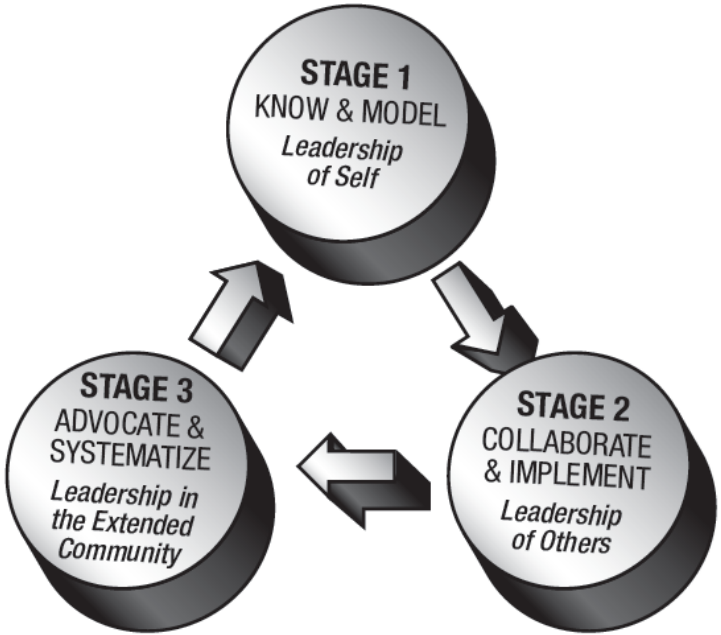
- ***How*** - assumes there are solutions out there – it provides creative confidence.
- ***Might*** - we can put ideas out there that might work or might not- either way, it's okay.
- ***We*** - we're going to do it together and build on each other's ideas.



*A More Beautiful Question (*Berger, 2014)

http://blogs.edweek.org/teachers/coaching_teachers/2014/01/spheres_of_control.html

As we engage in the work



Self	Others	Community

Figure I.4. Three Stages of Mathematics Leadership
Source: Adapted NCSM (2008).

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Our Question for Today

How might we shift practices of static deficit labeling of students and schools to develop a culture that cultivates a positive mathematics identity and affect in students as doers of mathematics?

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How do you analyze data?

- End of year assessments – State, Final, Regents, AP or IB
- Grade or Course unit exams
- Learning checks, quizzes, other types

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State and Local Assessments

How are the results of the assessments used to label…

- School systems?
- Schools?
- Classes?
- Groups of students?
- Students?

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How do the labels we use show up?

Words – Actions – Habits – Beliefs

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Meaningfulness	*Belongingness*	*Competence*

Resources of Knowledge	Headline			Strengths
Math				
Culture				
Language				Data Display
Family				
Community	flaws in reasoning	misconceptions	incomplete understanding	

Meaningfulness	*Belongingness*	*Competence*

Resources of Knowledge

Math

Culture

Language

Family

Community

Headline

?

What story do you want to tell?

Strengths

Data Display

flaws in reasoning	misconceptions	incomplete understanding

Meaningfulness	*Belongingness*	*Competence*

Resources of Knowledge

Math

Culture

Language

Family

Community

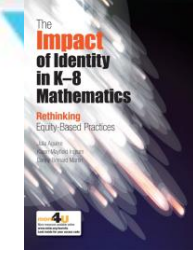
Headline

Strengths

Data Display

flaws in reasoning	misconceptions	incomplete understanding

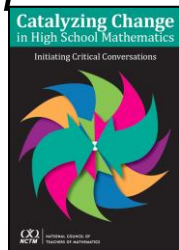
Mathematical Identity & Agency



Mathematical Identity – the dispositions and deeply held beliefs that students develop about their ability to participate and perform effectively in mathematical contexts and to use mathematics in powerful ways across the contexts of their lives. (p. 14)

Agency refers to the expression of one's identity. (Murrell, 2007)

> *… agency is expressed in ways that students engage in productive struggle, take risks to make their mathematical thinking visible, and understand that learning results when they successfully leverage an approach that works for them.*



Meaningfulness	Belongingness	Competence

Resources of Knowledge

- **Math**
- **Culture**
- **Language**
- **Family**
- **Community**

Headline

How do I access my students' funds of knowledge?

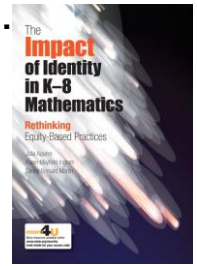
Strengths

Data Display

flaws in reasoning	misconceptions	incomplete understanding

Equity-Based Mathematics Teaching Practices

- Going deep with mathematics
- **Leveraging multiple mathematical competencies** – Recognizing and positioning students' various mathematical backgrounds and competencies…
- **Affirming mathematics learners' identities** – Instruction that values multiple mathematical contributions, provides multiple entry points, and promotes student participation in various ways…
- Challenging spaces of marginality
- **Drawing on multiple resources of knowledge** – Recognize and tap students' knowledge and experiences – mathematical, cultural, linguistic, peer, family, and community…



Aguirre, Mayfield-Ingram, and Bernard. *The Impact of Identity in K-8 Mathematics: Rethinking Equity Based Practices,* NCTM 2013

Resources of Knowledge

Math

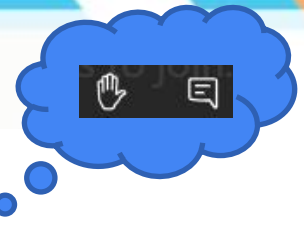
Culture

Language

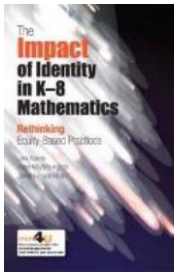
Family

Community

Resources of Knowledge



1. How do I make connections with students' previous math knowledge?
2. How do I get to know my students' backgrounds and experiences to support math learning in my classroom?
3. How do I affirm some of my students' multilingual abilities to help them learn math?
4. How can I learn from family and community members to support my students' mathematical confidence and learning?
5. How can I effectively communicate with families the strengths and needs of students to affirm their math identities and promote math learning?



Meaningfulness	Belongingness	Competence

Resources of Knowledge				
Math				
Culture				
Language				
Family				
Community	flaws in reasoning	misconceptions	incomplete understanding	

Headline

How do I design learning experiences with motivation in mind?

Strengths

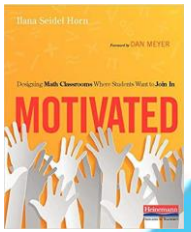
Data Display

Motivation Constructs

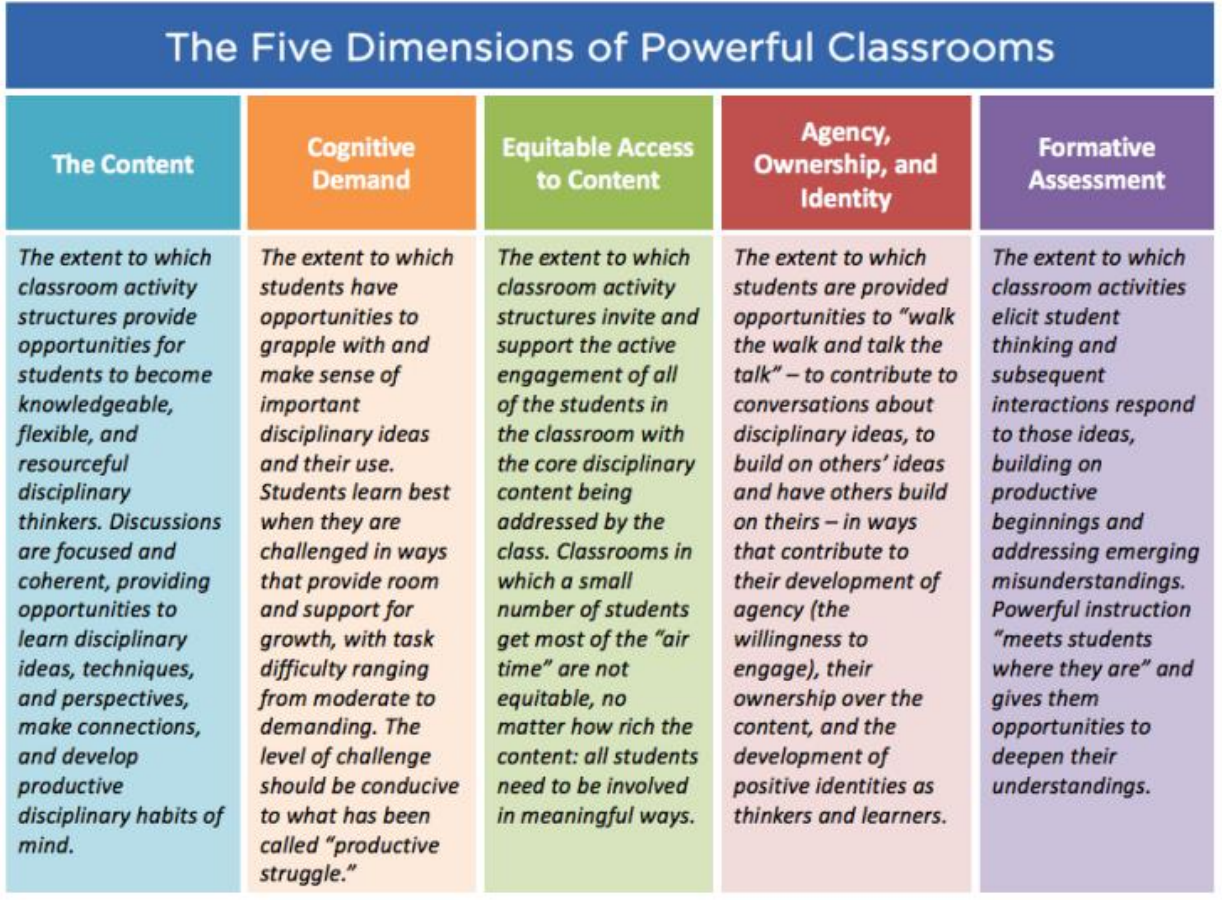
Meaningfulness *- When students connect their own curiosity and experience to ideas, thereby developing an interest in and appreciation for mathematical content.*

Belongingness - When students experience frequent, pleasant interaction with the sense that others are concerned about who they are and for their well-being.

Competence - The need to be successful in meeting goals and in interacting with the environment. Students' sense of competence is related to their sense of self-efficacy, the belief that they can successfully organize and perform a particular task.



Teaching for Robust Understanding (TRU) MATH Framework

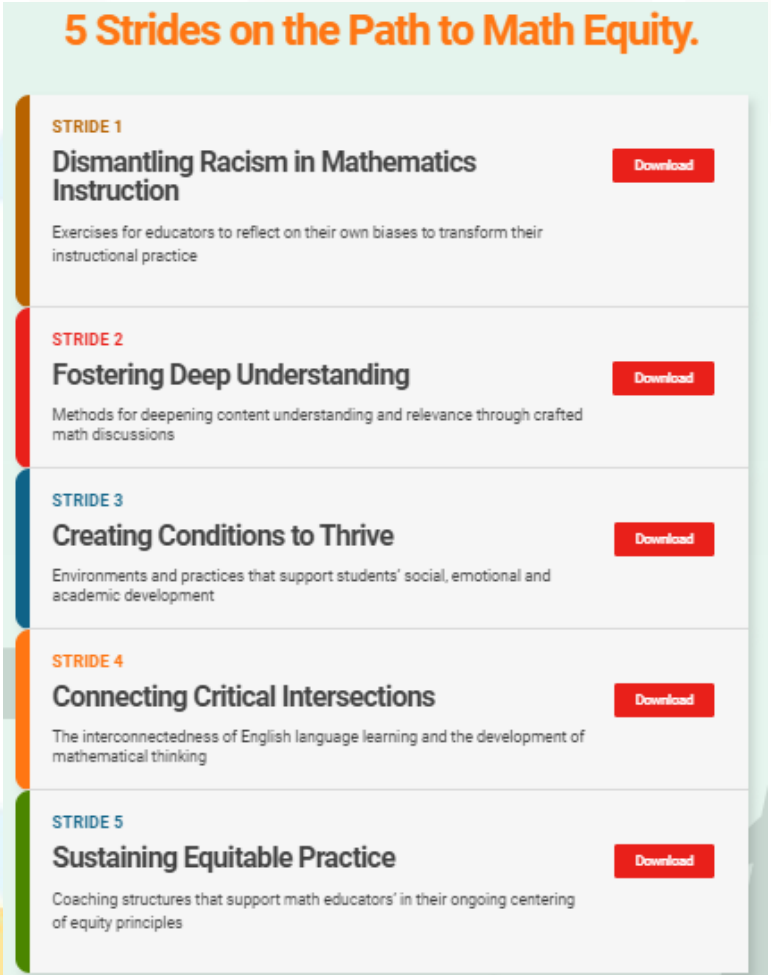


The Five Dimensions of Powerful Classrooms

The Content	Cognitive Demand	Equitable Access to Content	Agency, Ownership, and Identity	Formative Assessment
The extent to which classroom activity structures provide opportunities for students to become knowledgeable, flexible, and resourceful disciplinary thinkers. Discussions are focused and coherent, providing opportunities to learn disciplinary ideas, techniques, and perspectives, make connections, and develop productive disciplinary habits of mind.	*The extent to which students have opportunities to grapple with and make sense of important disciplinary ideas and their use. Students learn best when they are challenged in ways that provide room and support for growth, with task difficulty ranging from moderate to demanding. The level of challenge should be conducive to what has been called "productive struggle."*	*The extent to which classroom activity structures invite and support the active engagement of all of the students in the classroom with the core disciplinary content being addressed by the class. Classrooms in which a small number of students get most of the "air time" are not equitable, no matter how rich the content: all students need to be involved in meaningful ways.*	*The extent to which students are provided opportunities to "walk the walk and talk the talk" – to contribute to conversations about disciplinary ideas, to build on others' ideas and have others build on theirs – in ways that contribute to their development of agency (the willingness to engage), their ownership over the content, and the development of positive identities as thinkers and learners.*	*The extent to which classroom activities elicit student thinking and subsequent interactions respond to those ideas, building on productive beginnings and addressing emerging misunderstandings. Powerful instruction "meets students where they are" and gives them opportunities to deepen their understandings.*

https://truframework.org

A Pathway to Equitable Math Instruction



https://equitablemath.org

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Meaningfulness	*Belongingness*	*Competence*

Resources of Knowledge			
Math			
Culture			
Language			
Family			
Community	flaws in reasoning	misconceptions	incomplete understanding

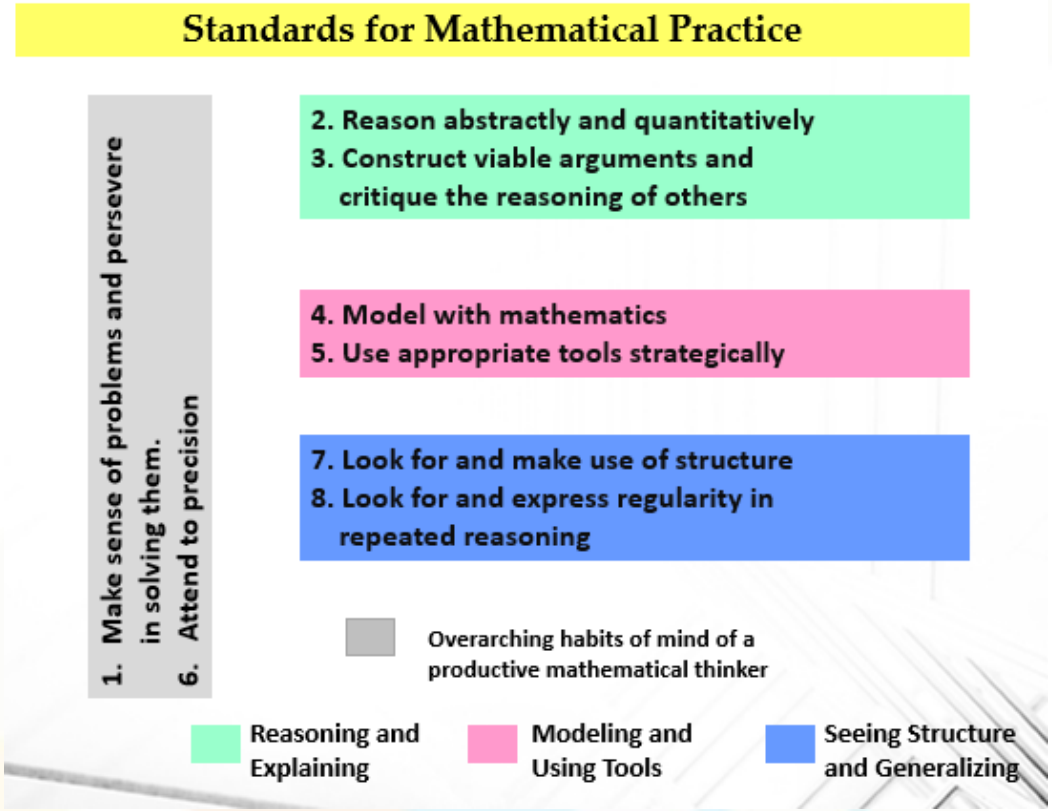
Headline

How do I discover and leverage my students' mathematical strengths?

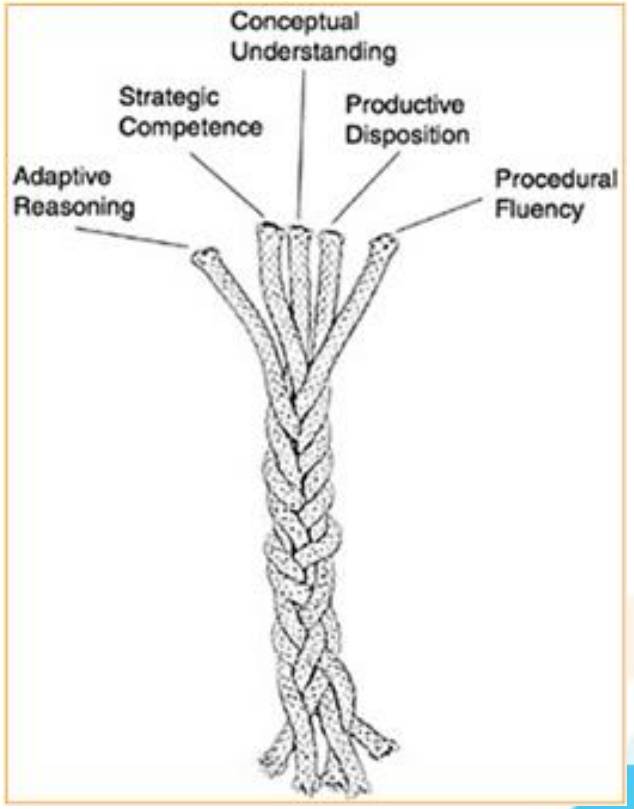
Strengths

Data Display

Mathematically proficient students…



Strands for Mathematical Proficiency



I can make sense of problems and persevere in solving them. SMP - 1

Level 4:
I can find a second or third solution and describe how the pathways to these solutions relate.

Level 3:
I can make sense of problems and persevere in solving them.

Level 2:
I can ask questions to clarify the problem, and I can keep working when things aren't going well and try again.

Level 1:
I can show at least one attempt to investigate or solve the task.

Search: Math Practices Learning Progressions #LL2LU

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Five Teaching Turnarounds

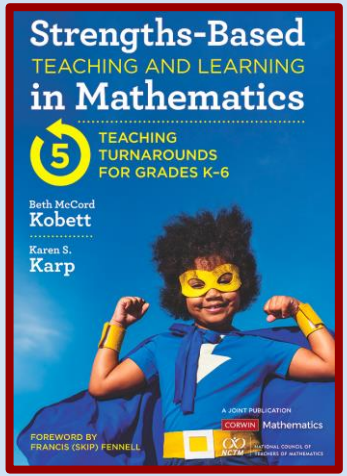
Identifying Your **Teaching Strengths**

Your Students' **Mathematical Strengths**

Design **Instruction** from a Strengths-Based Perspective

Help Students Develop their **Points of Power**

Promote Strengths in the **School Community**



Meaningfulness	Belongingness	Competence

Resources of Knowledge

- **Math**
- **Culture**
- **Language**
- **Family**
- **Community**

Headline

How do I plan for unfinished learning?

flaws in reasoning	misconceptions	incomplete understanding

Strengths

Data Display

Learning (formely known as …)

- Incomplete understanding
- Flaws in reasoning
- Misconceptions

Resources

- **Achieve the Core**
  - Coherence Map
  - Math Intervention Series (5 Parts)
- **NCTM**
  - 12 Math Rules That Expire in the Middle Grades

flaws in reasoning	misconceptions	incomplete understanding

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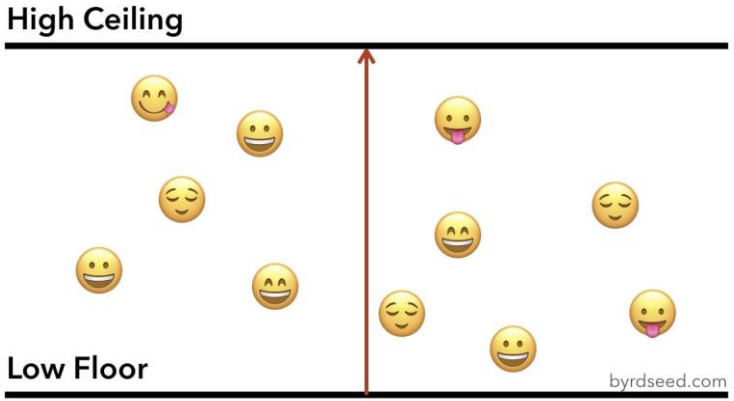
Math Tasks

Levels of Cognitive Demand

Low-Level Tasks
- memorization
- procedures without connections to meaning

High-Level Tasks
- procedures with connections to meaning
- doing mathematics



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4:6 Jar of Pennies

4:6 Grandpa took a jar of pennies to the bank. He said, "I'd like nickels for this, please." The bank teller poured the pennies into a counting machine. "Eighty-seven dollars and forty-two cents," said the teller. **(1)** How many nickels did Grandpa get? **(2)** Check your answer with an estimate.

7:11 Ticket Offers

7:11 Nechama is shopping online for a ticket to a play. Website A offers a discount of $7.50 off the theater price. Website B offers a discount of 25% off the theater price. **(1)** Is it mathematically possible that Website A is a better deal than Website B? **(2)** Is it mathematically possible that Website B is a better deal than Website A? *Prove your answers.*

MATH INTERVENTION STRATEGIES

CLASSROOM STRATEGIES, STANDARDS-ALIGNMENT INFORMATION

PART 1

Designing Shifts-Aligned Interventions in the Math Classroom

Avoid common pitfalls when it comes to supporting students with unfinished math learning

11/01/17, ASTRID FOSSUM

RESEARCH AND REFLECTIONS, STANDARDS-ALIGNMENT INFORMATION, TOOLS AND RESOURCES

PART 2

Addressing unfinished learning in the context of grade-level work

Not all unfinished learning should be treated the same way

12/06/17, CHRISSY ALLISON

CLASSROOM STRATEGIES, RESEARCH AND REFLECTIONS

PART 3

How to Select Math Intervention Content

How do you diagnose the root causes of grade-level math struggles, and design targeted interventions to address them?

02/09/18, ASTRID FOSSUM

CLASSROOM STRATEGIES, RESEARCH AND REFLECTIONS

PART 4

Re-Teaching Doesn't Always Mean Repeating

CLASSROOM STRATEGIES

PART 5

Taking the First Step in Designing Mathematics Intervention

[Achieve The Core – Math Intervention]

Meaningfulness	*Belongingness*	*Competence*

Resources of Knowledge

- **Math**
- **Culture**
- **Language**
- **Family**
- **Community**

Headline

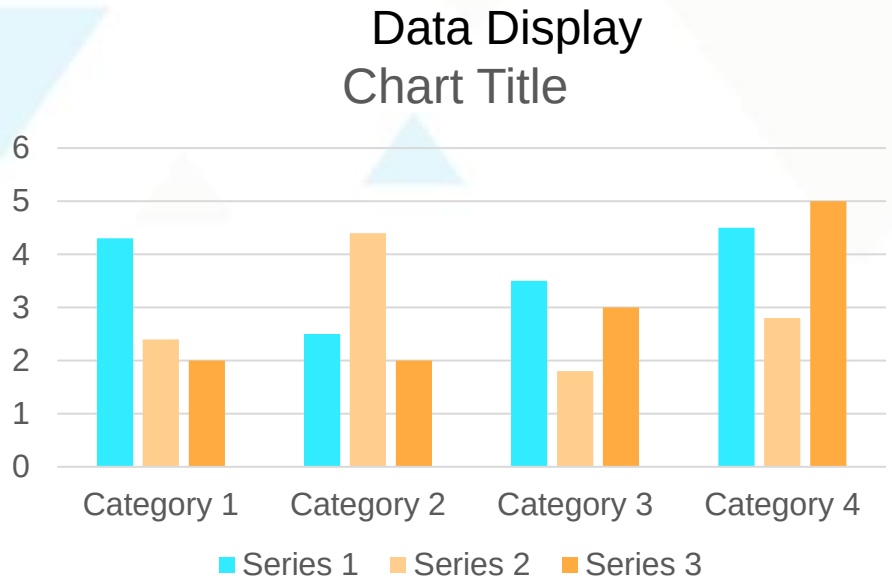
What data will I use to inform my work?

Strengths

Data Display

flaws in reasoning	misconceptions	incomplete understanding

Data Display



Concrete

Abstract

REPRESENTATIONAL

TODOS
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Meaningfulness	*Belongingness*	*Competence*

Resources of Knowledge			
Math			
Culture			
Language			
Family			
Community	flaws in reasoning	misconceptions	incomplete understanding

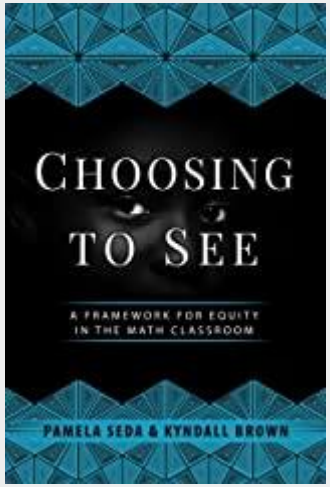
Mathematics Scholar plans to…

What choices will you make…?
What messages will you send…?
What are you going to do to Change the Narrative?

Strengths

Data Display

ICUCARE Equity Framework



@pamseda1

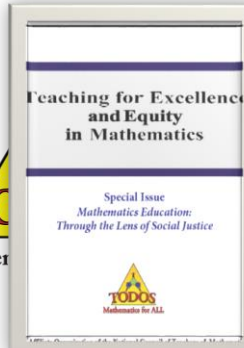
Include others as experts	Create classroom environments that extend beyond the teacher as the sole authority to develop competence and confidence in others as experts, including the students themselves.
Be **C**ritically Conscious	Take the time to understand how negative stereotypes impact your students and actively work to erase the effects of those negative stereotypes on the educational outcomes of diverse learners.
Understand your students well	Learn about your students, their families and their communities for the purpose of improving instruction. (Not making assumptions)
Use **C**ulturally relevant curricula	Use instructional materials in ways that help students see themselves as doers of mathematics and help them to overcome the stereotypes and messages regarding who is mathematically smart.
Assess, Activate and build on prior knowledge	Value the prior knowledge that students bring to the classroom, both personal and cultural, and use that knowledge as a resource for creating new knowledge.
Release control	Empower your students to take ownership of their own learning by focusing on sensemaking and allow them to make choices about things that are important to them in the classroom.
Expect more	Hold high expectations for all students and avoid deficit views of diverse learners.

Creative Insubordination

*From **"Strategies for Creative Insubordination in Mathematics Teaching"***

- Press for Explanation
- Counter with Evidence
- Use the Master's Tools
- Seek Allies
- Turn a Rational Issue into a Moral One
- Fly Under the Radar

Strategies for Creative Insubordination in Mathematics Teaching by Rochelle Gutiérrez, From Teaching for Excellence and Equity in Mathematics, Special Edition, Mathematics Education: Through the Lens of Social Justice
http://www.todos-math.org/assets/documents/TEEM/teem7_final1.pdf

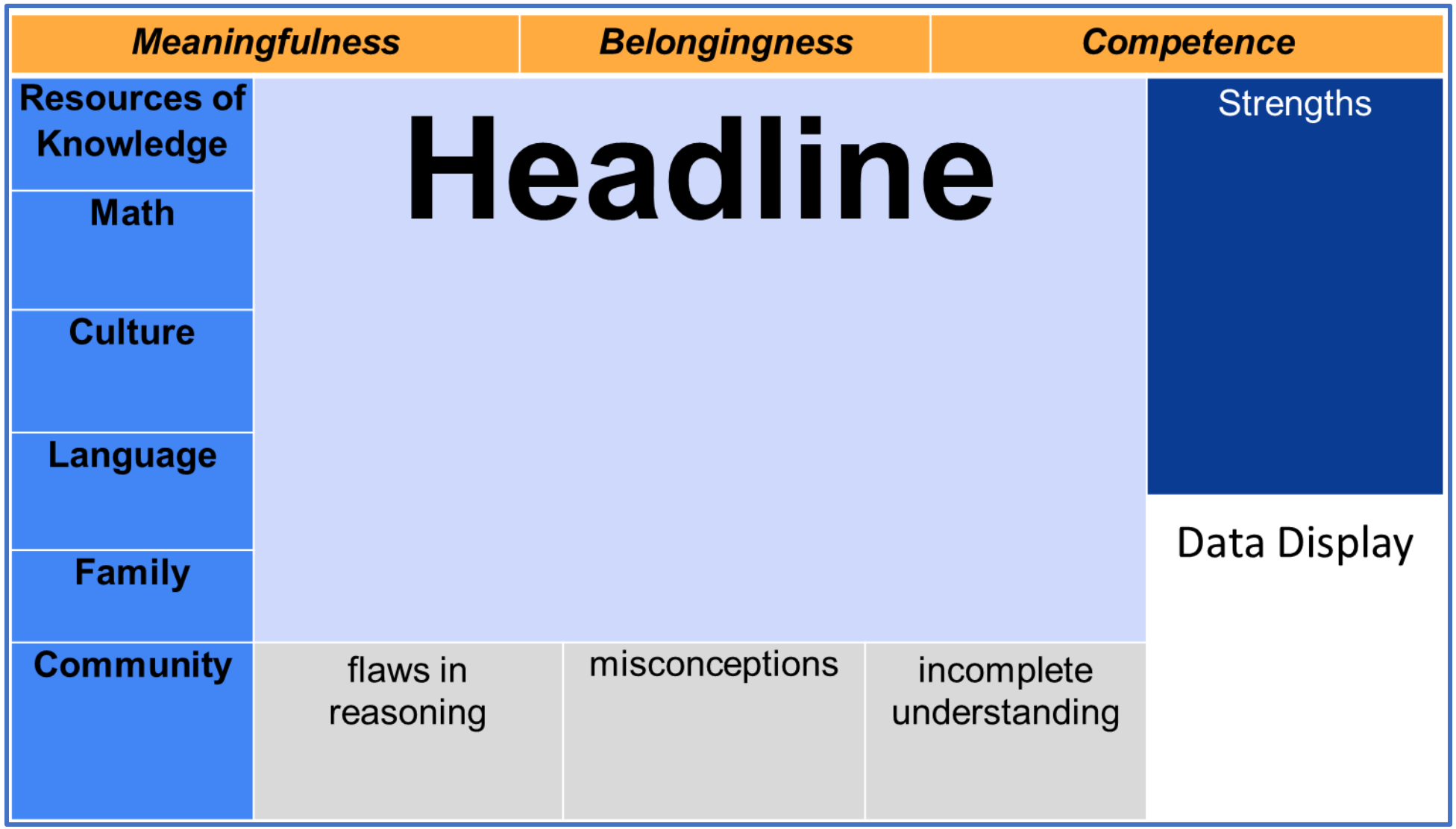


Individual Session Feedback

We value your input. Please take a few minutes to provide TODOS with feedback on each of the sessions you attend. Answering will allow us to improve our conferences moving forward.

https://bit.ly/3uYIpuJ

We encourage you to tag others and tweet highlights from the conference using #TODOS2021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