THE POWER OF WORKING ON PROBLEMS OF PRACTICE WITH OTHERS

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TWO PROBLEMS OF PRACTICE

1. Recognizing and breaking patterns or habits in teaching that seem fine because they are “normal” but actually might marginalize children

2. Assigning mathematical competence instead of praising, and really thinking how different children are positioned
PERMUTATIONS, AND PROOF

Find all the ways to arrange the light green, purple, and yellow rods into three-car trains, using exactly one of each rod.

How are you sure you have found ALL the ways?

Prove that you have all the possible ways to arrange the light green, purple, and yellow rods into three-car trains.
VIDEO: MIAH, DEEDRAH, MICHIO, ARIANNA

When you- I drew the first part, the first colors first- at first, and then I just mixed the bottom next to them, these two.
What number does the orange arrow point to? Explain how you figured it out.
LAKEYA

What number does the orange arrow point to?

\[ \frac{2}{3} \]

Explain how you know: because there are equal parts and you are pointing to the second one so it's \( \frac{2}{3} \).

JAMARI

What number does the orange arrow point to?

\( \frac{1}{2} \), \( \frac{3}{4} \), \( \frac{5}{6} \), \( \frac{7}{8} \), \( \frac{1}{2} \)

Explain how you know: first I thought it was 5 because the zero messes me up.

MARIANA

What number does the orange arrow point to?

\( \frac{1}{2} \)

Explain how you know: how I know it's zero to one there was 2 line between 0 and 1.5.

LARRY

What number does the orange arrow point to?

\( \frac{1}{2} \)

Explain how you know: I counted it by 1 and keep going \( \frac{1}{4} \) till I got a whole.

Write a complete sentence with one goal for yourself for our math class today. Give an example of what it looks like to do this really well.

Learned more about the number line.
VIDEO: ANIYAH, TONI, LAKEYA, DANTE

This video and additional supporting materials are available online here.
“READING” AND RESPONDING TO TONI

- How might Toni be “read”? 
- How might a teacher respond? 
- What shapes these ways of seeing and responding to her?

(Gholson & Martin, 2014; Joseph, Viesca, Bianco, 2016; Martin, 2012; Leonard & Martin, 2013)
RECOGNIZING COMMON PATTERNS, CONSIDERING THEIR IMPACT

NORMALIZED NEXT MOVES

1. “Toni, when you’re ready to participate appropriately by not playing with your hair and laughing, and have a question to ask, I will come back to you.”

2. “You need to be a better listener, Toni. Aniyah already explained why she picked one-seventh. Who else has a real question for Aniyah?”

3. “What do others think?”

RESULTS

1. Toni is publicly excluded from the discussion.

2. Toni is judged to not be listening, her question is judged as not good, and she is excluded from the discussion.

3. Toni is excluded and her mathematical point is sidelined.

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VIDEO: TEACHING INVOLVES MAKING DELIBERATE CHOICES

This video and additional supporting materials are available online here.
COUNTERING THE PATTERN

Acknowledge publicly the importance of Toni’s question.

RESULT

Toni is trusted, seen, and recognized for her contribution to the mathematical work:

- The mathematical precision of her question.
- Asking Aniyah a question instead of disagreeing.
ANIYAH
- Identified the “whole” as 0 to 1 on the number line

TONI
- Modeled at the board a complete explanation of how to understand and identify a fraction on the line

THE OTHER CHILDREN
- Developed a depth of understanding of fractions as numbers on the line and how to explain them
- Saw Black girls’ brilliance
ASSIGNING COMPETENCE TO STUDENTS IN WAYS THAT DISRUPT STATUS HIERARCHIES AND SIGNALS ABOUT WHAT BEING “SMART” OR “GOOD” AT MATH MEANS (AND WHO IS)
“ASSIGNING” COMPETENCE

A set of practices that deliberately deploy the power of teaching to:

1. Broaden and label what being competent in a given area means
2. Intervene to position who (and what) is seen as competent in class
3. Support individual students to develop their academic identities and competence

Sources: E. Cohen and R. Lotan, complex instruction; J. Boaler’s work; Smarter Together: Collaboration and Equity in the Elementary Mathematics Classroom (Featherstone, Crespo, et al., 2011)
WHAT DO ANIYAH AND TONI KNOW AND WHAT CAN EACH DO?

ANIYAH

- Uses the definition for a fraction to explain
  - She identifies the “whole”
  - She makes sure the intervals are equal
  - She counts intervals and not tick marks
  - She knows how to write “one-seventh”
- Produces a mathematically well-structured explanation
- Presents her ideas clearly

TONI

- Listens closely to a classmate’s presentation
- Uses the definition for a fraction to ask
  - How Aniyah decided on 7 parts
- Asks a pointed mathematical question
USING TECHNIQUES AND STRATEGIES FOR ASSIGNING COMPETENCE

Identify the competence to be highlighted. Consider how to disrupt hierarchies of status in class by which student is chosen to be identified for something important that they have done or contributed.

- Publicly name an individual student’s competent move or contribution (“___ just shared a very important idea”)
- Ask a student to explain another student’s contribution that the instructor highlights
- Ask the class to identify things that were part of an important contribution by a student
- Record something publicly that a student or students came up with or contributed that is important
- Accord expertise to students through assigning roles explicitly in a group
PRAISE AND AFFIRMATION: WHAT IS THE DIFFERENCE?

- Praise – verbal feedback with the only purpose of evaluating what a student says or does
- Affirmation – intentional verbal feedback with a purpose of highlighting/affirming what a student says or does
COMPARING PRAISE WITH AFFIRMING STATEMENTS

PRAISE
- “Good work!”
- “You are really good at math”
- “Yes, that’s correct”
- “Yes, that’s the right way”

AFFIRMATION
- “It was really helpful how you used your drawing to explain your thinking.”
- “You are writing such clear and specific mathematical explanations.”
- “You solved that in a really interesting way. Can you tell me more about your thinking?”
- “That’s the right answer. Why does that make sense?”
- “You said that this piece is ¼ because it is one of four equal parts in the whole. I agree, that makes sense.”
MAKING THE SHIFT FROM A PREOCCUPATION WITH DEFICITS TO A FOCUS ON STRENGTHS

- Seeing past “distractions” or non-mathematical issues
  - How students talk (as they are learning; and when they are speaking academic language, or in English when that is not their first language)
  - Being preoccupied with and interpreting behavior in negative ways

- Pausing on “apparently incorrect” answers
  - Actually not incorrect
  - Answer to a different (and reasonable) question
  - More correct than incorrect
DILEMMAS OF LEARNING TO SEE AND HEAR STUDENTS’ RESOURCES

1. Feeling committed to students as sense-makers who bring many strengths but also feeling pressure or desire to make sure children get it “right”

2. Using yourself yet also suspending assumptions based on what you would mean or feel

3. Knowing content well enough to see it in students’ talk, representations, etc. while also not letting your own content knowledge overtake your capacity to see and hear what they are saying or showing
WHAT IS INVOLVED FOR TEACHERS IN SEEING AND BUILDING ON STUDENT STRENGTHS?

- Listening carefully to what they say, reading attentively what they write
- Making deliberate choices about how to see and interpret
- Both of these involve using what you know, but also suspending what you assume (knowing content for teaching)
CONCLUSION
THE WORK OF JUSTICE LIVES INSIDE
THE WORK OF TEACHING

- By understanding one’s identity and role as part of a broader system of oppression that is historical and persistent
- By knowing what “normally” happens and how these patterns reproduce oppression, and by deliberately doing things that counter those patterns
- By seeing and affirming each student—their strengths and their academic work
- By opening up “stuff” and possibilities for students to connect with and do complex work

(Mann, Willis, Hickman, Ball, Goffney, 2017)
THANK YOU!

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Slides will be available on my website
https://deborahloewenbergball.com/
(“Google” Deborah Ball)