

Using Discretionary Spaces in Teaching and Leadership to Advance Students' Mathematical Flourishing

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Teachers Development Group

2024 Leadership Seminar on Mathematics Professional Learning

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What is in a name?

1. What is your **name** and how did you get this name, and why?

2. Share your name and what is important to you about it.



Framing our work together

Notice:

The incredible power of teaching in the struggle for racial justice

Wonder:

About the dilemmas inherent in the power of teaching and its infinite discretion in advancing racial justice

Feel:

Emotional awareness of — and hope for — the discretionary spaces in teaching

(Re)imagine:

Ways to leverage discretionary spaces in working toward racial justice

Act:

Identify a path forward in your own work

Notice:

The incredible power
of teaching in the
struggle for racial
justice

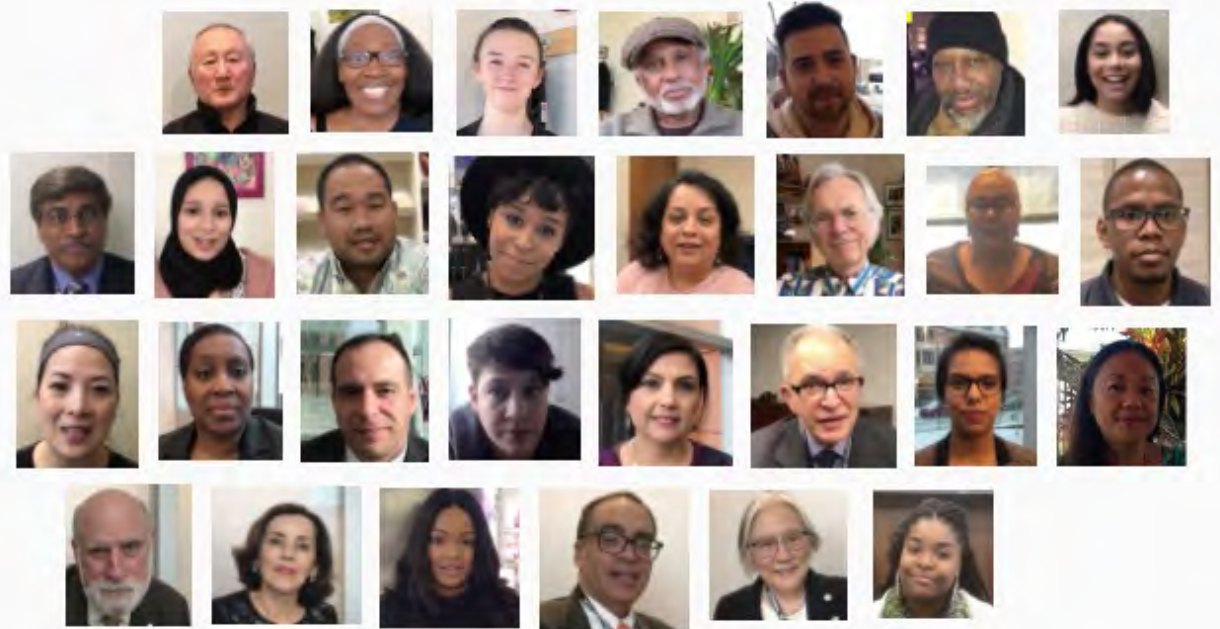
Teaching is powerful.

Is there a teacher who had a significant impact on you?



How is teaching powerful?

UNIVERSITY OF MICHIGAN
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TEACHINGWORKS



Video: Is there a teacher who had a significant impact on you?



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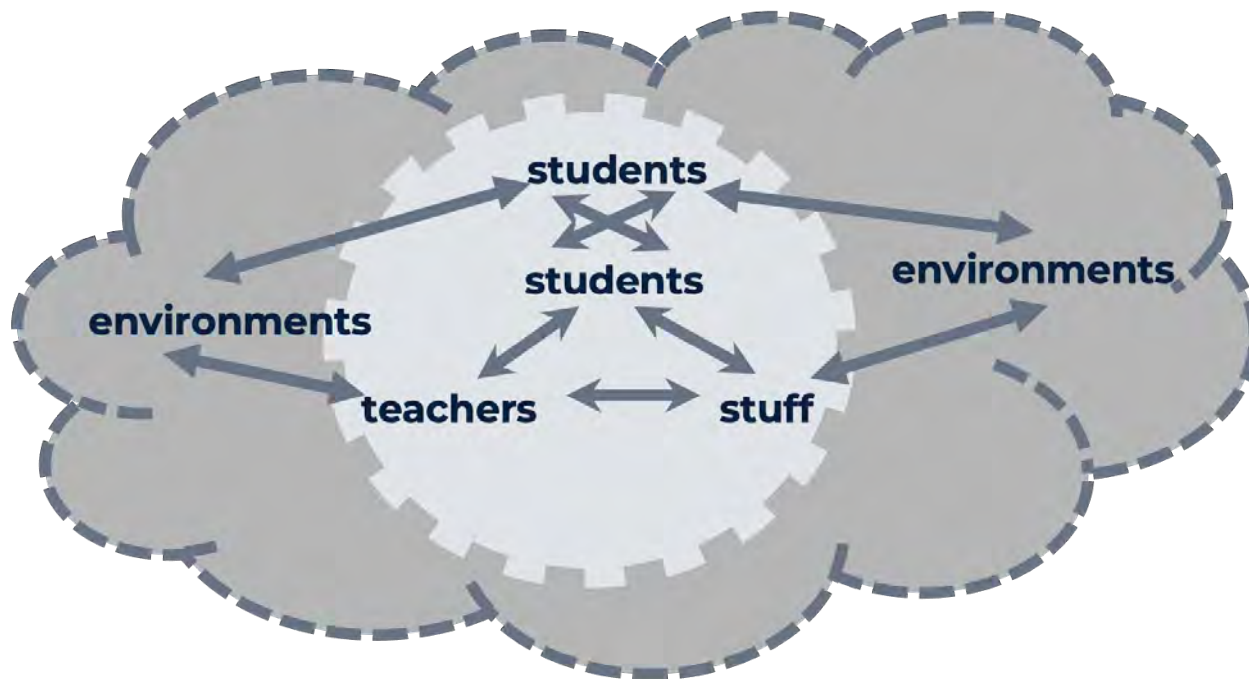


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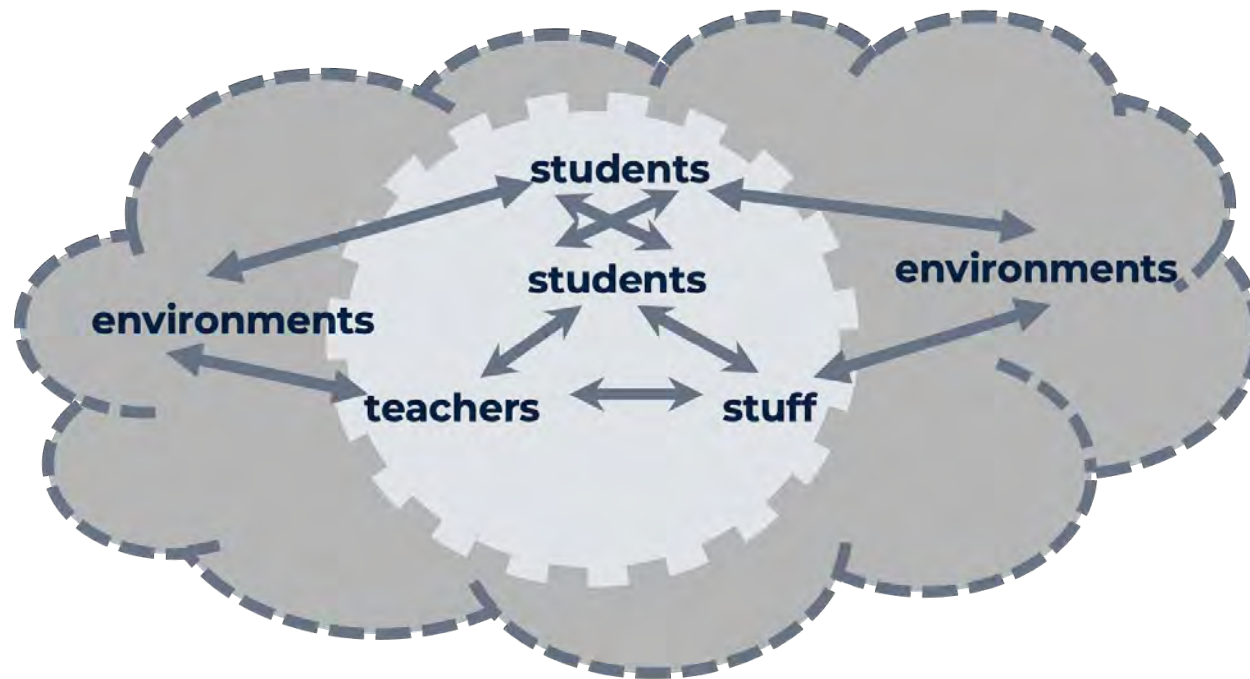
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What stood out to you? What patterns did you notice?

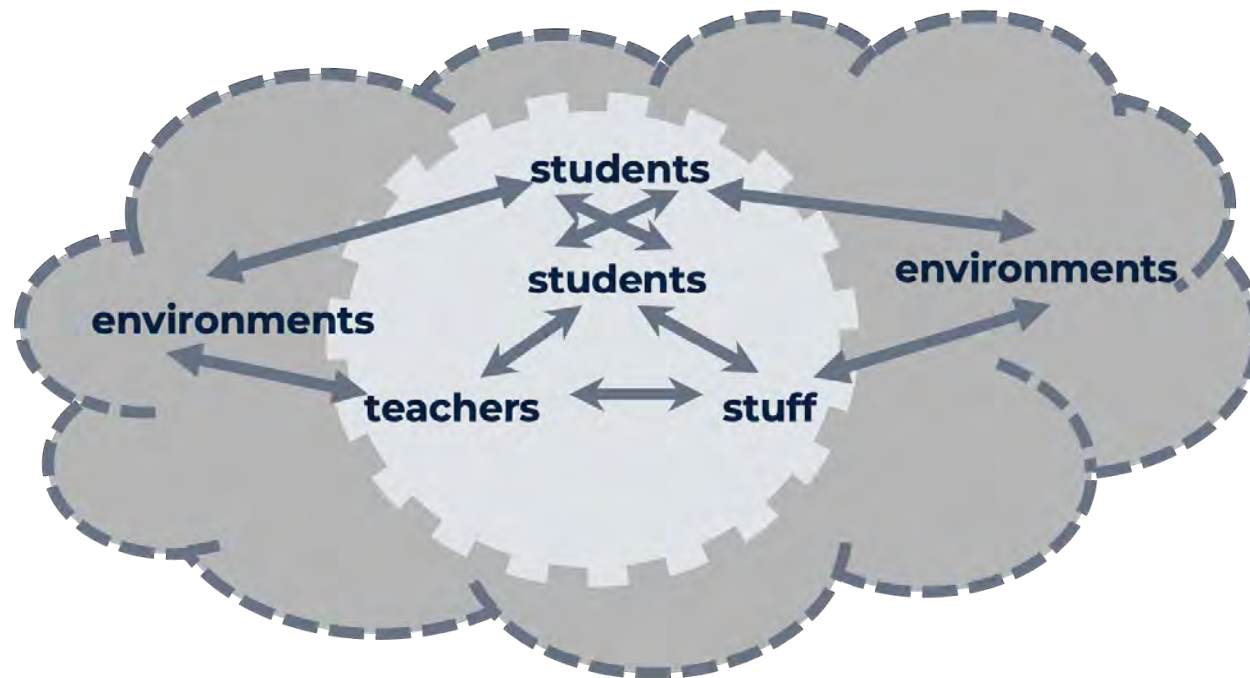




1. Teaching and learning are constructed interactively and are interpretive.



1. Teaching and learning are constructed interactively and are interpretive.
2. They take place within broad historical and socio-political environments.









Teaching has tremendous power with respect to racism — for harm or for good.



Wonder:

About the dilemmas inherent in the power of teaching and its infinite discretion in advancing racial justice

What are “discretionary spaces” and why do they matter?

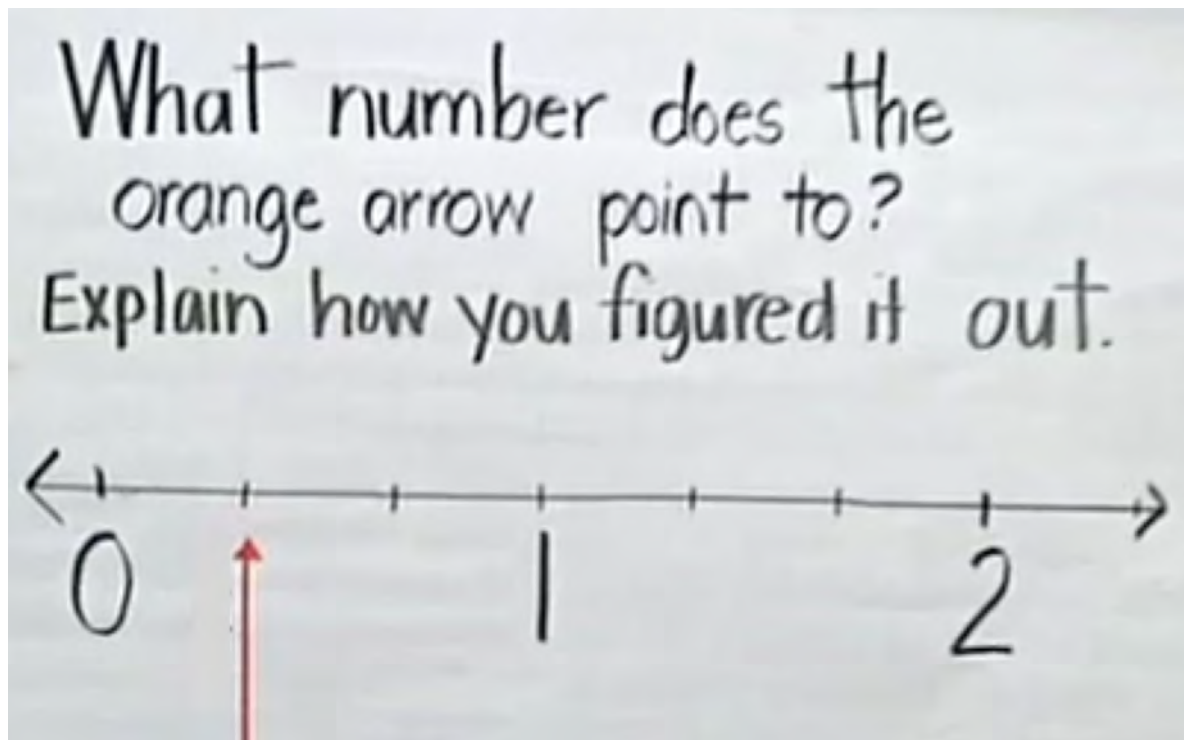


Fractions as numbers: The instructional goal for student understanding

3.NF.2.a

Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line.







Aniyah



Toni

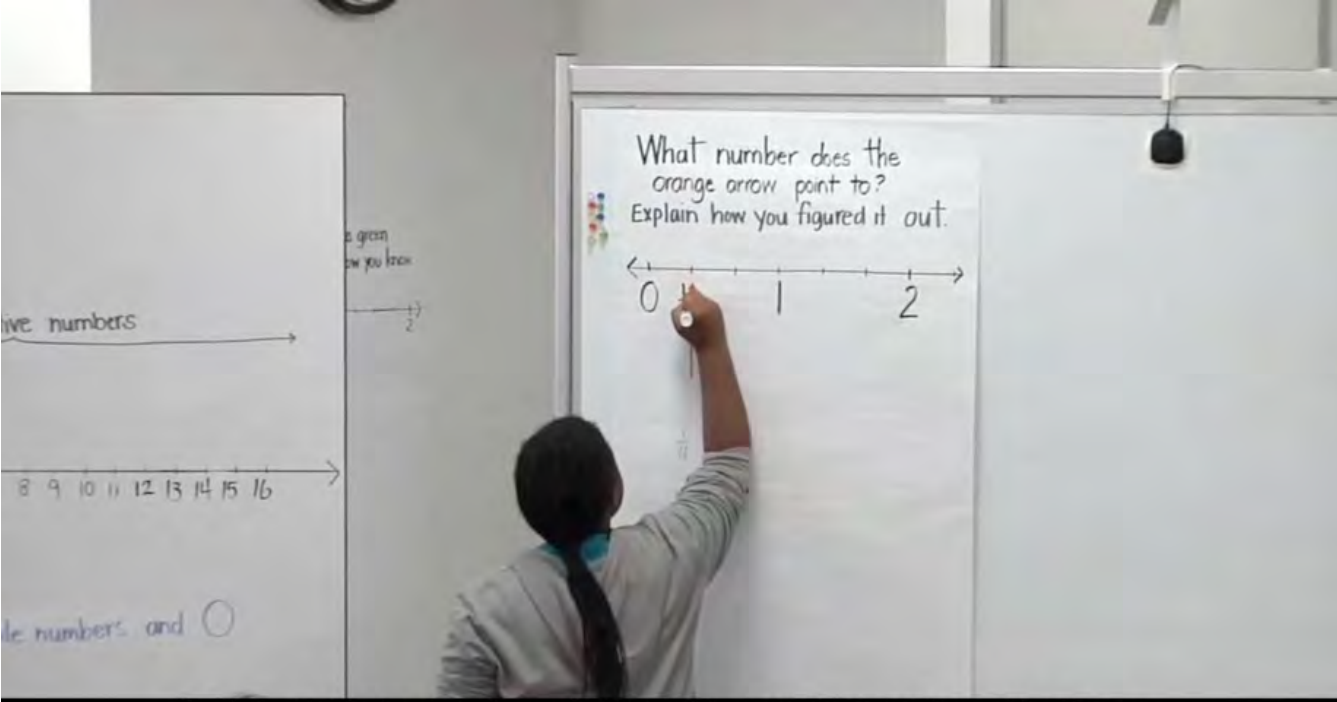


Viewing focus

What do you see about each girl's mathematical knowledge and skill?



Video: Aniyah and Toni



What number does the orange arrow point to?
Explain how you figured it out.

← 0 1 2 →

Teacher: Listen closely and see what you think about her reasoning and her answer.

This video and additional supporting materials are available online [here](#).



Discuss

What do you see about each girl's mathematical knowledge and skill?



What would
happen
next?

What are the
possible
results?



In the next moment, what is likely to happen?

NORMALIZED NEXT MOVES

RESULTS



In the next moment, what is likely to happen?

NORMALIZED NEXT MOVES

- “Can someone help Aniyah out and show what we call the whole on the number line?”

RESULTS

- Aniyah is excluded and her mathematical contributions are sidelined.



In the next moment, what is likely to happen?

NORMALIZED NEXT MOVES

- “Can someone help Aniyah out and show what we call the whole on the number line?”
- “Great, Aniyah, almost! But remember that the whole is from 0 to 1.”

RESULTS

- Aniyah is excluded and her mathematical contributions are sidelined.
- Aniyah’s answer is signaled to be incorrect and she is positioned as not having contributed to the work.



In the next moment, what is likely to happen?

NORMALIZED NEXT MOVES

- “Can someone help Aniyah out and show what we call the whole on the number line?”
- “Great, Aniyah, almost! But remember that the whole is from 0 to 1.”
- “Thumbs up if you agree with Aniyah; thumbs down if you disagree.”

RESULTS

- Aniyah is excluded and her mathematical contributions are sidelined.
- Aniyah’s answer is signaled to be incorrect and she is positioned as not having contributed to the work.
- Aniyah’s solution is “voted” on by her classmates.



What else is likely?

NORMALIZED NEXT MOVES

RESULTS



What else is likely?

NORMALIZED NEXT MOVES

- “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.”

RESULTS

- Toni is publicly excluded from the discussion.



What else is likely?

NORMALIZED NEXT MOVES

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

RESULTS

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



What else is likely?

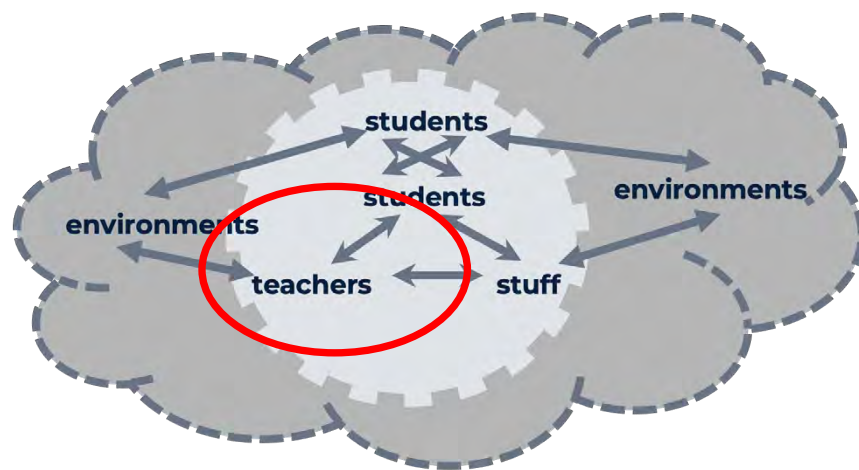
NORMALIZED NEXT MOVES

- “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.”
- “You need to be a better listener, Toni. Aniyah already explained why she picked one-seventh. Who else has a real question for Aniyah?”
- “In this classroom, we are respectful of one another. When you are ready to be respectful, you can rejoin the discussion, Toni.”

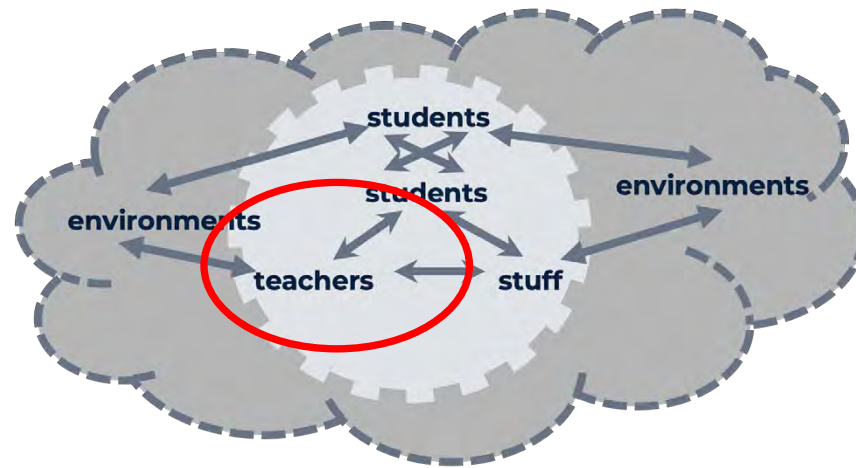
RESULTS

- Toni is publicly excluded from the discussion.
- Toni is judged to not be listening, her question is judged as not good, and she is excluded from the discussion.
- Toni is publicly named and shamed as “disrespectful,” rebuked, and her role in advancing the mathematics is sidelined.

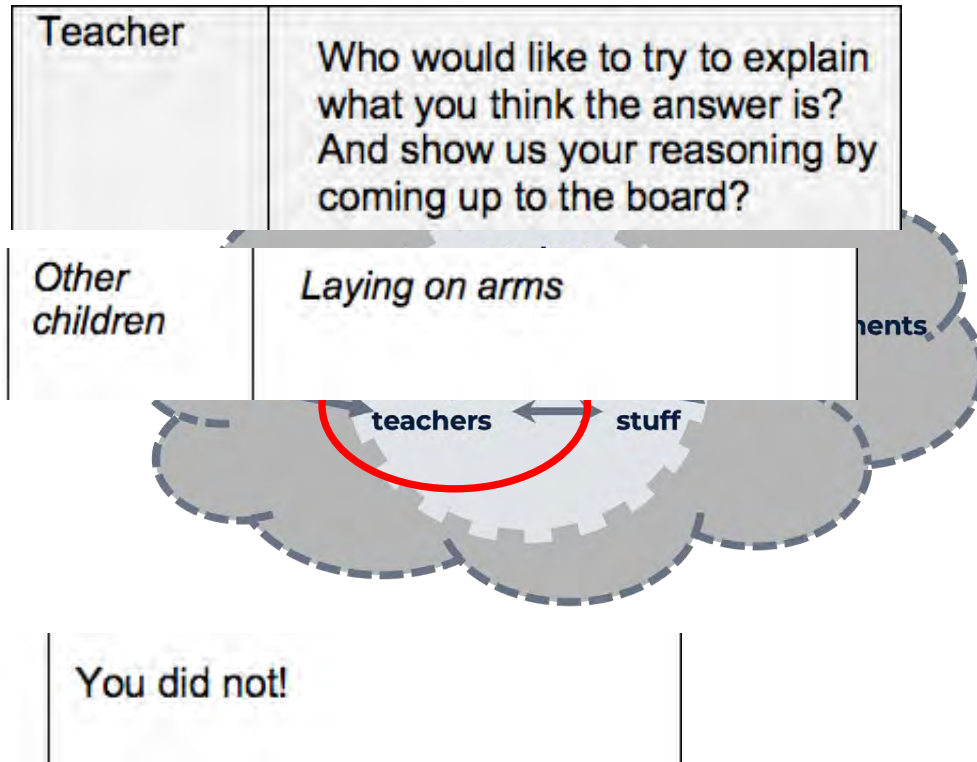




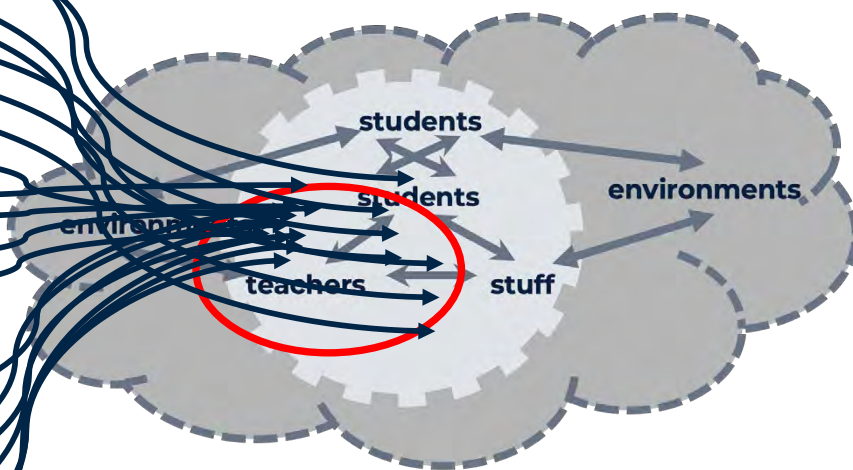
Speaker	Talk	Discretionary space
Teacher	Who would like to try to explain what you think the answer is? And show us your reasoning by coming up to the board? Who'd like to come up to the board and try to tell- And you know, it might not be right. That's okay because we're learning something new. I'd like someone to come up and sort of be the teacher and explain how you are thinking about it. Who'd like to try that this morning?	1. Deciding when to open whole-group discussion 2. Deciding what to do to launch discussion 3. Framing the expectation for presenting 4. Framing of what it "coming to the board" entails
Teacher	Okay, Anyiah?	5. Selecting a student to present
Toni	Playing with hair	6. Deciding whether to comment
Other children	Laying on arms	7. Deciding whether to comment
Teacher	When someone's presenting at the board, what should you be doing?	8. Setting norms for what to do when a student is presenting
Students in chorus	Looking at them.	
Teacher	Looking at that person.	9. Responding to students
Teacher	Uh-huh?	10. Taking up an individual student question
Anyiah	You want me to write it?	
Teacher	You're trying to mark what you think this number is and explain how you figured it out.	11. Clarifying task
Teacher	Listen closely and see what you think about her reasoning and her answer. (Anyiah writes $\frac{1}{7}$ by the orange line).	12. Setting task for the other students
Anyiah	I put one-seventh because there's-	
Toni	Did she say one-seventh?	13. Responding to student
Anyiah	(turns to Toni) Yeah... (continues to class) Because there's seven equal parts, like one, two, three, four, five, six, and then seven. (Uses her fingers to count the parts on the number line).	
Teacher	Before you agree or disagree, I want you to ask questions if there's something you don't understand about what she did. No agreeing and disagreeing. Just. All you can do right now is ask Anyiah questions. Who has a question for her?	14. Setting task for responding to student explanation
Teacher	Okay, Toni, what's your question for her?	15. Selecting student to speak
Dante	You did not!	16. Responding to student speaking across room
Toni	Why did- (laughs at another student who says something to her from across the room)	17. Responding to student laughing
Teacher	Go ahead, it's your turn.	17. Responding to student laughing
Toni	Why did you pick one-seventh?	
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Teacher	Let's listen to her answer now. That was a very good question.	19. Setting task for class 20. Responding to student



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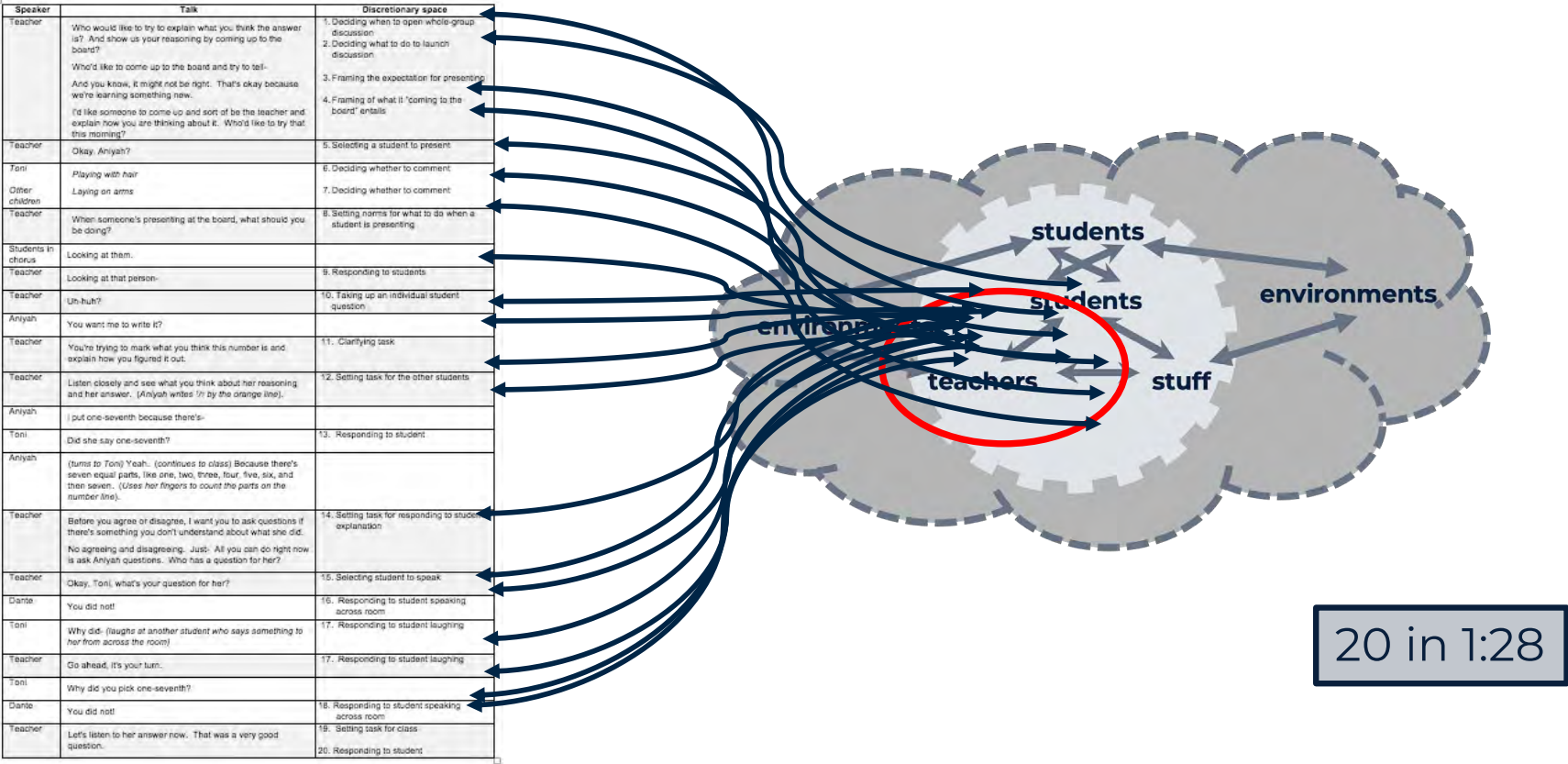
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20 in 1:28



Teaching is dense with “discretionary spaces”



20 in 1:28



Where do these normalized moves come from?

Notice:

The incredible power of teaching in the struggle for racial justice

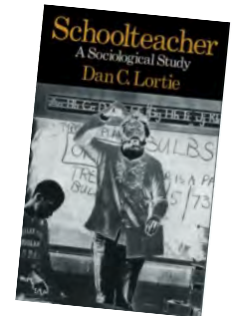
Wonder:

About the dilemmas inherent in the power of teaching and its infinite discretion in advancing racial justice

Feel:

Emotional awareness of — and hope for — the discretionary spaces in teaching

- The potency of the “apprenticeship of observation” and the conserving nature of the profession (Lortie, 1975)
- Habits that are taken for granted, and even seen as good, and reinforced in teacher evaluation systems
- The density of discretionary spaces in practice



Video: Aniyah and Toni



This video and additional supporting materials are available online [here](#).

Using discretionary spaces with care



- Interpreting Toni as asking a real question that she means.
- Hearing Toni's question as central to advancing the mathematical content.
- Reinforcing her mathematical identity, not choosing to read her body as disruptive.

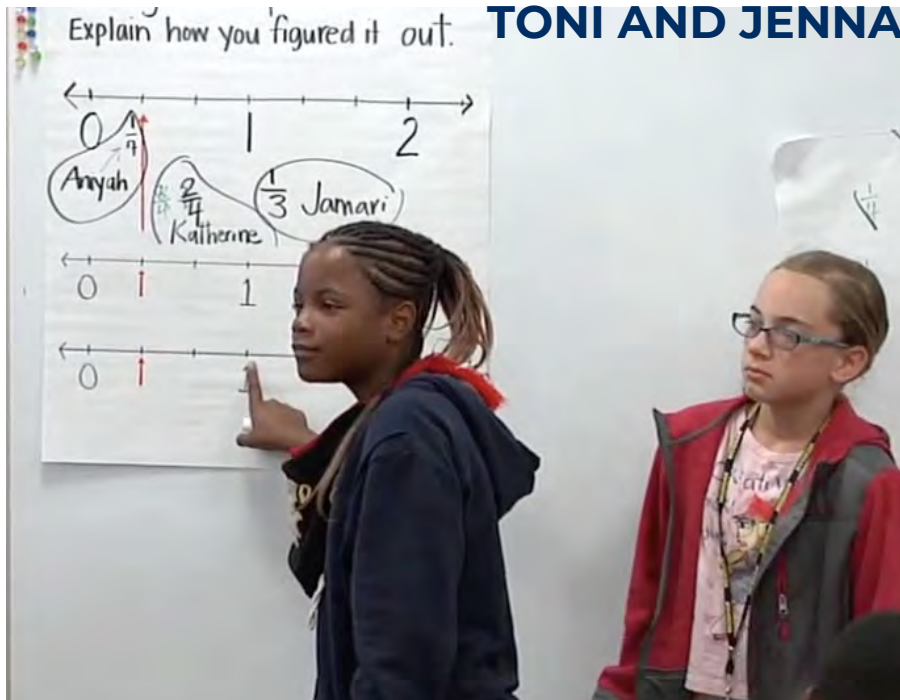


- Other children hear Aniyah as getting the discussion going, and Toni as asking an important mathematical question.
- Aniyah and Toni are both positioned as contributing to the discussion.
- Children see a teacher attending to Black girls as mathematical thinkers and contributors to collective work.



- Interpreting Aniyah as competent to answer questions about her ideas.
- Hearing Aniyah's explanation as central to advancing the mathematical content.
- Reinforcing her mathematical identity, not choosing to read her body as struggling.

14 minutes after where we stopped



ANIYAH

I did well on my goal today because my goal was to to share my ideas with the class and I did I went up to the board And share my idea with the class on Fractions.

AND: On an “exit ticket,” 28 of the children were able to correctly identify a different fraction ($\frac{2}{5}$) on the number line.



Discretionary spaces lie in the many, many moment-to-moment moves, uses of language, and decisions that are inevitable in practice — both teaching and leadership.

They are both crucial resources for supporting students and also where harm happens.

Feel:
Emotional awareness
of — and hope for —
the discretionary
spaces in teaching

What do you think the
**pervasiveness of
discretionary spaces**
means for **freedom and
teacher professionalism?**

Feel:

Emotional awareness
of — and hope for —
the discretionary
spaces in teaching



(Re)imagine:

Ways to leverage
discretionary spaces in
working toward racial justice

Where are the discretionary spaces
in YOUR work that matter for
students' mathematical flourishing?



- Ensuring pacing and coverage/going in depth
- Focusing on test scores and developing positive mathematical identities
- Following the scripted curriculum/adapting to students and connecting o their contexts and cultural resources

Dilemmas and tensions and your discretionary spaces

How do you use your discretionary spaces in your own practice?

- How do you manage these (or other) dilemmas and tensions in your own practice?
- What signals do you receive and send about each of these?

- Ensuring pacing and coverage/going in depth
- Focusing on test scores and developing positive mathematical identities
- Following the scripted curriculum/adapting to students and connecting to their contexts and cultural resources



Reimagining norms for
classroom behavior

Confronting the limits
of current meanings
and uses of "data"

Broadening what it
means to
"participate"

Transforming the
curriculum to be
culturally relevant and
sustaining

Acknowledging
competence

Reframing "error"

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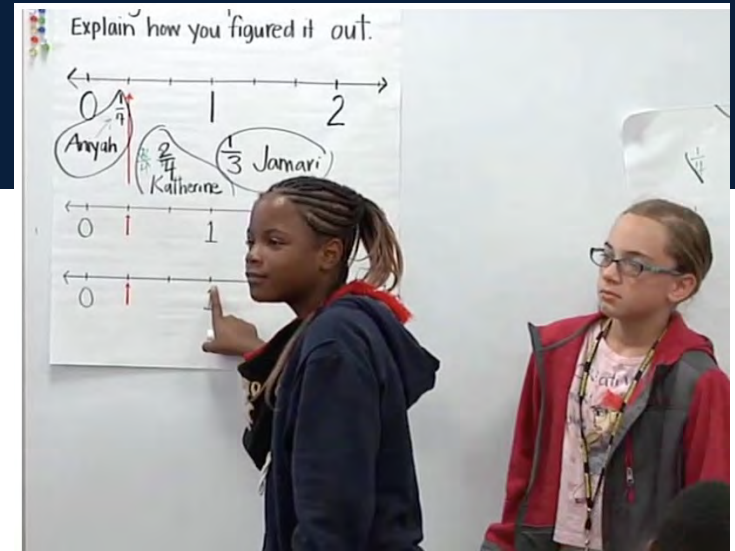
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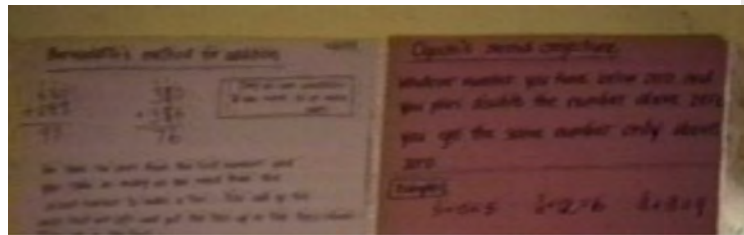
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Acknowledging competence



How teachers signal who and what is seen as competent



Acknowledging competence

Deliberately deploying power to:

1. Broaden and label what being competent (“smart”) in a given context means
2. Intervene to position who (and what) is seen as competent in that context
3. Support positive individual identities and self-positioning

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 does “acknowledging competence” require?

1. Having a broad understanding of the content or domain oneself
2. Using the concept of “positioning” to intervene to influence who (and what) is seen as competent
3. Strategically making these moves in authentic and well-timed ways; having ways to do that that are sensitive



Distinguishing acknowledging competence from praise

Praise

- “Good job!”
- “You’re working so well today.”
- “Nice work!”
- “I am proud of you.”
- “You’re working like such good mathematicians.”
- “You made so much progress on the problems today.”

Praise – verbal feedback with the purpose of evaluating what a student says or does

Acknowledging competence – intentional identifying, naming, and highlighting specific mathematical or learning competencies of what a student says or does

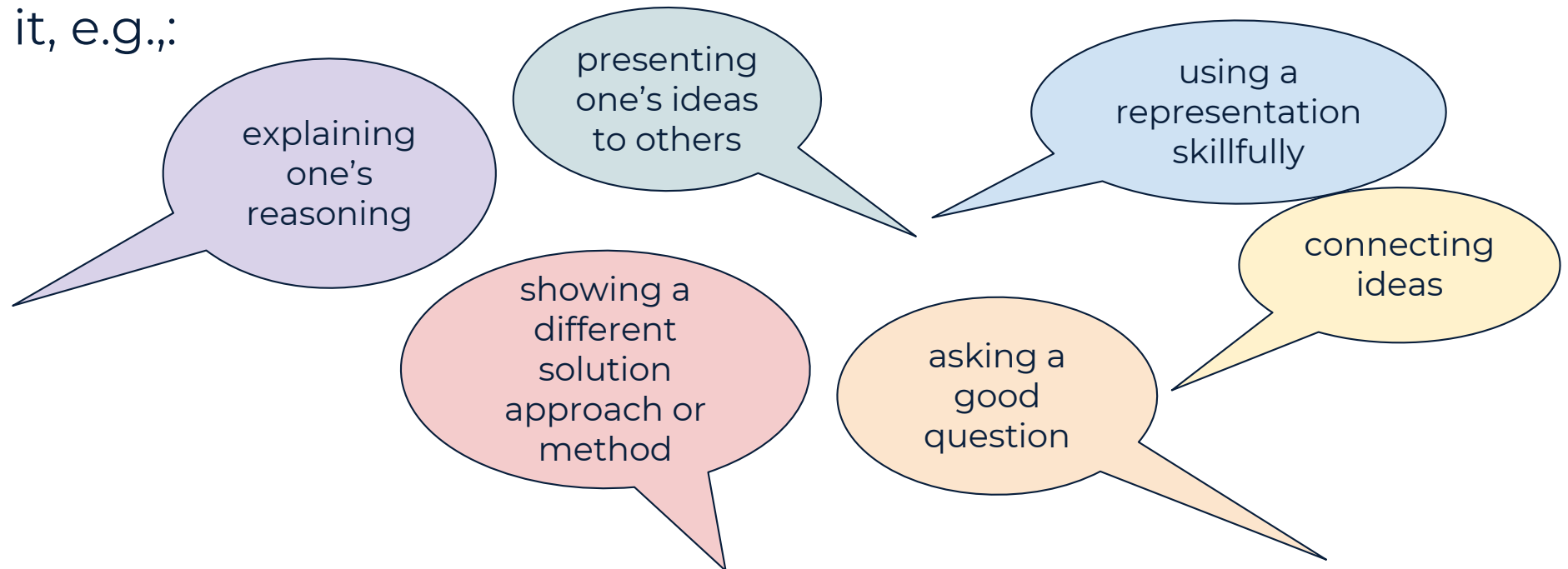
Acknowledging competence

- ★ “It was particularly clear how you used your drawing to explain your thinking.”
- ★ “Belin gave a clear and specific mathematical explanation.”
- ★ “You solved that in a really interesting way. Can you tell us more about your thinking?”
- ★ “Ibn used a very interesting method to show that there are no more solutions. Who can say what Ibn did?”
- ★ “It is clear how closely you are following other people’s thinking and connecting it to the idea you had.”
- ★ “One thing that was really important about what Laken did was to use the definition we developed.”



Practicing acknowledging competence

Identify **specific examples** of mathematics learning competence and **what you might say** to acknowledge it, e.g.,:



Acknowledging competence is a disruptive practice

Disrupting patterns of:

- Narrow, reductive, and distorted views of mathematics
- Focus on behavior
- “Under-teaching”
- Who is seen as mathematically competent
- Negative and deficit views students carry of themselves



What is involved in acknowledging competence?

1. Recognizing and broadening conceptions of what comprises mathematics and mathematical competence, and seeing that in children
2. Understanding the broader systemic factors that shape everyday micro-interactions related to racism and other forms of oppression (sexism, linguicism, ableism, classism) and seeing risks and status hierarchies in one's own class.
3. **Based on #1 and #2, intervening explicitly to acknowledge particular students' competence.**



Two possible ways to acknowledge competence

1. You could name a specific competence that a particular student displayed in something they did or said and why that is important in doing math.
2. You could ask the class what a particular student did that is a really important thing to do in doing math and what is valuable about that.

Remember to be broadening conceptions of math and mathematical competence.

Other possibilities exist. We'll start with these.

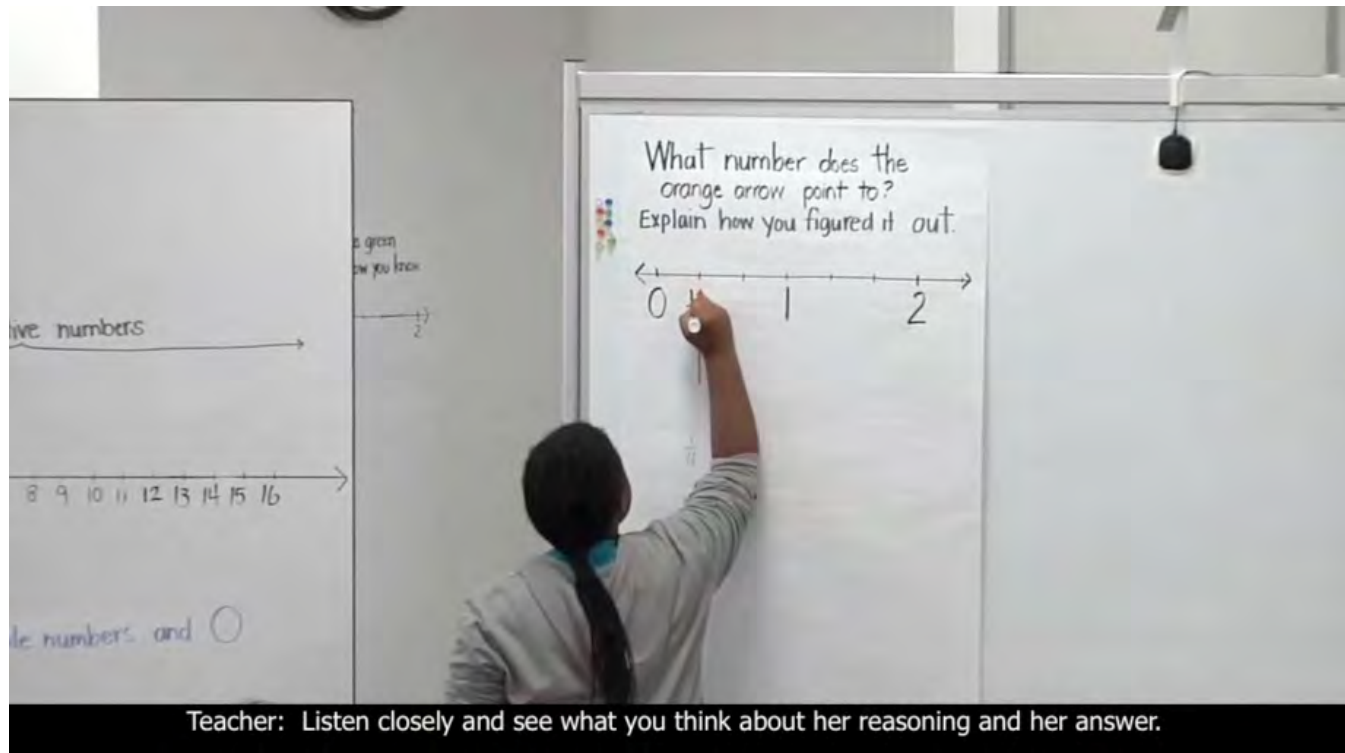


Practice

1. What competences would you acknowledge here?
2. Whom would you choose to acknowledge and why?
3. What would you actually say?



Video: Aniyah, Toni, Dante, Katherine, and Lakeya



A portion of this video and additional supporting materials are available online [here](#).

Framing our work together

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Act:

Identify a path forward in your own work



Practice with scenarios

CLASSROOM SCENARIOS

- A. You are leading a class discussion of a mathematics problem in your sixth-grade class. You want to distribute turns to all of your students equally and so you are using "equity sticks" to pull names at random. You ask the class to share their ideas about how they arrived at the solution. When you pull the name of Roberto, a Latino boy in your class, he says, "pass," and declines to respond to your question.
- B. Your class is coming in in the morning. You hear noise in the hallway. When you go out into the hall, you see two of your fifth-grade students—Lisa, a white girl, and Aliyah, a Black girl—tugging on a scarf. Lisa is crying. Aliyah pulls the scarf away and puts it in her locker.
- C. Your fourth-grade students are working with Cuisenaire Rods in groups around the room. A few times you remind them that the rods are not toys. Kendall, one of the Black boys, keeps building stacks of rods and knocking them down. After three reminders, you tell him he should go back to his seat. He gets up and stomps back to his desk, lifts up his desktop, and takes out a piece of paper and some markers.
- D. Adele, a white girl in your class, comes to school wearing short shorts. This is against the dress code. When you remind her that this is against the rules, she starts to get very teary. She says that her mother told her it would be okay because they are not really very short and she was going to a birthday party after school and they are going swimming.
- E. During independent journal time, Antonio, one of your Latino boys, has his head down on his desk and his hood up over his head. Melissa, the white girl sitting next to him, whispers loudly, "You're supposed to be writing." Antonio pushes her hand away. Melissa raises her hand for your attention. "He's not writing," she tells you.
- F. During your sixth-period class, your principal enters your class and interrupts the discussion to tell you that two of your Black girls were fighting at lunch and they need to come with him. One of them, Delia, is in the middle of explaining her thinking about one of the problems the class is discussing today. Other students go "Ooooh, Delia, you are in trouble now!" Lynette, the other girl whom he named, closes her book loudly and throws her pen down on her desk.
- G. You are setting your class up in small groups to discuss a mathematics proof. Two of your students complain about their group, saying that they don't want to work with Carla and Jeana because they are "too dumb and slow and they don't even speak English."

Structured work in three parts

1. What are your reactions? How does the scenario make you feel? How does that relate to your identities and experiences?
2. What patterns of normalized practice and the curriculum of white supremacy does it make visible or imply?
3. What are possible responses or actions that avert or disrupt patterns of harm?



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Learn more at teachingworks.org



View our upcoming programs calendar
teachingworks.org/events-calendar



1

May 20–24, 2024

Content Methods Laboratory Class and Workshop

Join teacher educators from around the country in person or virtually as we investigate the best ways to use the semester-long methods course.

Register by May 1, 2024



2

June 17–21, 2024 | Detroit, MI
June 24–28, 2024 | Grand Rapids, MI

Elementary Mathematics Laboratory

Explore the complexity of teaching and investigate and challenge what it means to use skillful teaching to disrupt patterns of injustice.

Register by May 30, 2024



3

August 1–2, 2024

Introduction to Practice-Based Teacher Education Workshop

This workshop enables teacher educators to develop approaches to making teaching practices explicit to beginning teachers and engaging them in supported practice during pre-service training.

Register by July 19, 2024



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Credits



Image on slides 12–14:

Photo from “Why You Need an Experienced Real Estate Agent” by Elizabeth Weintraub, the balance.

Retrieved from <https://www.thebalance.com/experienced-real-estate-agents-1798883>



Image on slides 12–14:

Photo from “Black doctors earn less than white peers, study reveals” by Stacy M. Brown, The Philadelphia Tribune.

Retrieved from https://www.phillytrib.com/lifestyle/health/black-doctors-earn-less-than-white-peers-study-reveals/article_2d359910-85c8-524b-b6d2-15d1705ad762.html



Image on slides 12–14:

“Police.” by Flickr user G20 Voice

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Credits



Image on slides 12–14:

Photo from “Want to be a poll worker? Philly says it’s responding to ‘unprecedented’ number of applicants” by Ximena Conde, WHYY

Retrieved from <https://whyy.org/articles/want-to-be-a-poll-worker-philly-says-its-responding-to-unprecedented-number-of-applicants/>



Image on slides 12–14:

Photo from “Trump Rioters Storm U.S. Capitol (photos),” Variety

Retrieved from <https://variety.com/gallery/trump-rioters-storm-us-capitol-photos/congress-electoral-college-8/>



Image on slides 13–14:

Photo from “20 Classroom Interventions for Children with Anxiety Disorders” by Jerry Kennard, Ph.D., HealthCentral.

Retrieved from <https://www.healthcentral.com/article/20-classroom-interventions-for-children-with-anxiety-disorders>

Credits



Image on slide 14:

Photo from “10 Ways Well-Meaning White Teachers Bring Racism Into Our Schools” by Jamie Utt, *everyday feminism*.

Retrieved from <https://everydayfeminism.com/2015/08/10-ways-well-meaning-white-teachers-bring-racism-into-our-schools/>

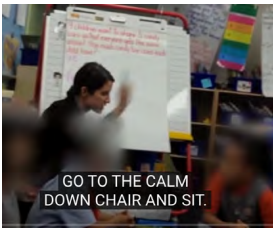


Image on slide 15:

Screenshot of video from “A Momentary Lapse or Abusive Teaching?” The New York Times.

Retrieved from <https://www.nytimes.com/video/nyregion/100000004159212/success-academy-teacher-rip-and-redo-video.html>



Image on slides 15 and 48:

Photo from “Research brief addresses teacher stress and health,” Prevention Research Center, Penn State College of Health and Human Development.

Retrieved from <https://prevention.psu.edu/news/research-brief-addresses-teacher-stress-and-health/>

Credits



Image on slides 15 and 48:

Photo from “Corporal Punishment in Schools: Research and Reporting Tips to Guide Your Coverage” by Denise-Marie Ordway, The Good Men Project.

Retrieved from <https://goodmenproject.com/featured-content/corporal-punishment-in-schools-research-and-reporting-tips-to-guide-your-coverage-2/>



Image on slide 15:

Photo from “Why Many Academic Interventions Don’t Have Staying Power—and What to Do About It” by Sarah Schwartz, Education Week.

Retrieved from https://www.phillytrib.com/lifestyle/health/black-doctors-earn-less-than-white-peers-study-reveals/article_2d359910-85c8-524b-b6d2-15d1705ad762.html



Image on slide 37:

Photo from “4 Legendary Approaches to Teaching That Impact All of Us. A Tribute to Dan Lortie,” by Andy Hargreaves, Education Week.

Retrieved from <https://www.edweek.org/education/opinion-4-legendary-approaches-to-teaching-that-impact-all-of-us-a-tribute-to-dan-lortie/2020/05>

Credits

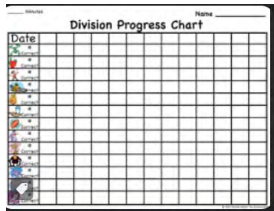


Image on slide 48:

Photo from Division Basic Facts Progress Chart and Assessments, TPT

Retrieved from <https://www.teacherspayteachers.com/Product/Division-Basic-Facts-Progress-Chart-and-Assessments-104894>



Image on slide 48:

Photo from Recognition Certificates - Mathematics Achievement, Creative Shapes Etc.

Retrieved from <https://creativeshapesetc.com/products/recognition-certificates-mathematics-achievement>