

# MAKING MATHEMATICS TEACHING WORK: RAISING ITS POWER TO DISRUPT WHITE SUPREMACY

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SCHOOL OF EDUCATION




TeachingWorks



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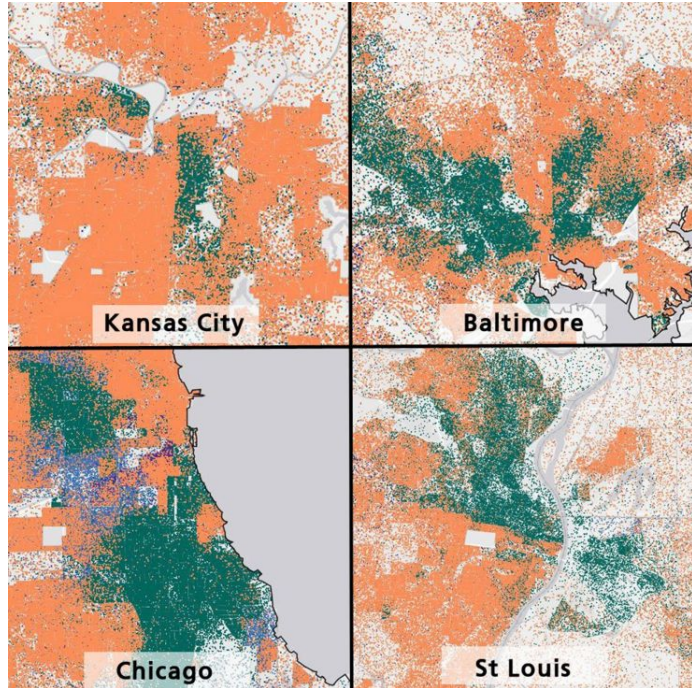


There seems to be an increasingly shared recognition that racism is systemic and rooted in our histories and institutions.



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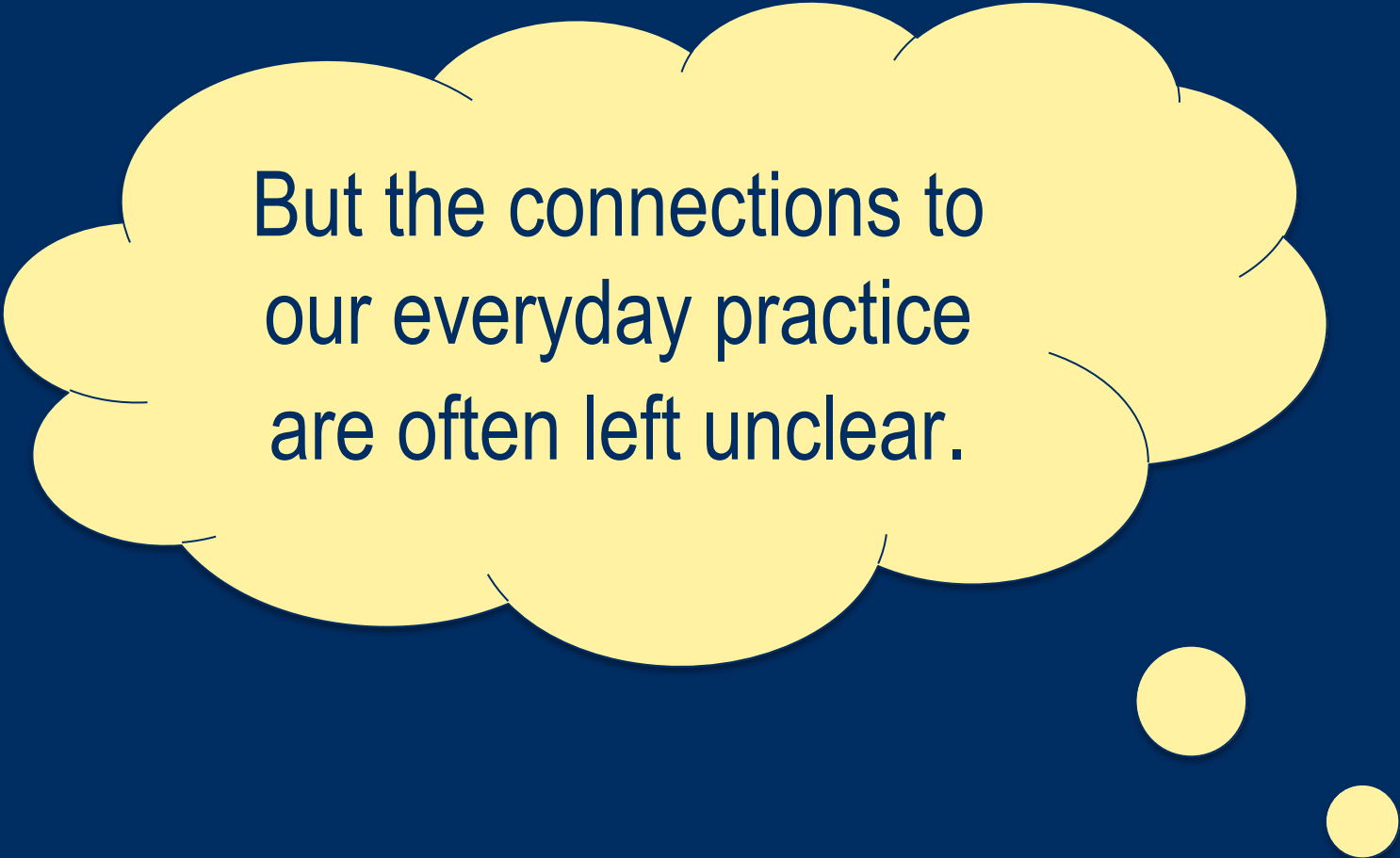


OUR CRIMINAL JUSTICE SYSTEM NEEDS REFORM

Being uninsured is *deadly*.

A comprehensive review of studies, published in the Annals of Internal Medicine, confirms that **thousands of people die each year because they don't have coverage**. We need to close these gaps and cover everybody with improved Medicare for all.





But the connections to  
our everyday practice  
are often left unclear.



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But the connections to our everyday practice are often left unclear.

And without making those connections, the patterns are reproduced through normalized practices.



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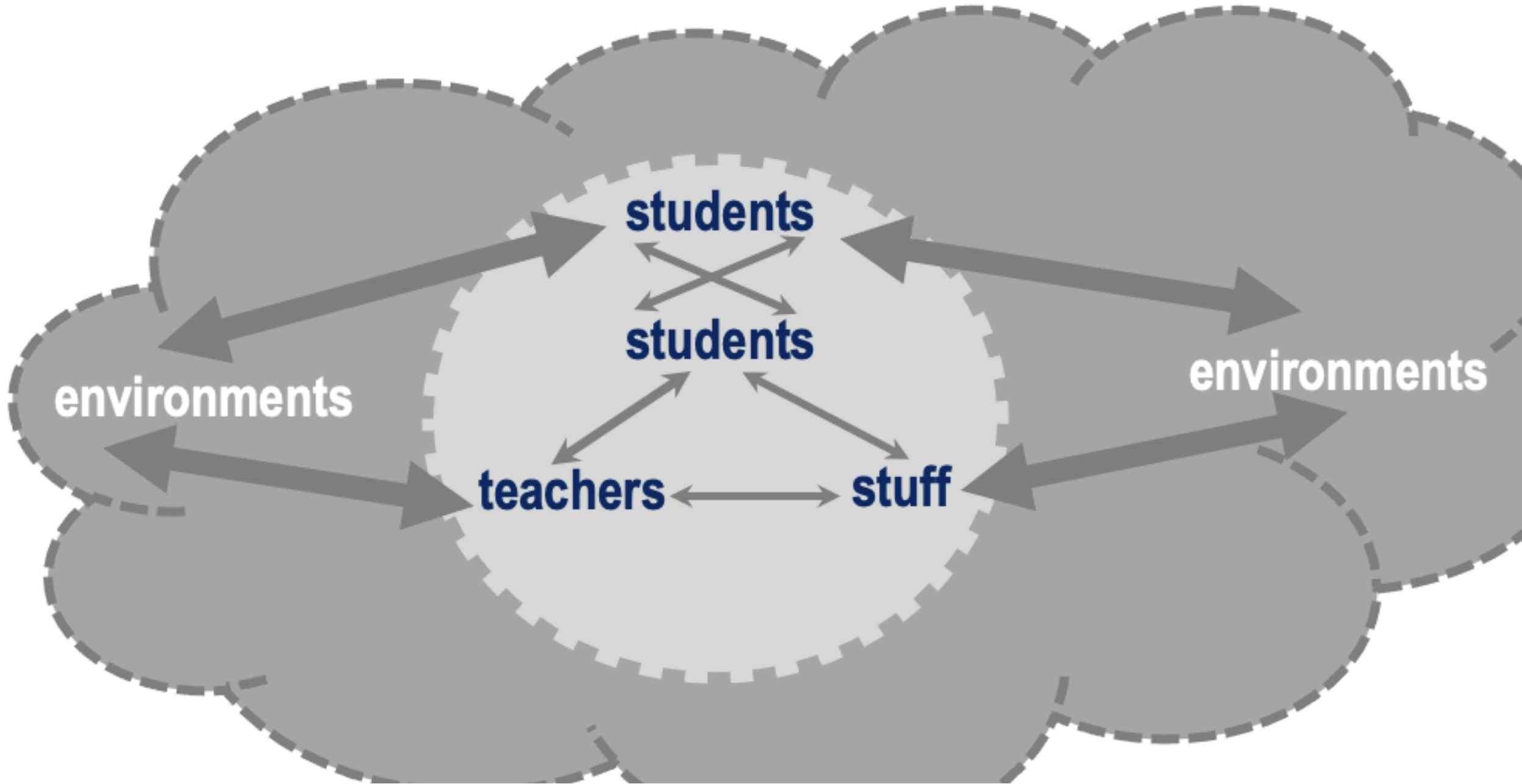
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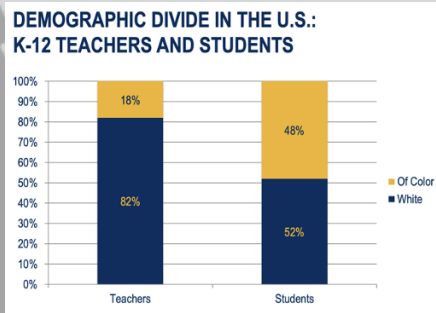
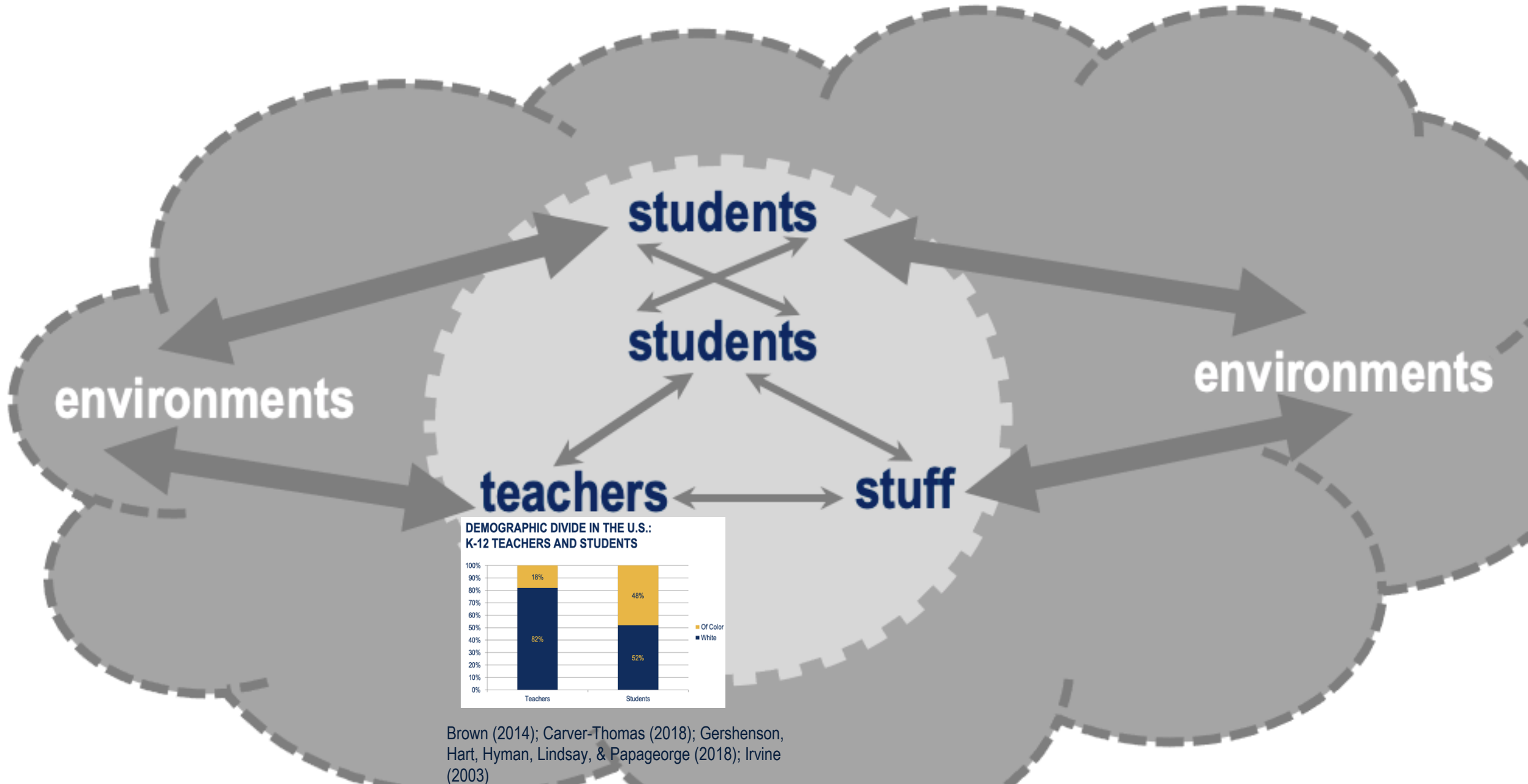




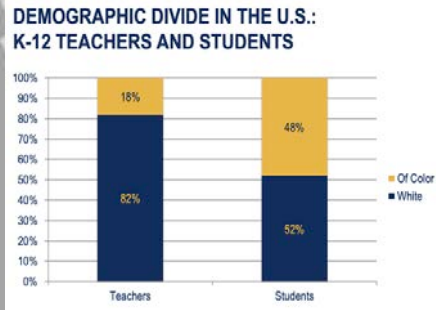
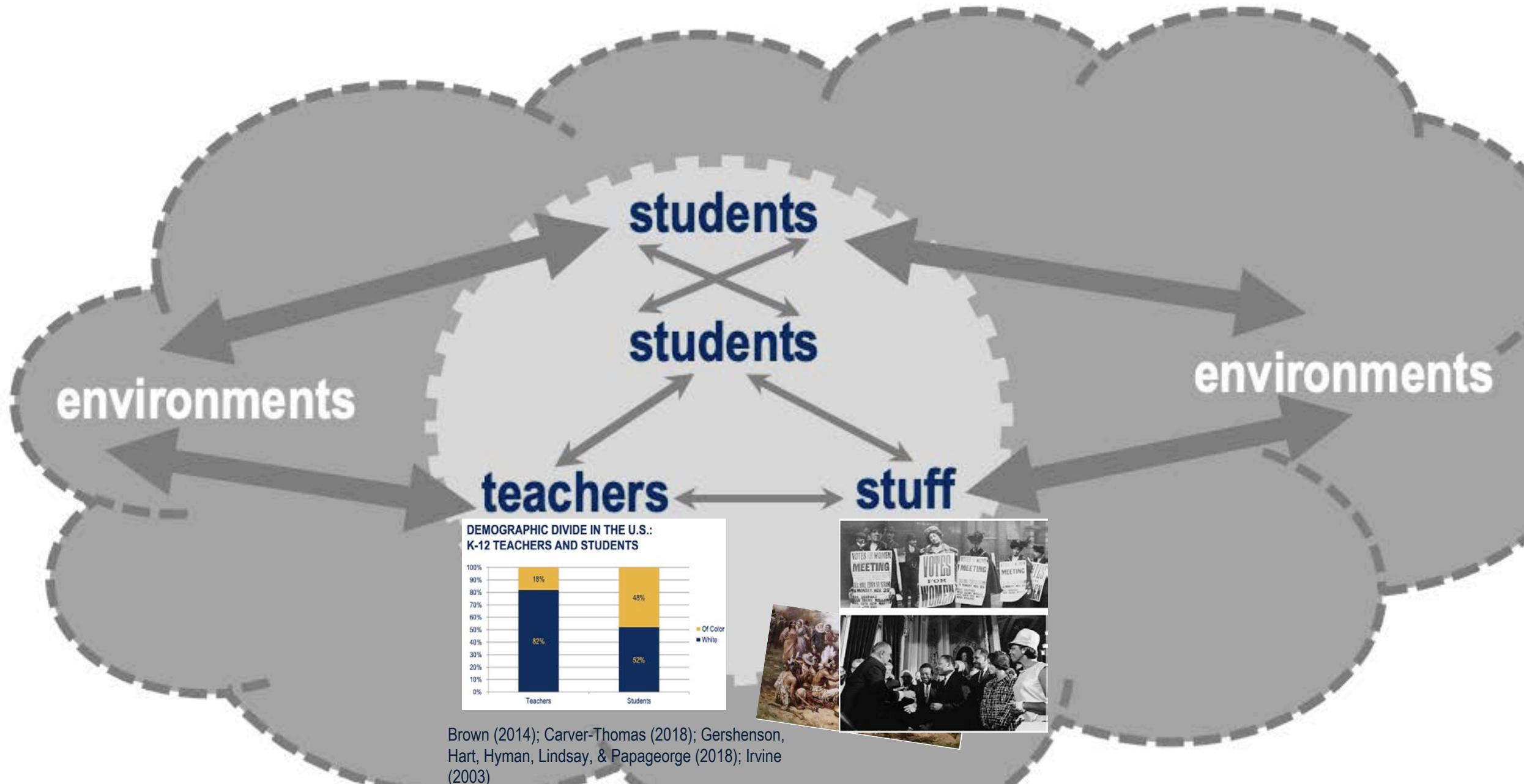




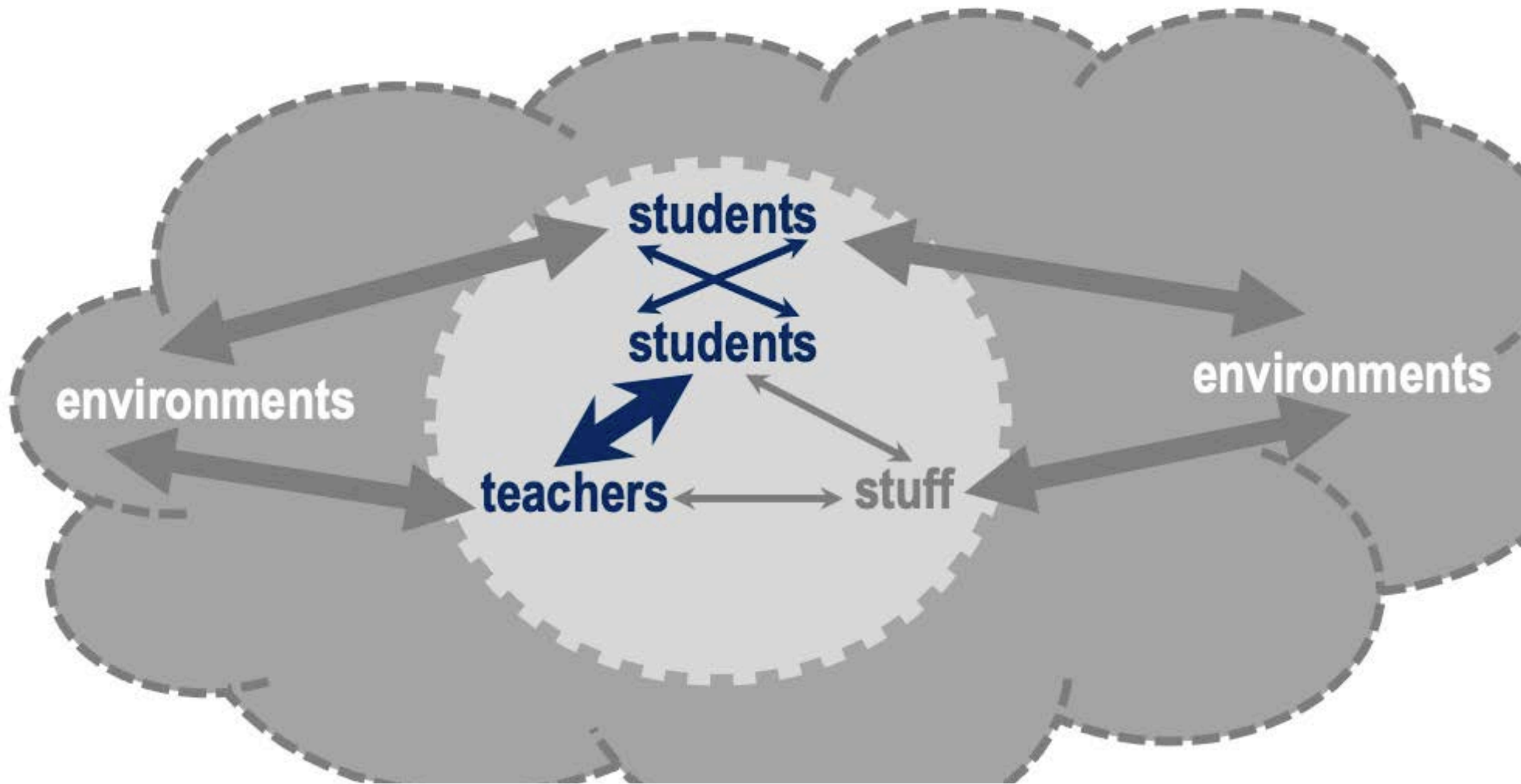




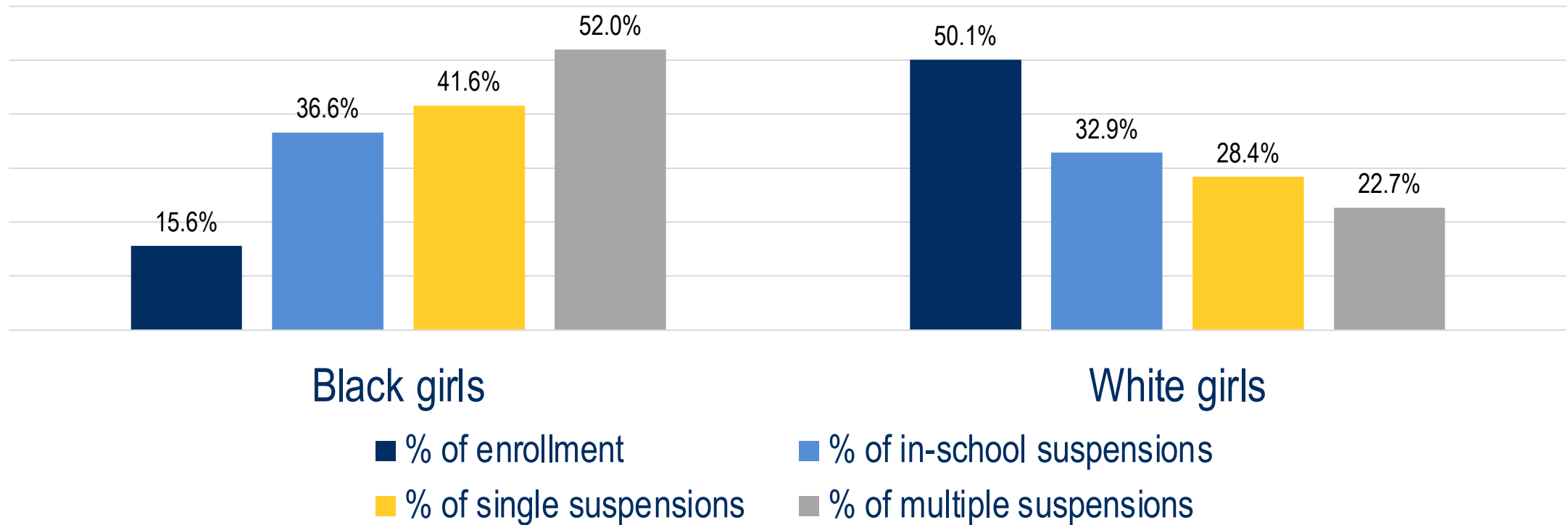
Brown (2014); Carver-Thomas (2018); Gershenson, Hart, Hyman, Lindsay, & Papageorge (2018); Irvine (2003)



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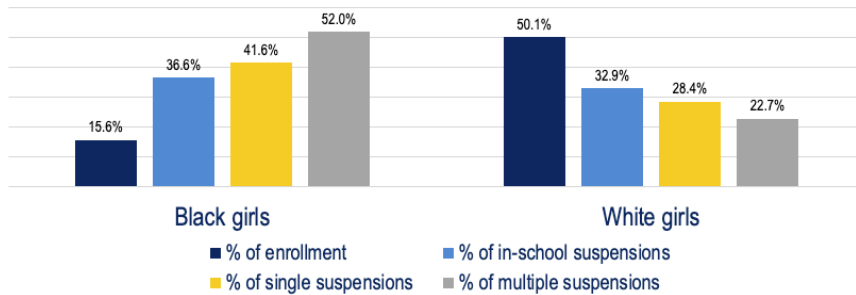
# A SYSTEMIC PATTERN: THE DISPROPORTIONATE PUNISHMENT OF BLACK GIRLS



Epstein, Blake, & González (2017)

# CONNECTING SYSTEMS TO EVERYDAY “NORMAL”

## How does this happen?



Let's look inside a classroom.

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



# ANIYAH AND TONI

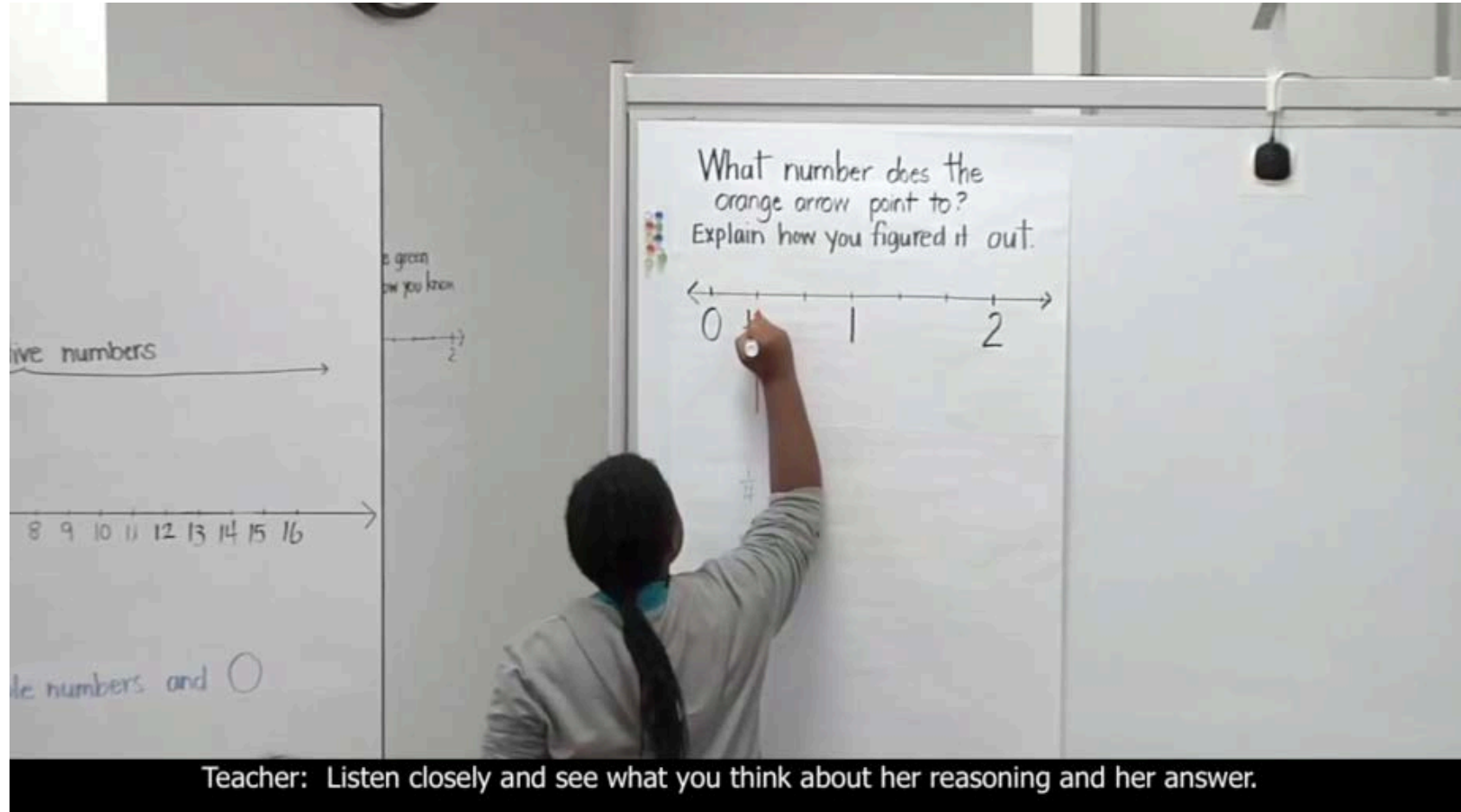




# VIEWING FOCUS

What do you think are the most frequent comments that educators make about Toni? About Aniyah?

# VIDEO: ANIYAH AND TONI



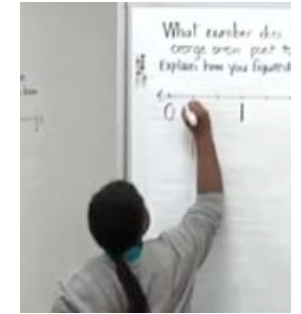
This video and additional supporting materials are available online [here](#).

# WHAT ARE THE MOST FREQUENT COMMENTS?



**TONI**

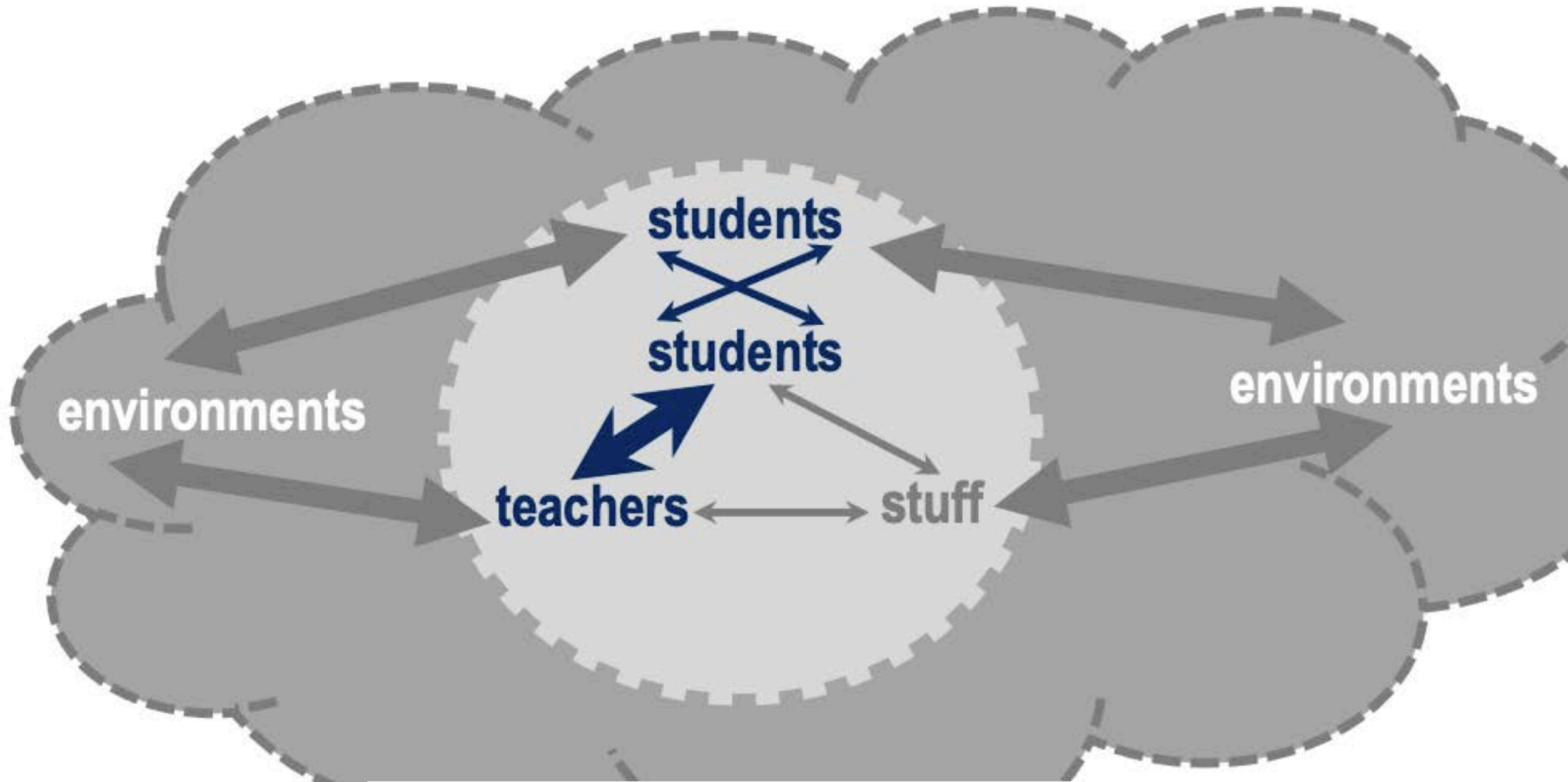
- Toni is fooling around with another student across the room and laughing at Aniyah.
- Toni is being disrespectful to Aniyah.
- Toni knows that Aniyah is wrong and is trying to point that out.

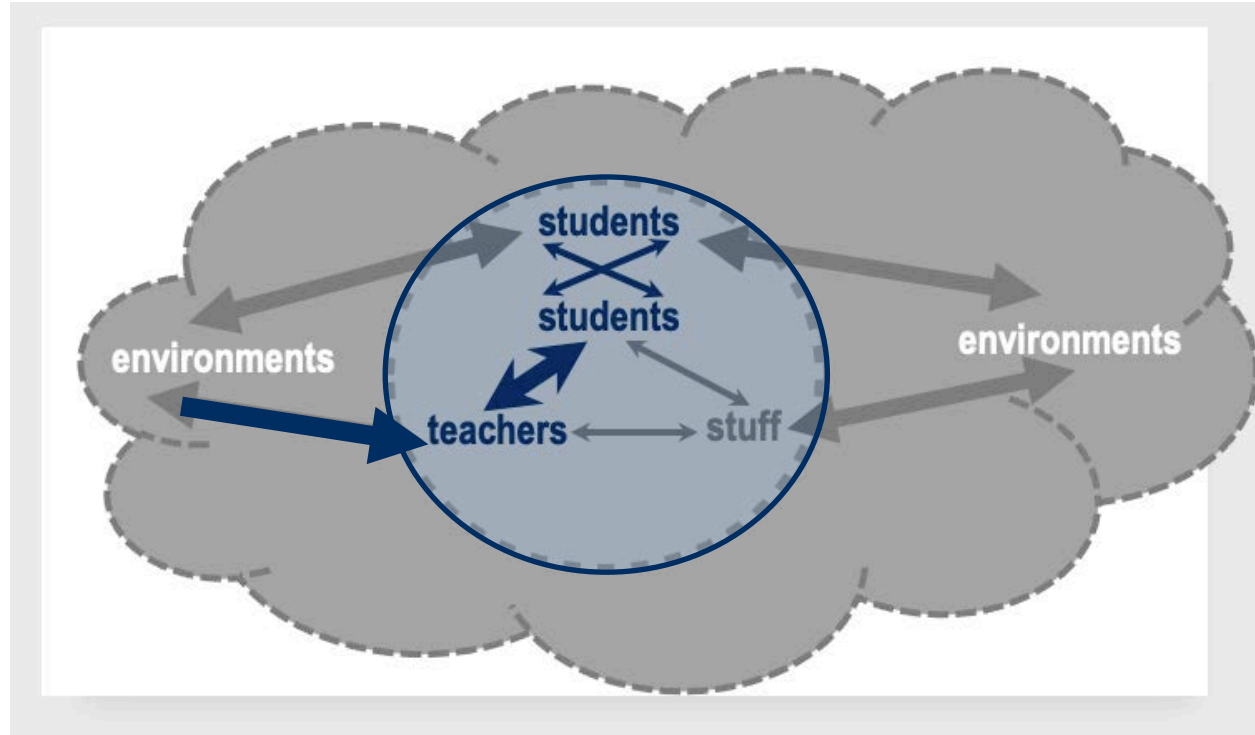


**ANIYAH**

- Aniyah has the wrong answer.
- Aniyah should not be left up there with a wrong answer, feeling bad and possibly confusing other children.
- Aniyah is being harmed by how Toni is treating her.

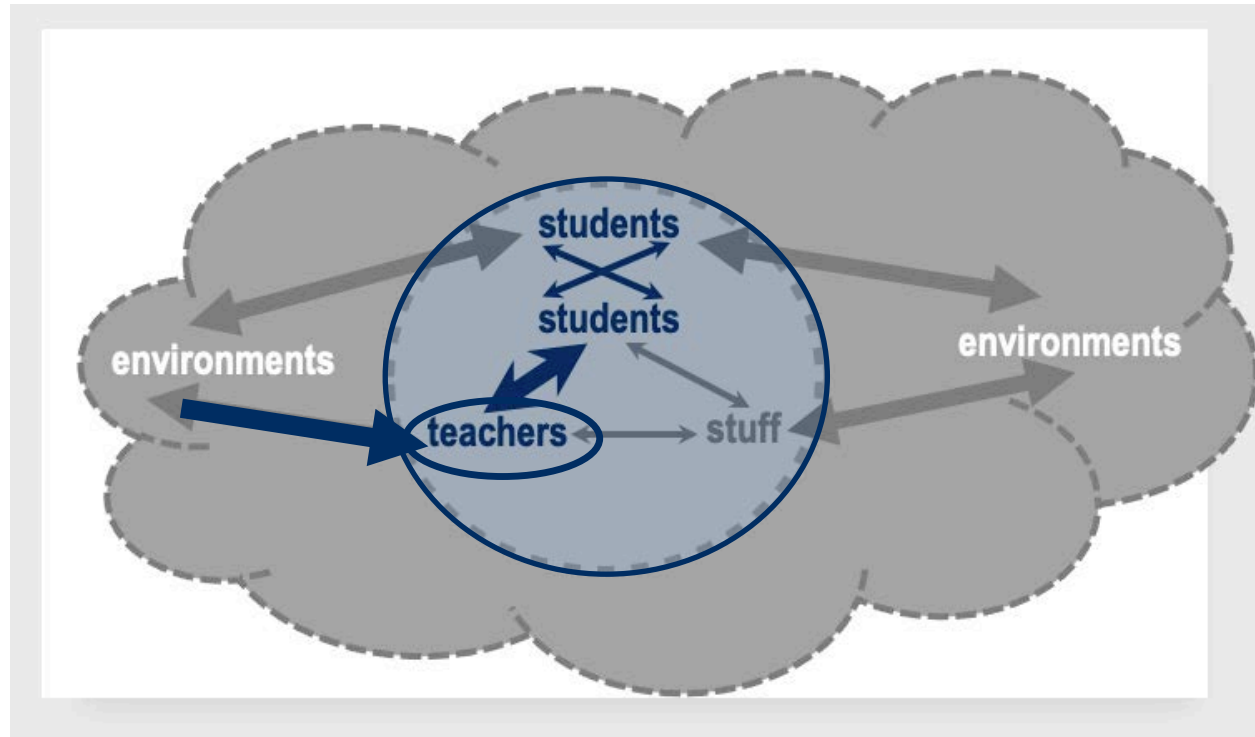






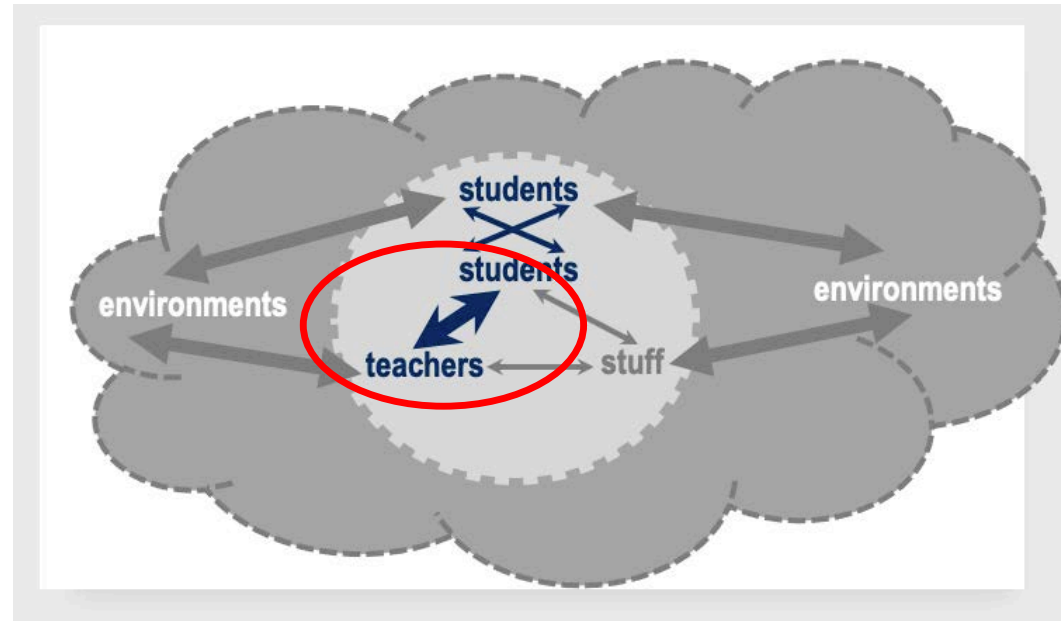
- Teaching is constrained by policies, curriculum, testing regimes. . .

Lipsky (1980), Shulman (1983)

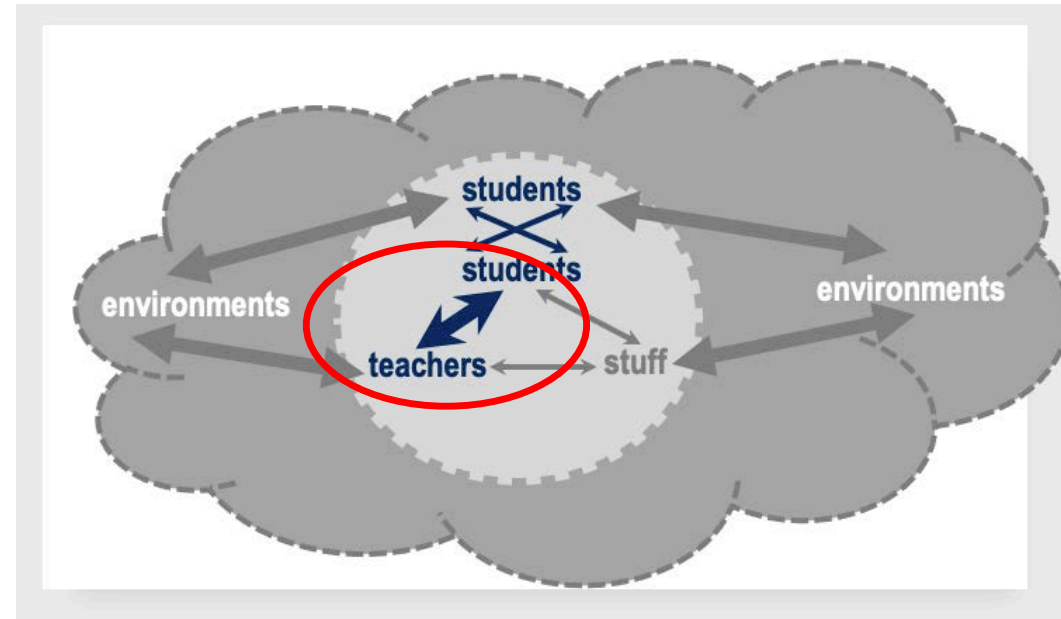


- Teaching is constrained by policies, curriculum, testing regimes. . .
- Teaching is highly idiosyncratic and individual.

Lipsky (1980), Shulman (1983)



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, Aniyah?	5. Selecting a student to present
Toni Other children	Playing with hair Laying on arms	6. Deciding whether to comment 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
Aniyah	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. (Aniyah writes $\frac{1}{7}$ by the orange line).	12. Setting task for the other students
Aniyah	I put one-seventh because there's-	
Toni	Did she say one-seventh?	13. Responding to student
Aniyah	(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 Aniyah 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
Dane	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?	
Dane	You did not!	18. Responding to student speaking across room
Teacher	Let's listen to her answer now. That was a very good question.	19. Setting task for class 20. Responding to student



20 in 1:28



Speaker	Talk	
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 to discuss 2. Deciding to discuss 3. Framing 4. Framing board
Teacher	Okay, Aniyah?	5. Selecting student
Toni Other children	Playing with hair Laying on arms	6. Deciding 7. Deciding
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Teacher	Go ahead, it's your turn.	17. Responding to student
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 student
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**Teacher**

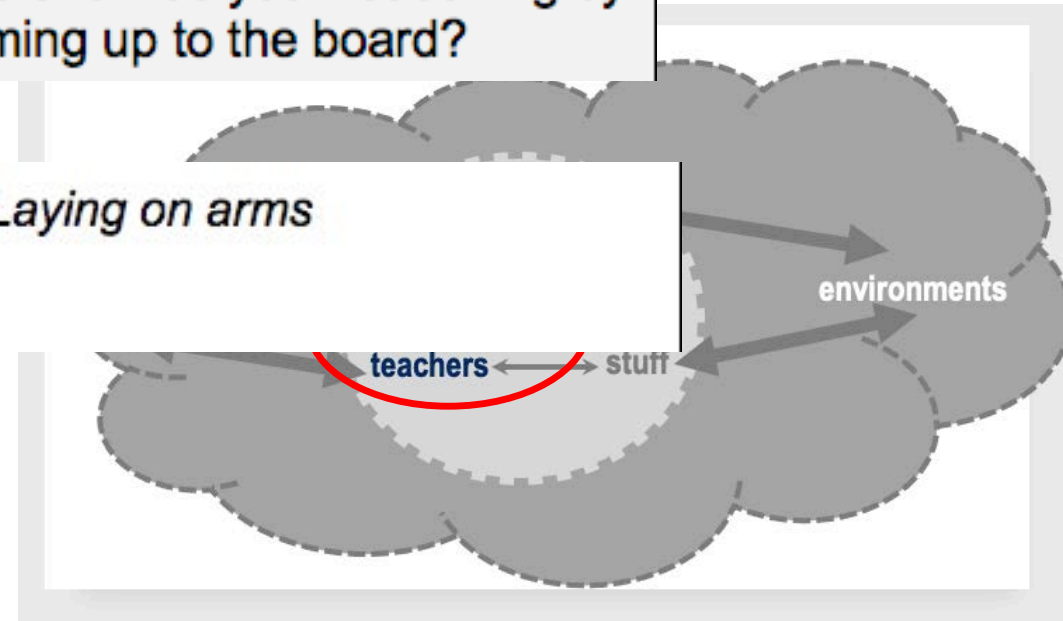
Who would like to try to explain what you think the answer is?  
And show us your reasoning by coming up to the board?

**Other children**

Laying on arms

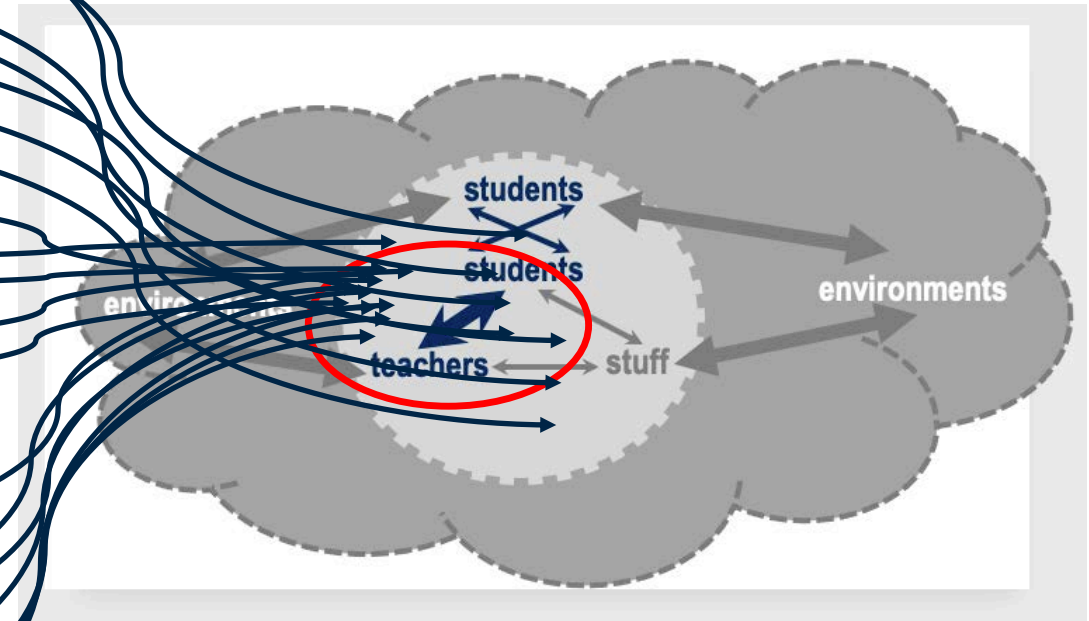
**Dante**

You did not!



20 in 1:28

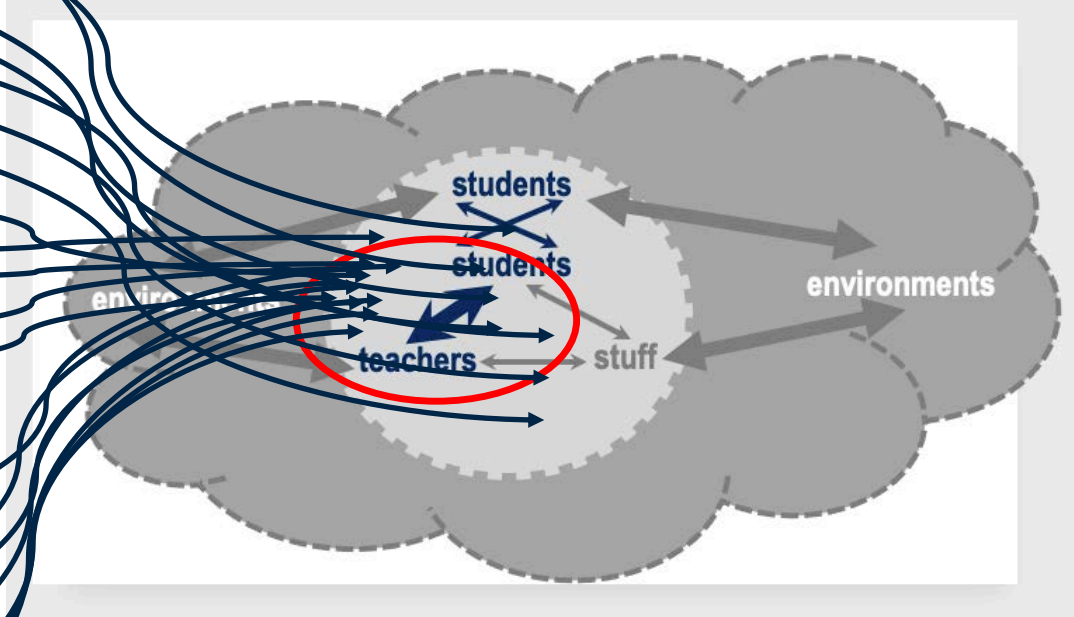
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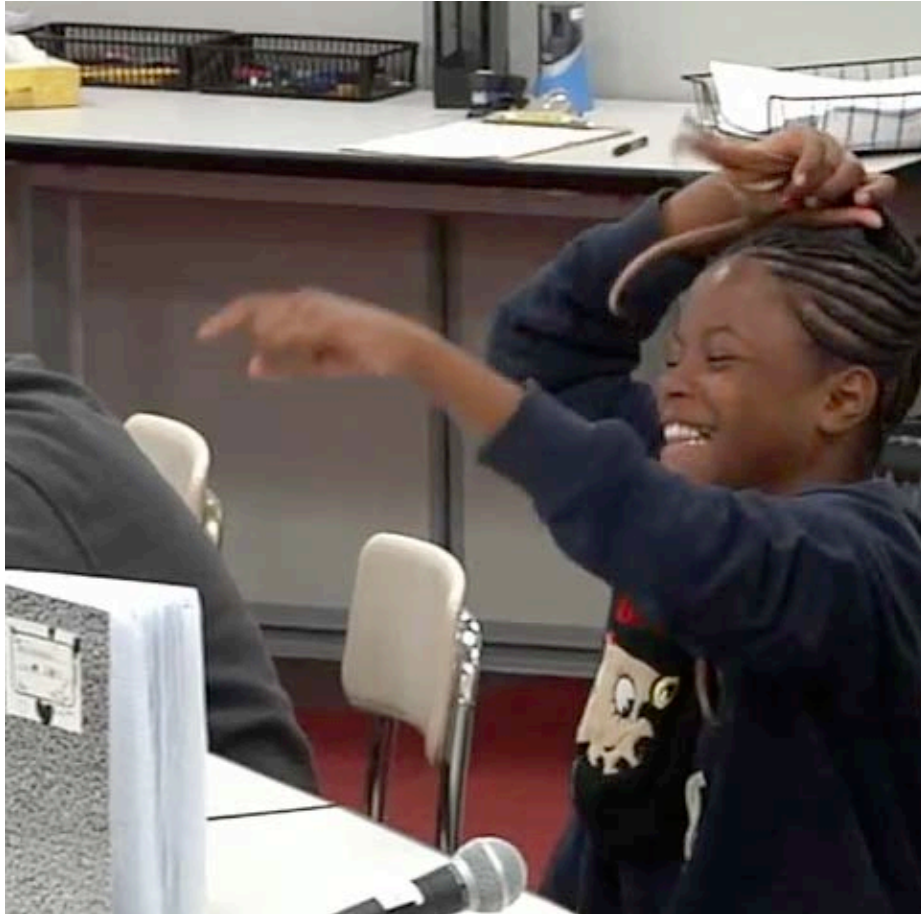
# TEACHING IS DENSE WITH “DISCRETIONARY SPACES”

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20 in 1:28

# SEEING INSIDE DISCRETIONARY SPACE #19



- Toni is asking a question of Aniyah.
- Toni is laughing and playing with her hair.
- Toni and Aniyah are Black girls, who are positioned with different statuses in the classroom, have different physical embodiments, and perform their meanings and understandings of their Black-girlness in different ways.

**What to do next?**

(Gholson, Evan-Winter, Neal-Jackson)

What commonly  
would happen  
next?

What are the  
possible results?



# WHAT TO DO NEXT IN DISCRETIONARY SPACE #19?

- “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.”

# WHAT DOES EACH OF THESE DIFFERENT EXERCISES OF DISCRETION DO?

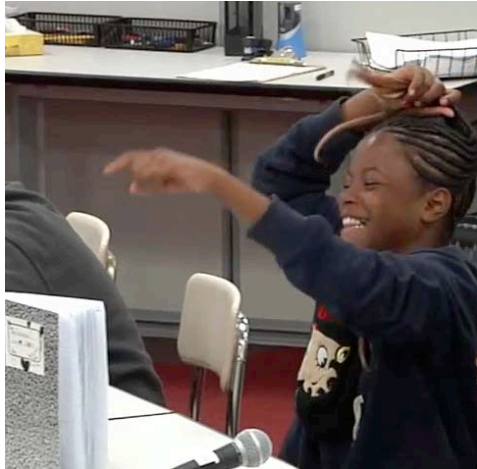
## POSSIBLE NEXT MOVES

- “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.”

## POSSIBLE 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 named as “disrespectful,” rebuked, and her role in advancing the mathematics is sidelined.

# WHAT DO THESE THREE DIFFERENT TEACHING MOVES DO TO TONI AND THE OTHER CHILDREN?



- Toni's contributions to the class are not read as appropriate or valuable.
- Her participation and mathematical attentiveness are made invisible.
- Her mathematical identity is not supported.
- These combine to eclipse her humanity.



- Toni is named as being a distraction, disrespectful of Aniyah, and as playing with her hair.
- She is not seen as someone who contributes to math discussions, or who asks good questions.
- These combine to images of Black girls as “troublemakers” and not “good at math.”





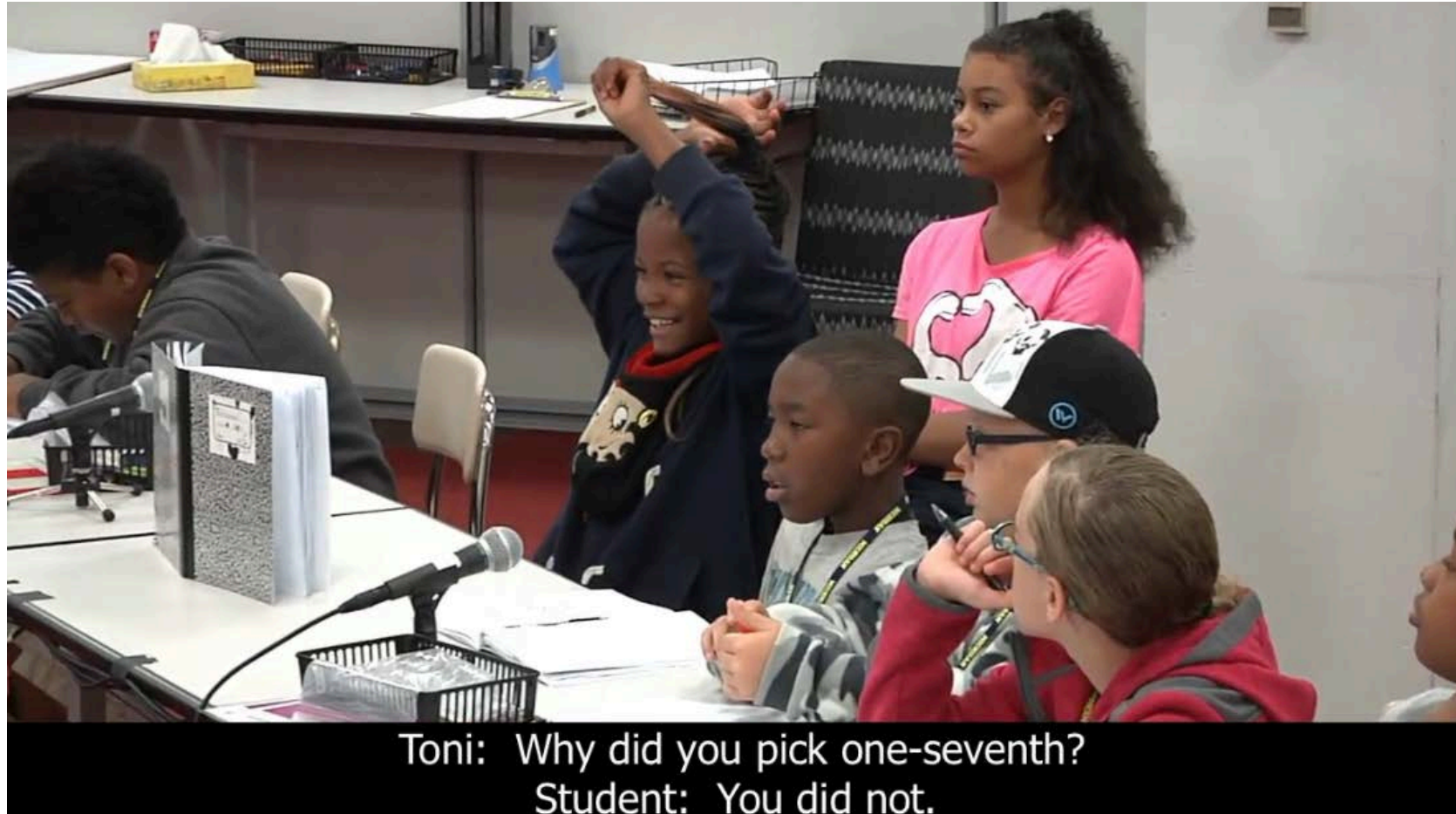
What is involved in  
disrupting these  
patterns?



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# VIDEO: ANIYAH AND TONI



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

# USING A DISCRETIONARY SPACE TO DISRUPT INSTEAD OF PERPETUATE THE PATTERN



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



- Other children hear Toni being read as asking an important mathematical question
- Toni is positioned as a contributor to the discussion
- Children see a teacher attending to a Black girl's thinking and not as someone making trouble

I could never let Toni get away with that in my classroom.

Toni looks older than Aniyah. Maybe she got held back. I think I would pull her out of this setting.

I'd be very concerned about Aniyah and how she feels, being up at the board like that.

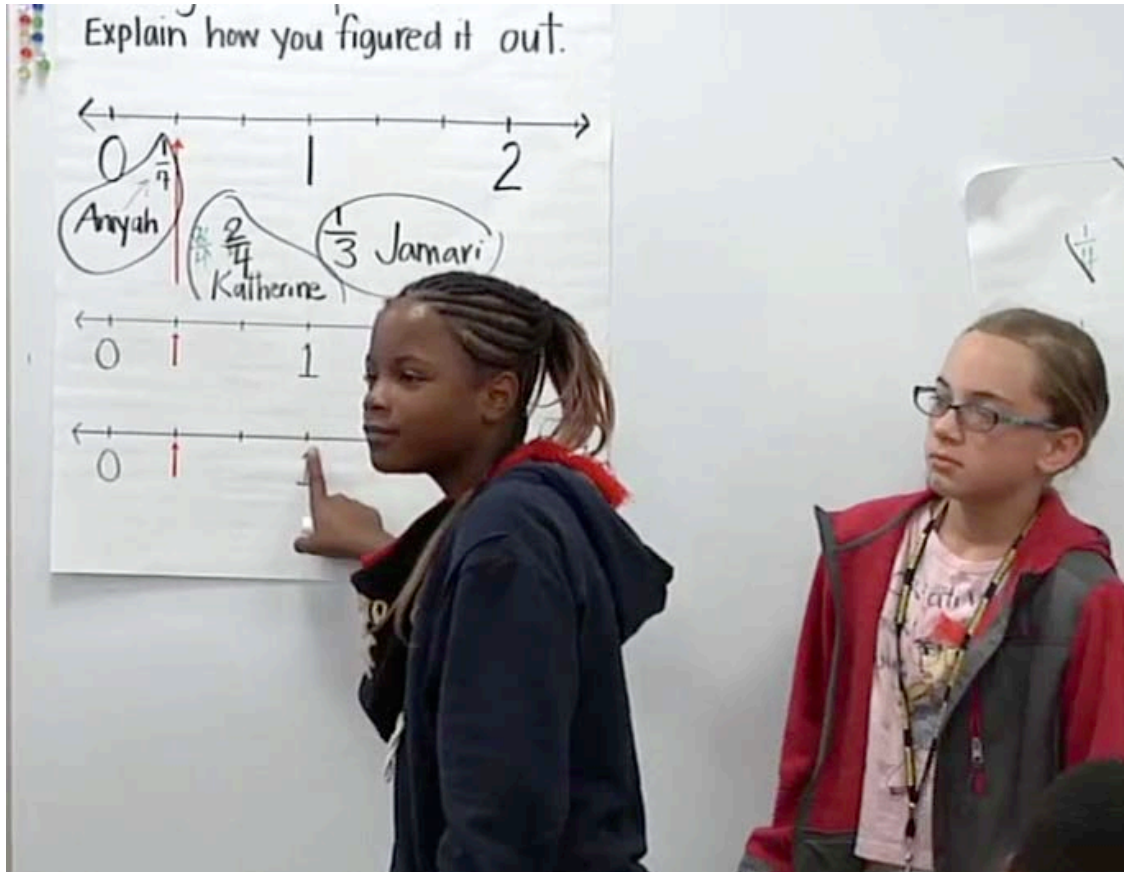


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# 14 MINUTES AFTER WHERE WE STOPPED

TONI



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.



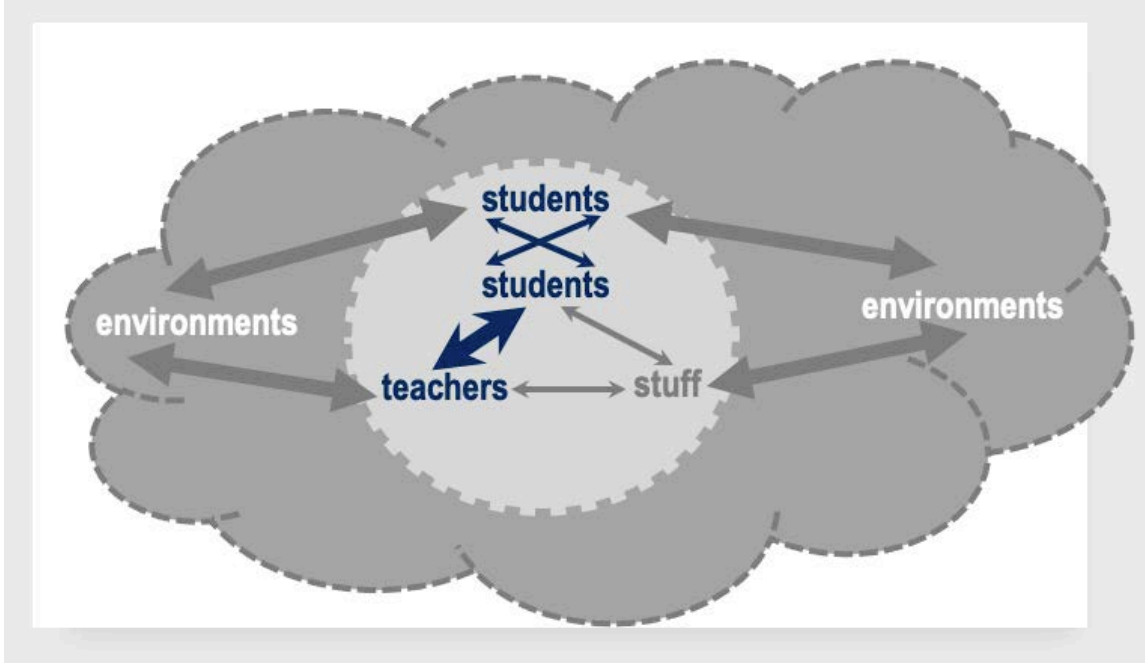
What would it take to learn to use  
the discretionary spaces in  
teaching in ways that disrupt the  
curriculum of white supremacy,  
instead of reinforcing and  
perpetuating it?



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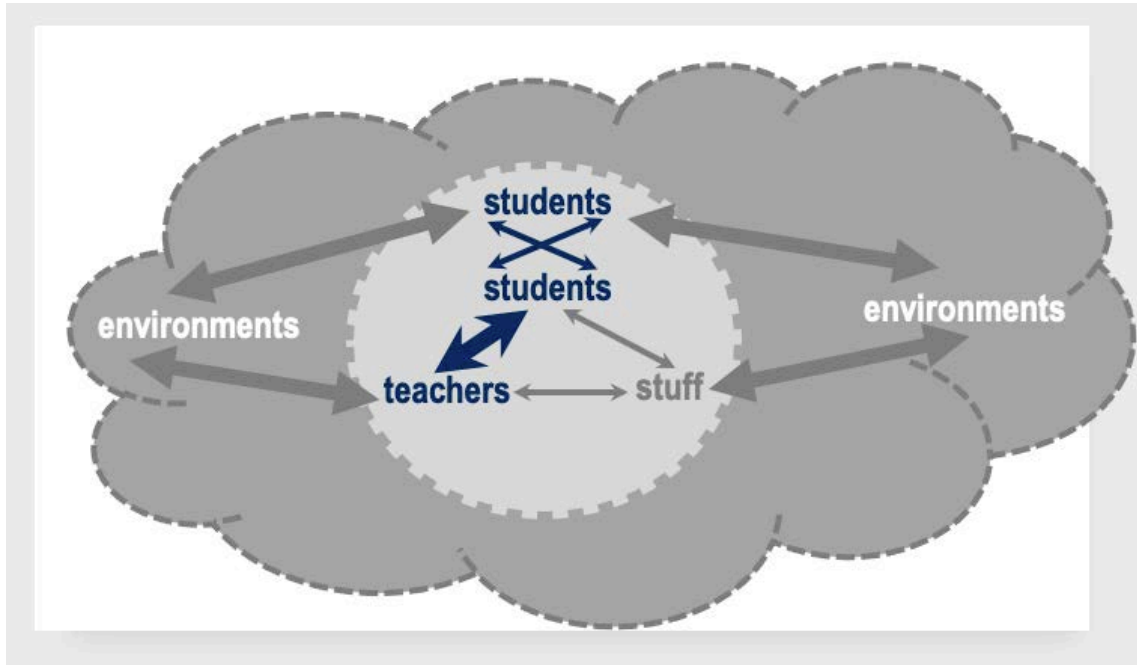
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# WHAT REGULARLY FILLS THE DISCRETIONARY SPACES IN TEACHING?





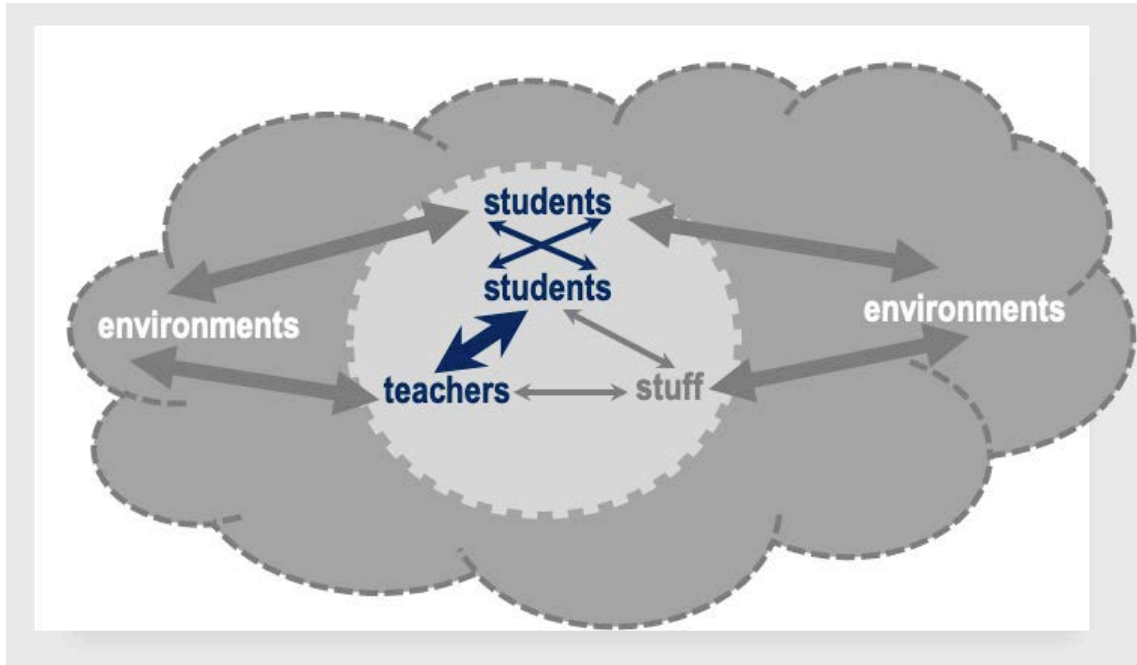
# WHAT REGULARLY FILLS THE DISCRETIONARY SPACES IN TEACHING?



1. Teachers' experiences in a society filled with racism and oppression.

Lortie (1975), Banks, Grant and Koskela, Moll

# WHAT REGULARLY FILLS THE DISCRETIONARY SPACES IN TEACHING?



1. Teachers' experiences in a society filled with racism and oppression.
2. Normalized practices in schools that institutionalize dominant values and habits.

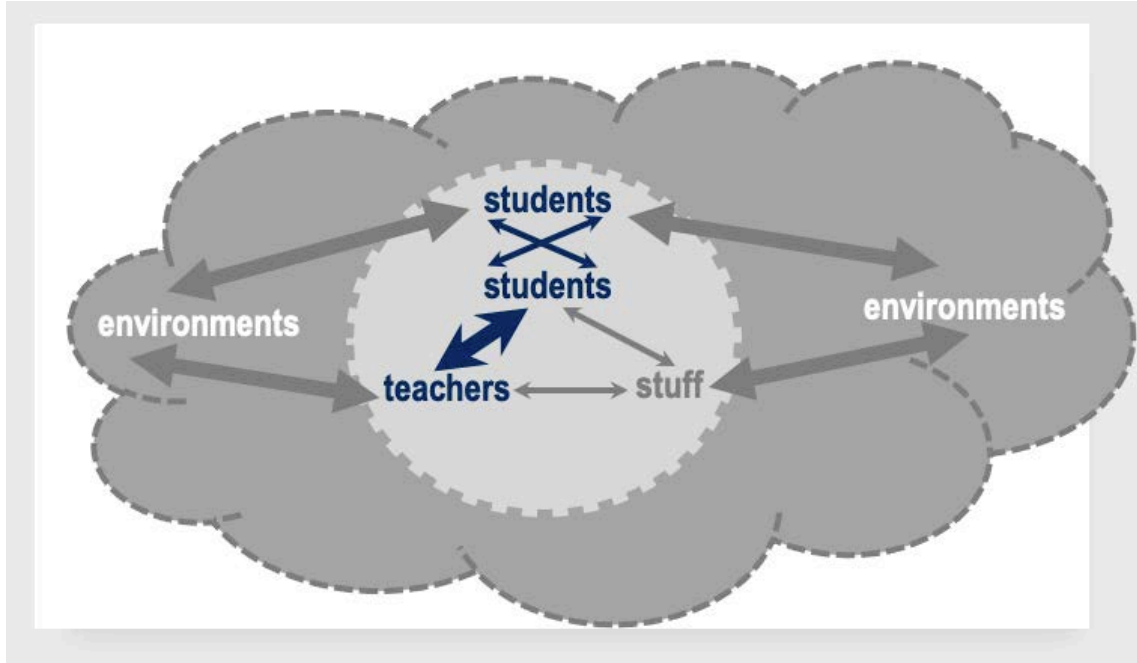
Lortie (1975), Banks, Grant and Koskela, Moll  
Anyon (1981), Heath, Martin, Tuck

# WHAT REGULARLY FILLS THE DISCRETIONARY SPACES IN TEACHING?

Professional education does not effectively intervene on these.

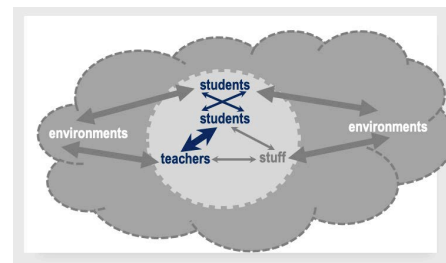
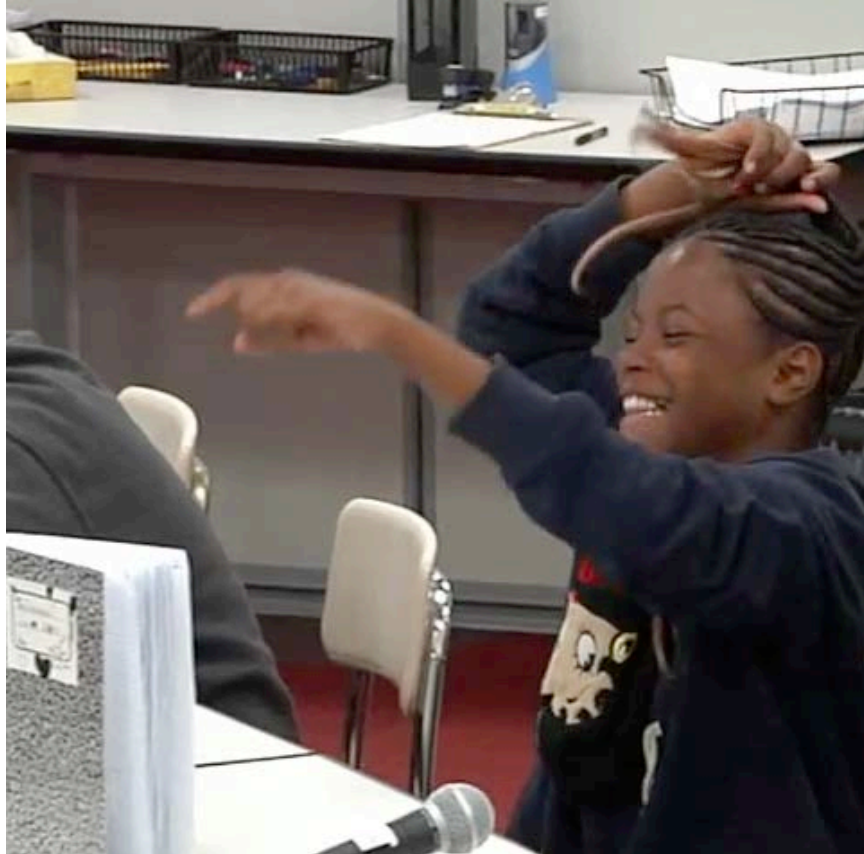
1. Teachers' experiences in a society filled with racism and oppression.
2. Normalized practices in schools that institutionalize dominant values and habits.

Professional education and teaching experience often teach these.



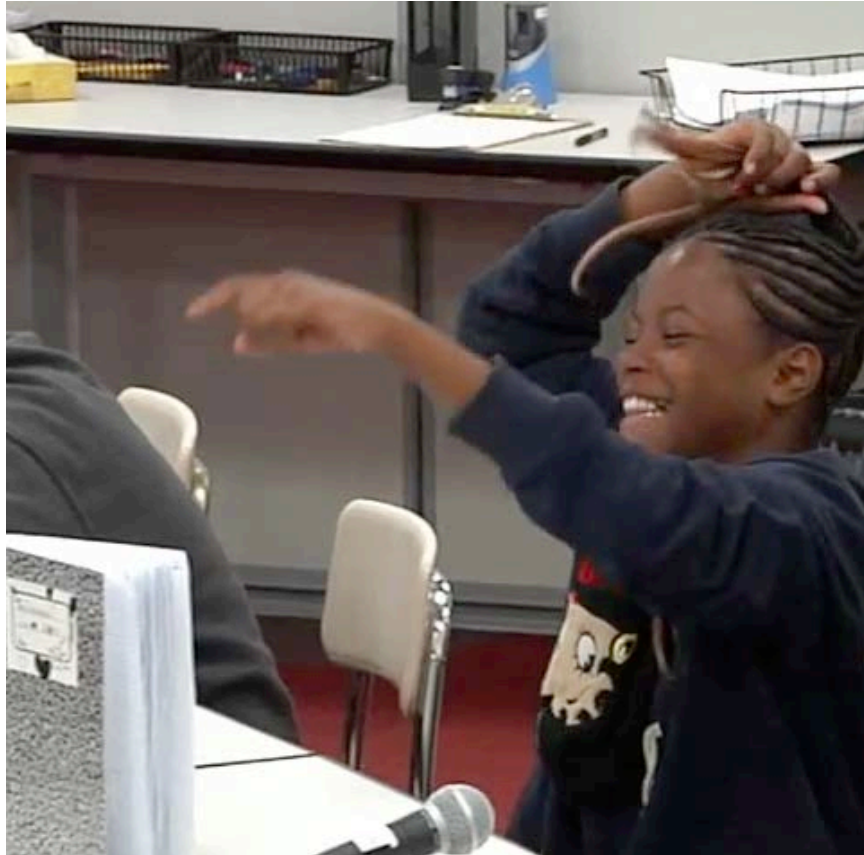
Lortie (1975), Banks, Grant and Koskela, Moll  
Anyon (1981), Heath, Martin, Tuck

# WHAT DOES IT TAKE TO DISRUPT THE PATTERNS THROUGH WHICH A BLACK GIRL IS MARGINALIZED?

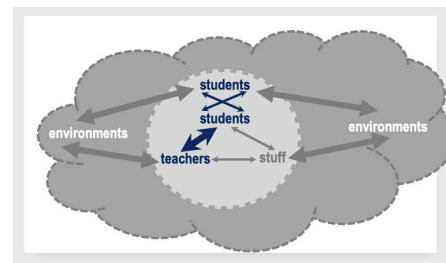


Gholson & Martin, 2014; Langer-Osuna, 2015, 2017; Leonard & Martin, 2013; Martin, 2012, 2015

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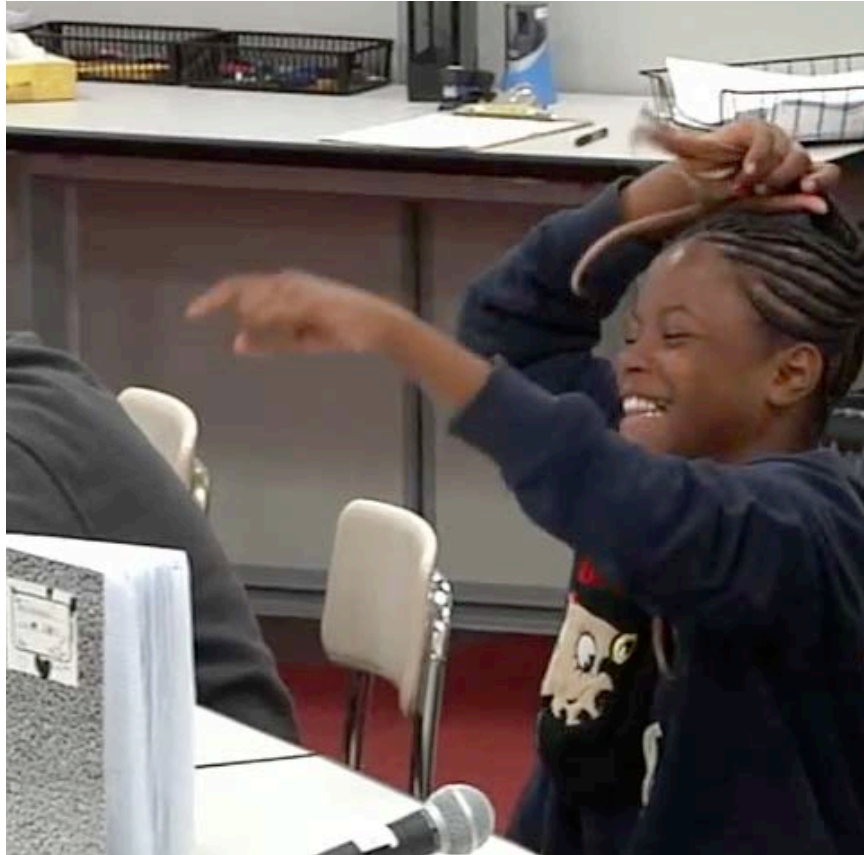


- Seeing Toni's question as key to the class's work



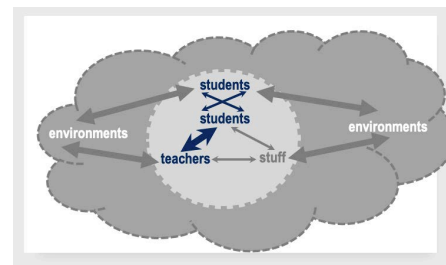
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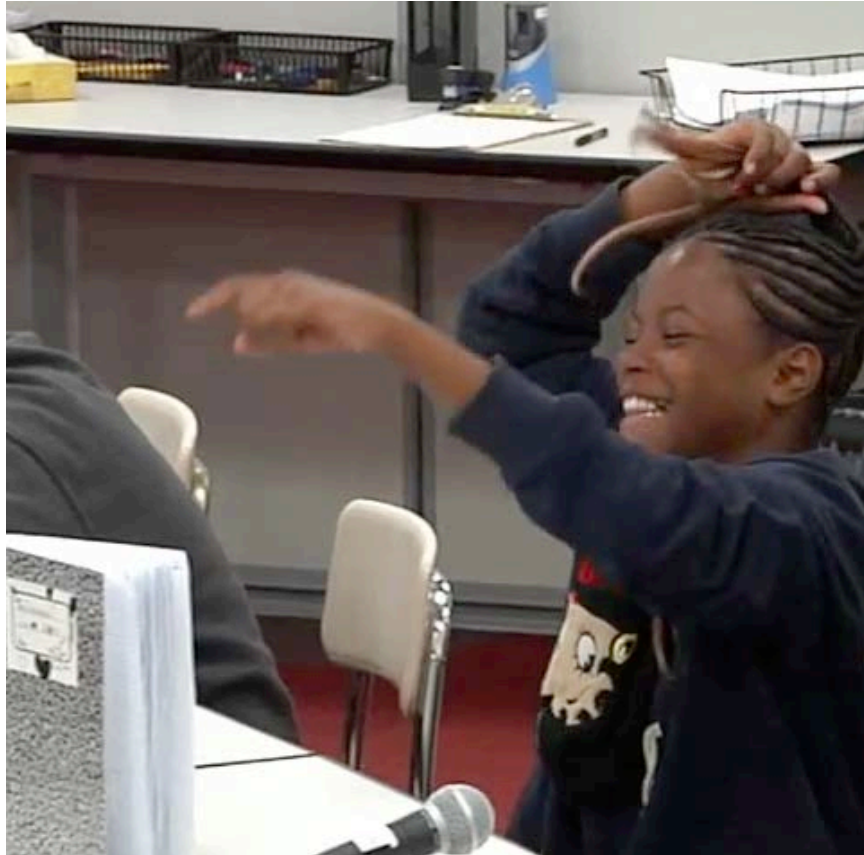
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Knowing and using mathematics in teaching (MKT)



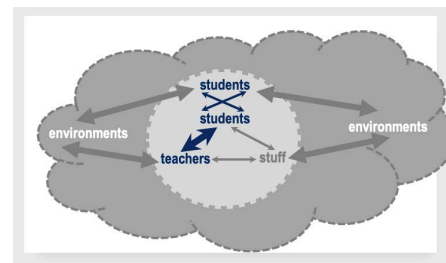
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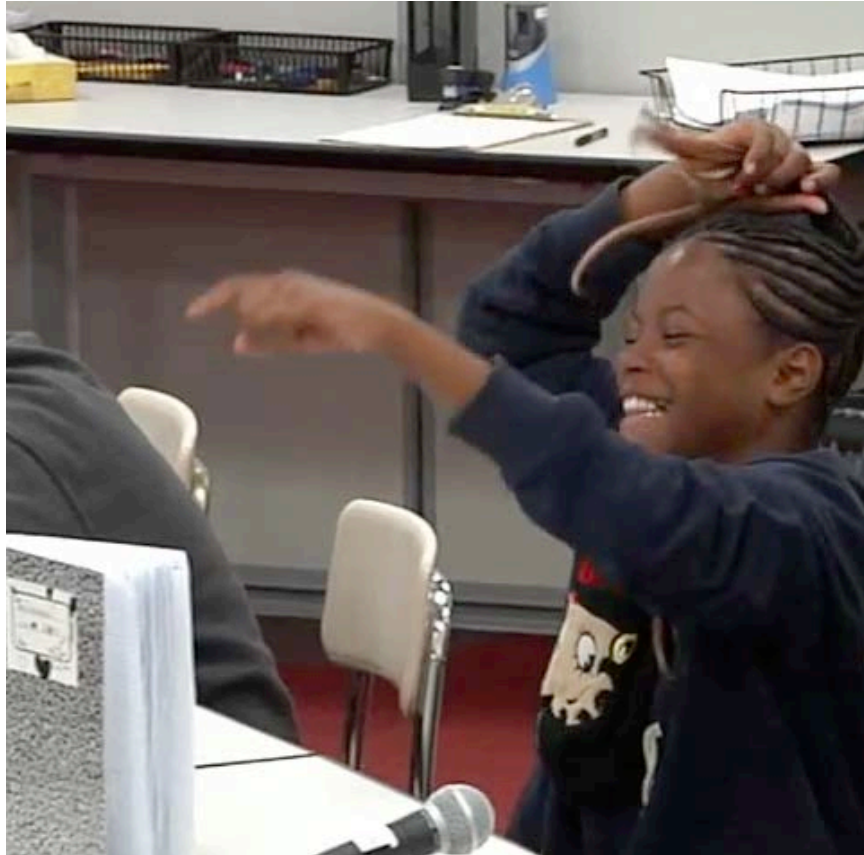
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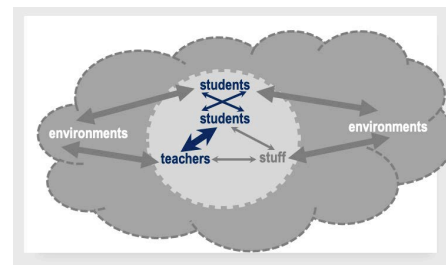
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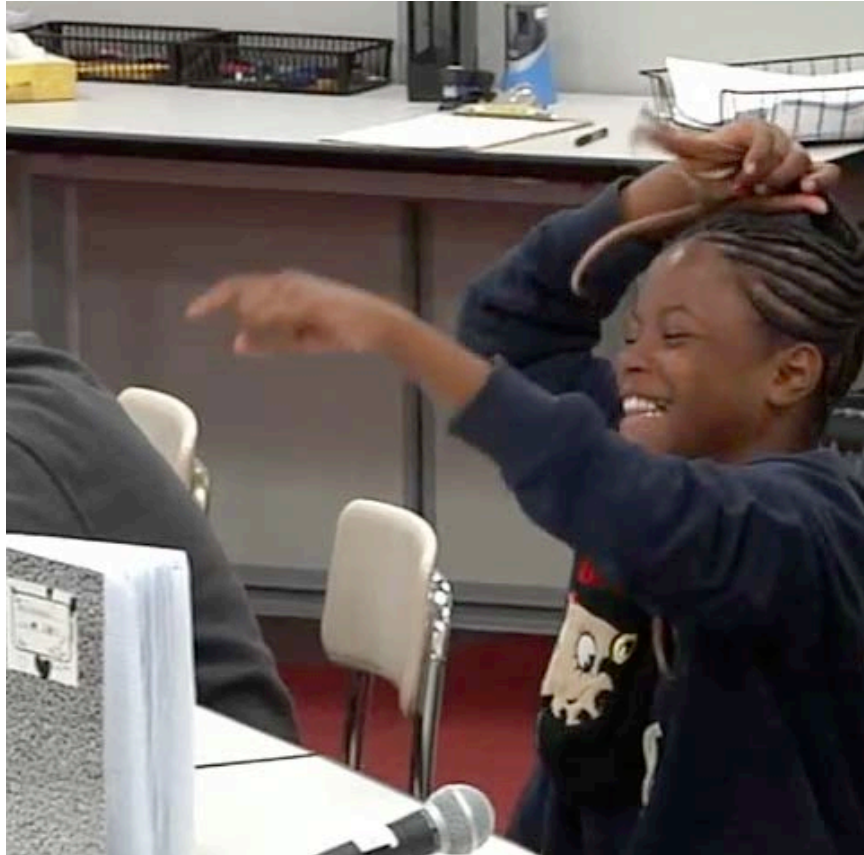
Interpreting Toni as asking a mathematical question that she means



Gholson & Martin, 2014; Langer-Osuna, 2015, 2017; Leonard & Martin, 2013; Martin, 2012, 2015



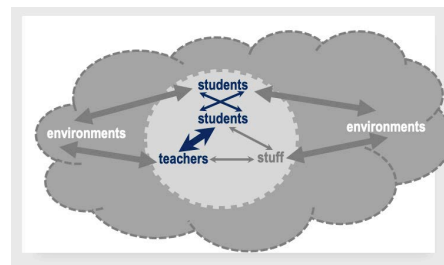
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- Seeing Toni's question as key to the class's work
- Taking as axiomatic the brilliance of Black children, and thus Toni and Aniyah.
- . . . AND having something different to DO

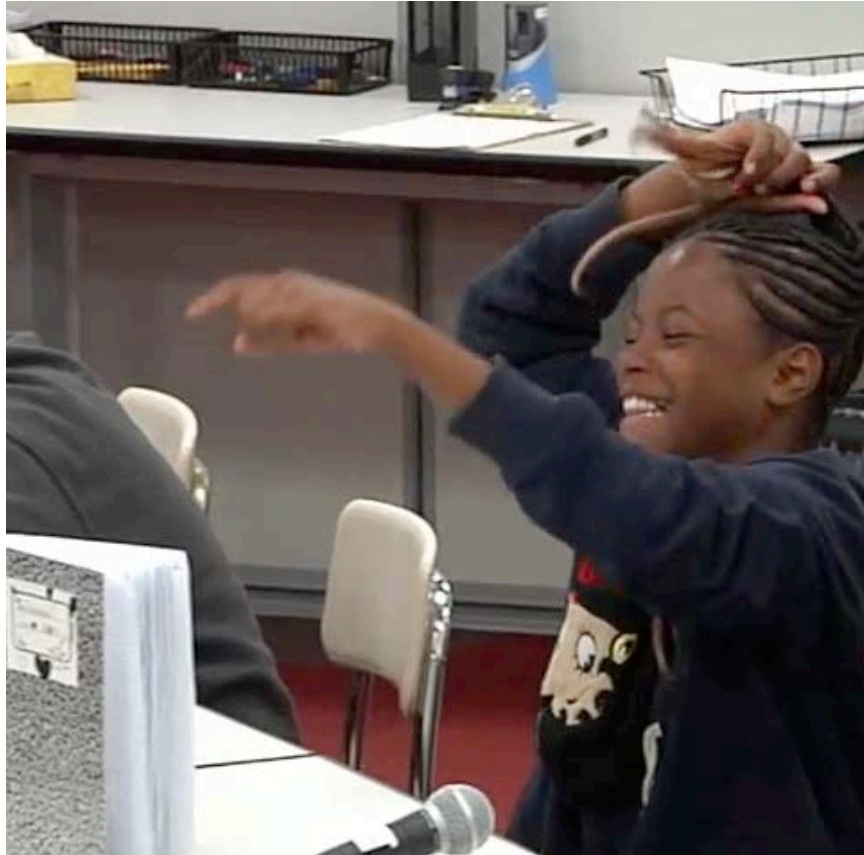
Knowing and using mathematics in teaching (MKT)

Interpreting Toni as asking a mathematical question that she means



Gholson & Martin, 2014; Langer-Osuna, 2015, 2017; Leonard & Martin, 2013; Martin, 2012, 2015

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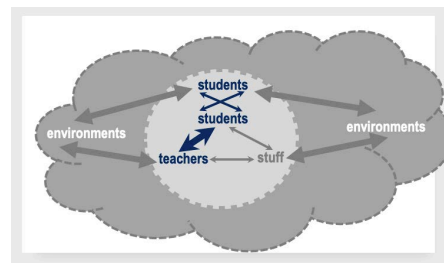


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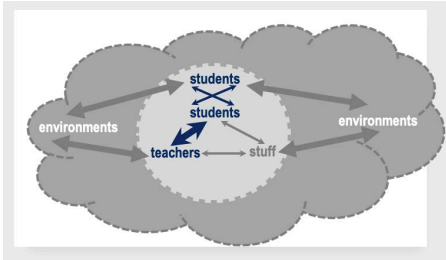
Interpreting Toni as asking a mathematical question that she means

Having a repertoire of practices that can be adapted and used in contexts



Gholson & Martin, 2014; Langer-Osuna, 2015, 2017; Leonard & Martin, 2013; Martin, 2012, 2015

# DISRUPTION REQUIRES COMMITMENT AND LEARNING



... knowledge,  
awareness, beliefs,  
commitments

- Seeing how racism and white supremacy permeate us, our institutions, and our patterns of practice
- Understanding oneself and one's identity and positionality in that history and experience of white supremacy
- Seeing the discretionary spaces that fill our practice
- Being committed to using those discretionary spaces to disrupt patterns of racism

... knowledge, skill, judgment, adaptability

- Understanding Black children as brilliant — instead of as “struggling” or “exceptional”
- Knowing content deeply to be able to hear and use children's ideas
- Developing broad and sensitive capability with language and communication
- Having a repertoire of teaching practices and nuanced skills at using them responsively in contexts
- Developing language, reasoning, and skills for continuing to grow and learn

# MOVING ON

Discretionary spaces describe the many spaces and moments in which teachers make subjective judgments that can lead to either:

- acting from habit and from patterns of white supremacy institutionalized in experience and professional training
- or
- acting to dismantle anti-Black racism and white supremacy.

# There is no neutral.

\*Imani Goffney, Ibram X. Kendi



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**This is our work.**  
**To build teaching as a force for justice.**

Our power is in our collective efforts to make mathematics teaching work. . . . .

. . .to learn, to grow, to share, and to push forward with the fight.



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# THANK YOU!

dball@umich.edu

Slides will be available on my website

<https://deborahloewenbergball.com/>

(“Google” Deborah Ball)



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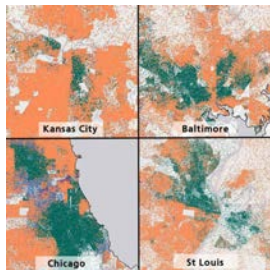


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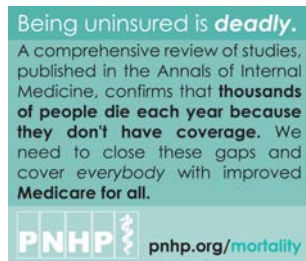


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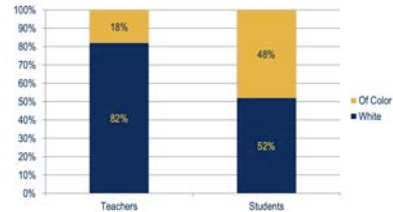


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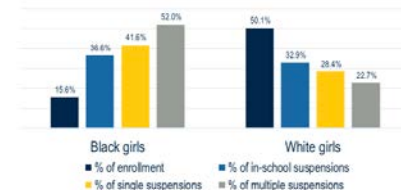
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