

Supporting Equitable Discussions Using Practices That Leverage Students' Cultural Resources

National Council of Teachers of Mathematics 2022 Annual Meeting

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Agenda

- Examining what it means to participate in a mathematics discussion
- Looking for opportunities to expand participation in the course of a discussion
- Examining routines and practices for participation
- Discussion



What Does Participation REALLY Look Like?



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Stop and Jot

- Pause and think about a family gathering where the group engaged in a discussion. What were the expectations for engaging in that discussion? What did it look like? Sound like?
- Now consider discussions in mathematics classes, either your own class or one from your childhood. What are/were the expectations for engaging in that discussion? What did it look like? Sound like?
- What differences did you notice?



Who Is Participating? How Do You Know?



Turn and Talk

- Which students do you feel confident WERE participating? Why?
- Which students do you feel confident WERE NOT participating? Why?
- Which students did you wonder about?



Challenges In “Evaluating” Participation



Reconsidering Participation

"Traditional" Participation Looks Like...

- "Listening" body language
- Making whole group verbal contributions
- Sharing your own ideas
- No distracting behavior

But Consider A More Equitable Approach Could Include...

- Learning children's "thinking" body language
- Written, pair talk, and supportive contributions
- Sharing what you learned from a classmate
- Considering whether the behavior is distracting the student or their classmates



Where Are There Opportunities to Support and Increase Participation Throughout a Discussion?



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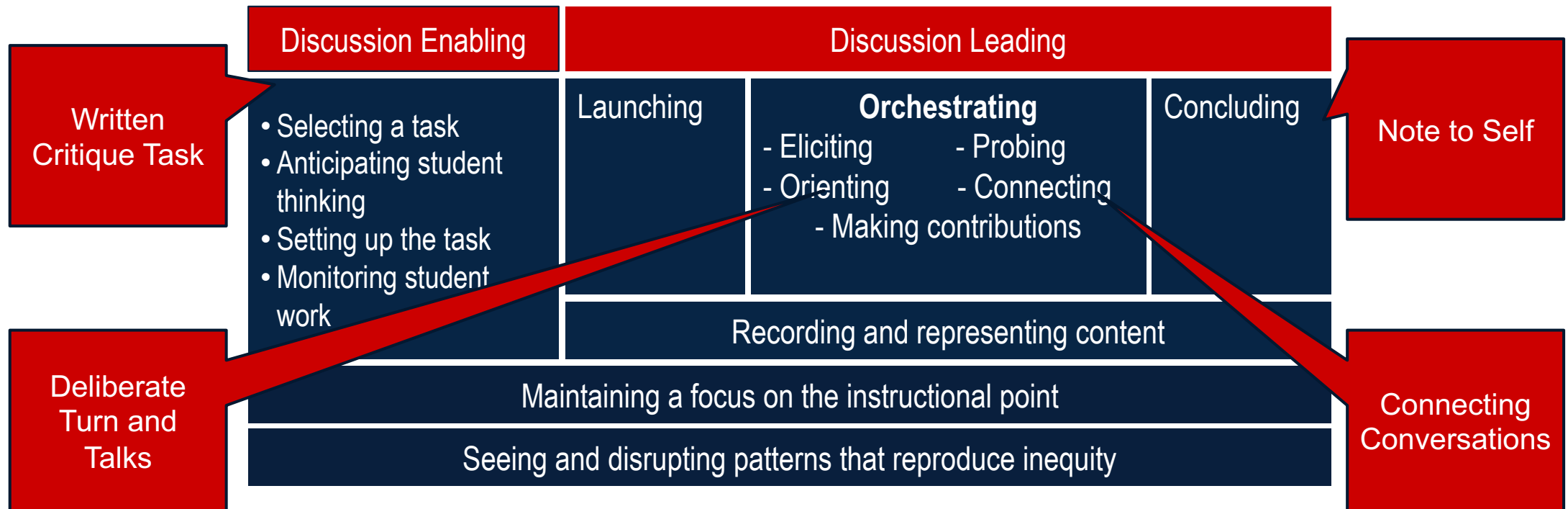
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Defining Discussions

- Sustained dialogue in the classroom focused on helping students learn from and use one another's ideas to achieve a particular learning goal or set of goals
- In discussion, multiple ideas and viewpoints matter and act as resources for collective meaning-making
- Purpose is not just for students to talk, but to accomplish something together



Spaces to Broaden Participation in Discussion





Examining Routines and Practices To Support More Equitable Participation



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Supporting Participation Through Task Selection



Discussion Enabling	Discussion Leading		
<ul style="list-style-type: none"> • Selecting a task • Anticipating student thinking • Setting up the task • Monitoring student work 	Launching	Orchestrating - Eliciting - Probing - Orienting - Connecting - Making contributions	Concluding
	Recording and representing content		
Maintaining a focus on the instructional point			
Seeing and disrupting patterns that reproduce inequity			



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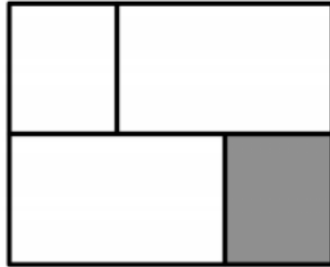
The Challenge

- Students' cultural backgrounds and experiences in school can be at odds around the work of critiquing the ideas of others, particularly those of the teacher.
- How can we support students in learning to critique in ways that don't dismiss their own culture and experiences?



Answering the Challenge: Written Critique Tasks

Sample Task



Marisol said that the picture above shows the fraction $\frac{1}{4}$ because there is one part shaded and four parts altogether.

- In your own words, what is Marisol's strategy for naming a fractional value?
- What questions would you have for Marisol about her work?
- What suggestions do you have for Marisol? How would you convince her to use your suggestions?

How It Supports Participation

- Explicit supports for the work of critiquing
- Written, allowing students to think carefully rather than thinking on the spot
- The student IS NOT a classmate, reducing the feeling of "confrontation" that some students feel when engaging in critique



Turn and Talk

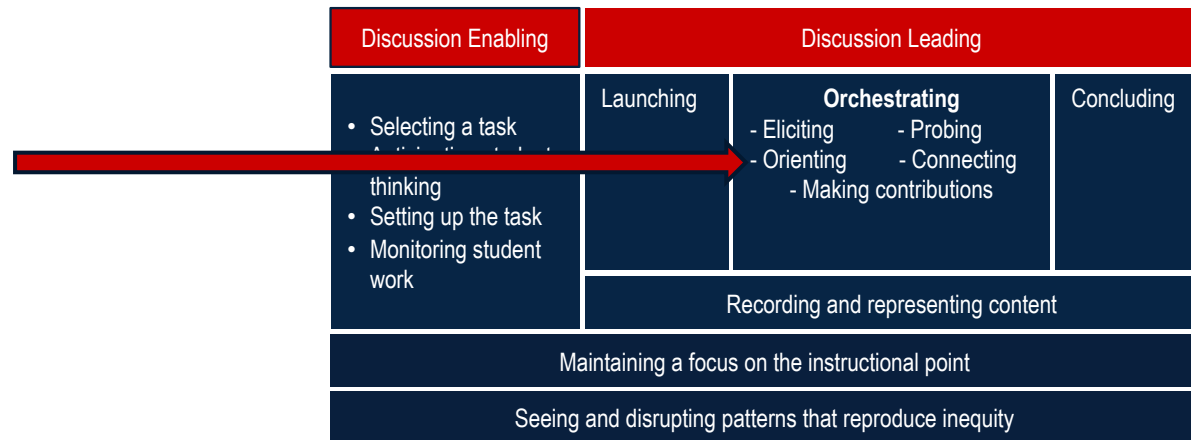
- Are there other opportunities during the discussion-enabling phase to expand and support opportunities to participate?

Discussion Enabling

- Selecting a task
- Anticipating student thinking
- Setting up the task
- Monitoring student work



Deliberate Turn and Talk



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Orchestrating Discussions: Challenges

- Some students are ready to share their ideas right away in a discussion but others need a chance to practice verbalizing those ideas
- Sometimes students' ideas are not completely formed, and they need to learn how others hear the ideas to refine their arguments
- In multilingual classrooms, sometimes students need opportunities to refine their thinking in their home language (and also need opportunities to develop academic language in that home language)



Using Deliberately Paired Turn and Talks

What is a “Deliberately Paired Turn and Talk”?

- The teacher deliberately pairs students and has students share their thinking with a partner and the partner asks clarifying questions. The pairs might be made based on knowledge of students’ home language use, mathematical understandings etc.

How might using deliberately paired turn and talks broaden participation in a discussion?

- All students participate and have an opportunity to refine their own mathematical argument and consider someone else’s ideas
- Turn and talks can support a broader range of students to be ready and willing to share in whole group
- These pairs can also set students who are not yet comfortable sharing their own ideas in whole group to share someone else’s idea



Turn and Talk

- Are there other opportunities during the orchestration phase to expand and support opportunities to participate?

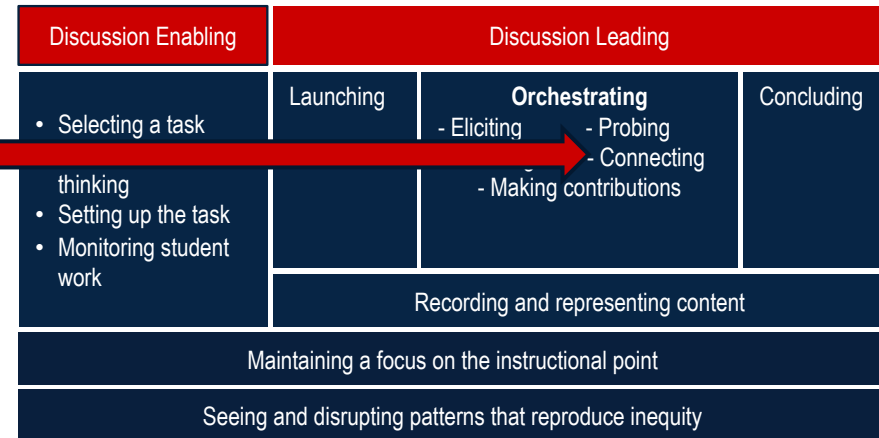
Discussion Leading

Orchestrating

- Eliciting
- Orienting
- Making contributions
- Probing
- Connecting



Supporting Participation Through Connection-Making



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The Challenge

- During discussions, opportunities for individual students to make explicit connections between ideas shared are often limited. Often only one or two students are able to share.
- How can we provide opportunities for students who are not yet ready to share in whole group (or who have not had an opportunity) to make connections?



Answering the Challenge: Connecting Conversations

Activity Structure A: Pair Share

- Students are paired, if possible with a student who used a different strategy or has a different solution
- Each partner explains their strategy
- Together they look for connections between their thinking

Activity Structure B: Stop and Jot

- The teacher selects one strategy for students to connect to
- Each student jots a connection between their strategy or solution in their notebook

How It Supports Participation

- All students have an opportunity to share their own thinking
- All students have an opportunity to make connections



Note to Self

Discussion Enabling	Discussion Leading		
<ul style="list-style-type: none"> • Selecting a task • Anticipating student 	Launching	Orchestrating - Eliciting - Probing - Orienting - Connecting	Concluding
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Broadening Participation in the Conclusion: Challenges

- Students hear lots of different ideas in a discussion, but they do not all get to share their thinking in a discussion nor do they all get to share what they are thinking at the end of the discussion.
- Students need space to consolidate their own thinking and questions that they have.
- Teachers need access to students' thinking to plan for the next day, particularly when a discussion is not "finished."
- Time is often tight at the end of a discussion.



Video Framing

Teachers

- The class is co-taught by two experienced elementary teachers.

Classroom

- Students are entering grade 5
- This is the first day of math class in a one week summer program
- The students came from three school districts in Michigan and most did not know each other before the program started. The majority of students are multilingual. The student population is diverse along many dimensions, including socioeconomic status.

Content

- Students have launched work to reinforce key understandings around fractional reasoning.
- Several solutions have been shared for a problem. The class has not yet discussed these solutions or come to consensus.



Viewing Focus

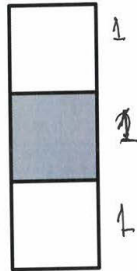
- What purposes do you see for a “note to self” in a discussion?
- How might using a “note to self” broaden participation in a discussion?



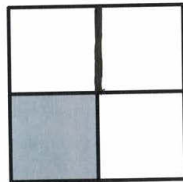


Note to self you need to put equaled shape

What fraction of the rectangle below is shaded gray? $\frac{1}{3}$



What fraction of the rectangle below is shaded gray? $\frac{1}{4}$



minicomputer

cafe 8	morado 1	cafe 8	morado 1
rojo 2	blanco 1	rojo 2	blanco 1

16 + 8 + 1 + 2 + 83

What fraction of the rectangle below is shaded gray? $\frac{1}{3}$



What fraction of the rectangle below is shaded gray? $\frac{1}{3}$



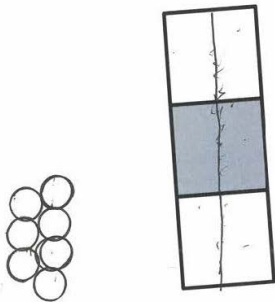
Yo pienso que es un $\frac{1}{3}$ o un $\frac{1}{4}$ si se pone una linea a medio de en pedazo de arriba



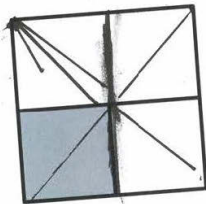
Fractions 6-10-19

2

What fraction of the rectangle below is shaded gray? $\frac{1}{3}$



What fraction of the rectangle below is shaded gray? $\frac{1}{4}$



It is ~~1/4~~
because
just cutting
it down the
middle will make it
even and evaluate.

note to self
I agree with Verda

mine
computer

Monday
6/10/19 Page 2

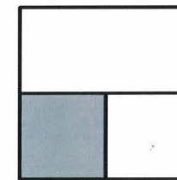
I think there are 120 solutions because
there's a lot of equations of 10 and
we all solved a bunch of equations.

What fraction of the rectangle below is shaded gray? $\frac{1}{3}$



What fraction of the rectangle below is shaded gray? $\frac{1}{3}$

idk roberto
not equal
voida
 $\frac{1}{3}$ Ana
 $\frac{1}{4}$ Geneva



note to
self:
I think it
is weird that
people have
different ideas.



6/10/19

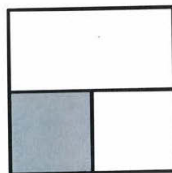
Roberto

(2)

What fraction of the rectangle below is shaded gray? 1/3



What fraction of the rectangle below is shaded gray? _____



I don't even know if it is a fraction or not. This is the first time I say I don't know.

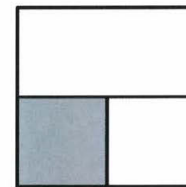
6/10/19

(3)

What fraction of the rectangle below is shaded gray? 1/3



What fraction of the rectangle below is shaded gray? 1/3



I dk-roberto
1/3-aykanna
1/4-genera
not equal-voida

I think it is 1/3 because there are three rows and one shaded in so it is 1/3.



Discuss

- What purposes do you see for a “note to self” in a discussion?
- How might using a “note to self” broaden participation in a discussion?



Unpacking the “Note to Self”

What is the “Note to Self”?

- Students write a note to themselves about how they are currently thinking about the problem

What purposes do you see for a “note to self” in a discussion?

- Allows students to take stock of where they are with respect to particular ideas (similar to a “stop and jot”)
- Creates a record of thinking that can be accessed on a subsequent day
- Supports students to track on their own questions and how their thinking is changing over time
- Provides the teacher(s) a window into all students’ thinking

How might using a “note to self” broaden participation in a discussion?

- All students participate
- Creates space for a way to engage with others’ ideas that does not require talk
- Allows for “thinking/processing time” for all students



Discussion



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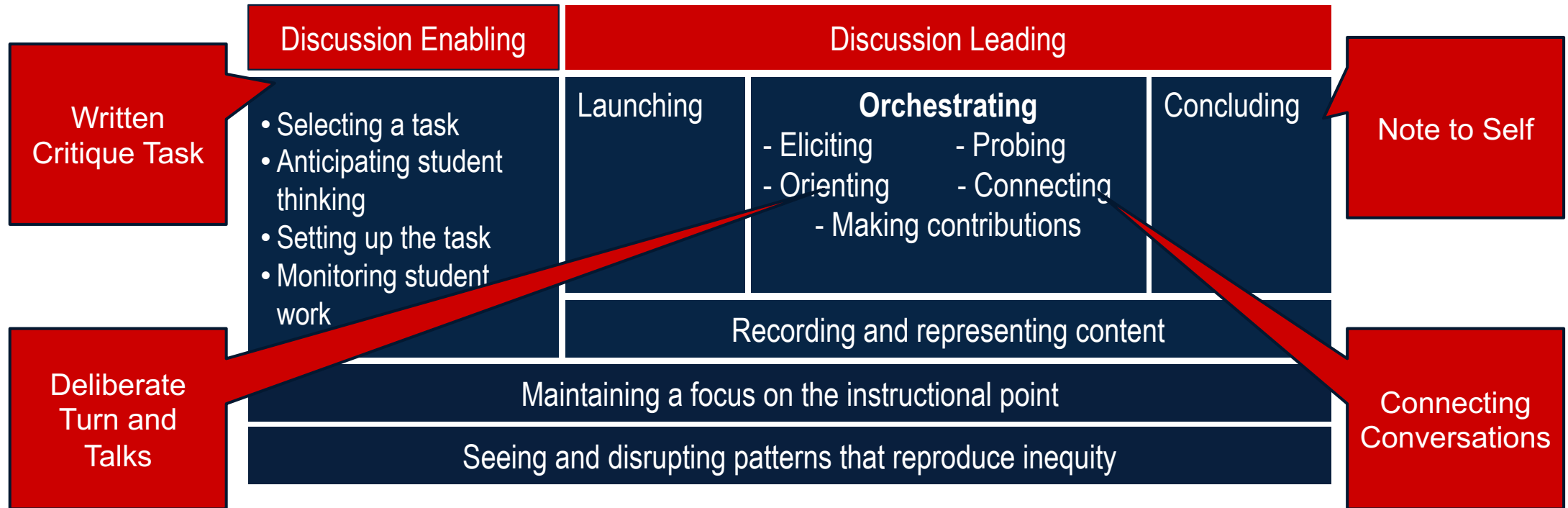
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What Are Other Spaces to Broaden Participation in Discussion?





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Developing Equitable Discussion Practices



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Thank you for coming and engaging with us!

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