

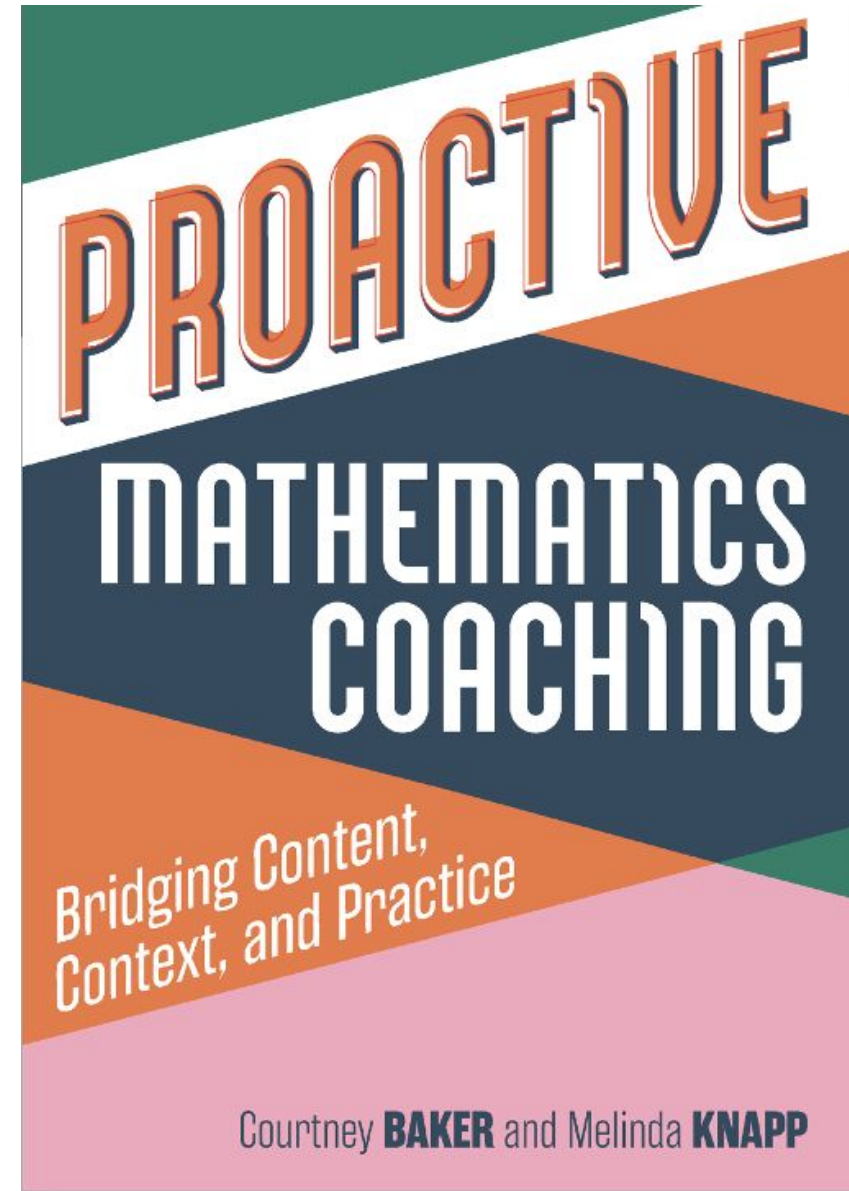
WELCOME!

NCTM Book Study

Catalyzing Change Through Proactive Mathematics Coaching

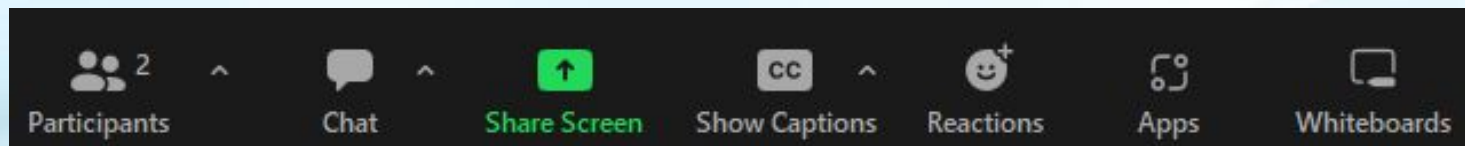
Melinda Knapp, PhD

Courtney Baker, PhD



Welcome!

- **Please keep your microphone muted!**
- **Chat box:** Comment, chat with other participants, and ask questions.
- **Video:** Be mindful that everyone can see your video unless you choose to stop sharing.
- **Show Captions:** Use to hide or view subtitles.



Welcome!

- A recording will be available to registered attendees for 30 days after the session.
- We will provide a certificate of participation within a few days of the session.
- Follow us on Twitter @NCTM and share your thoughts about today's session using the hashtag #NCTMPD.

Code of Conduct

NCTM is dedicated to providing a positive and harassment-free learning experience for everyone. By attending this webinar you agree to adhere to NCTM's Code of Conduct policies - www.nctm.org/policies

NCTM reserves the right to dismiss any participant from events whose conduct is inconsistent with our policies.

Catalyzing Change Through Proactive Mathematics Coaching

Today's Agenda

Part I: Welcome

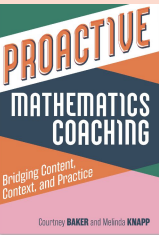
Part II: Connecting to *Catalyzing Change*

Part III: The Case of Kamala

Part I: Welcome & Overview



NCTM Book Study: Catalyzing Change Through Proactive Mathematics Coaching
Melinda Knapp & Courtney Baker



Introductions

Mathematics Coaches At Heart

Melinda Knapp, PhD



melinda.knapp@osucascades.edu

Courtney Baker, PhD



cbaker@gmu.edu

Our Book Study Goals

Connecting Research & Practice

- Gain insights into what it takes to plan professional learning and/or coaching interactions that advance leadership agendas for long- and short-term goals.
- Illuminate how the use of the Proactive Coaching Framework (PCF) can advance the vision of teaching and learning mathematics advocated for within the Catalyzing Change series.

Our Book Study Goals

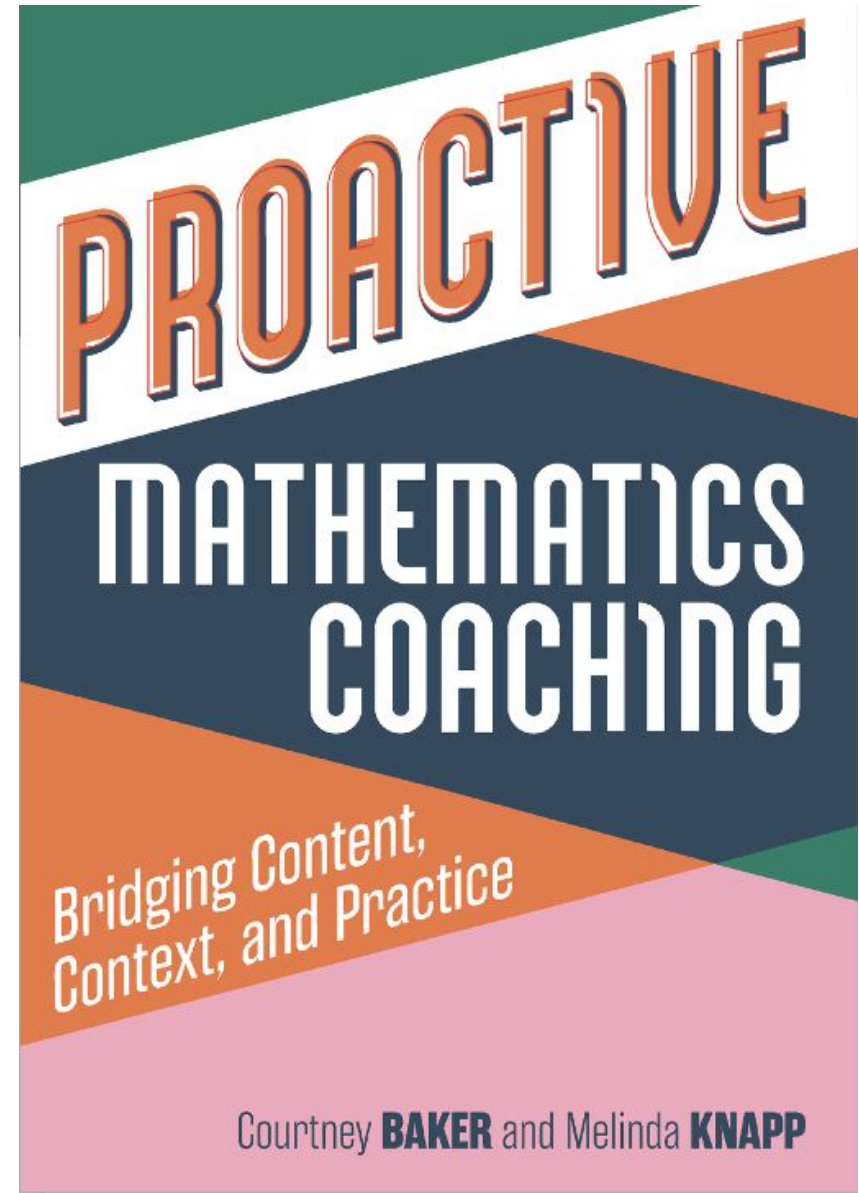
Connecting Research & Practice

- Engage with activities presented in the book such as **Calling In/Calling Out** (p. 63), and Perspective Taking (p. 183) to consider how these activities could be useful within your coaching context.
- Participate in discussions (network and collaborate) with peers to share common problems of practice and engage in debriefs that will inform goal setting within your context.

Book Orientation

A Brief Overview

Grab your
book!



Creating Alliances

Building Your Network

 Please Share on Our
Google Sheet

- Name
- Position
- School(s)
- Coaching/Leadership Experience
- Email address



Maximize Your Experience

Engage in Multiple Formats

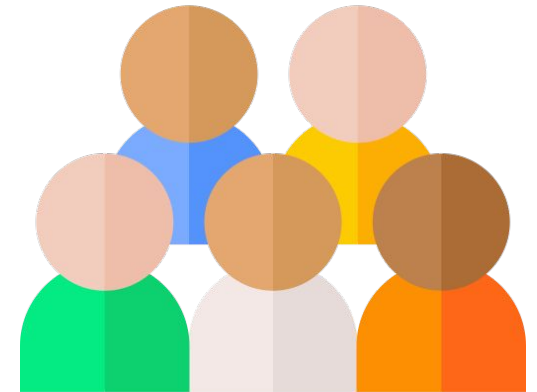
Chat Box



Jamboards



Breakout Rooms



Understanding Our Influence

Questions At The Core of Our Practice

Is what I am doing
actually effective? And
who is it effective for?

Mathematics Leadership

Many Part- & Full-Time Positions

Check
Out the
Preface!
(page v)

Some Possibilities

- Classroom Teacher
- Math Lead
- Department Chair
- Interventionist
- Mathematics Specialist
- Instructional Coach
- District Supervisor

Understanding Our Influence

Developing A Proactive Practice



“Research indicates that **leadership for teaching and learning** has a direct impact on student learning. Leadership is widely recognized as one of **the most important factors** in teacher and student learning.”

(Loucks-Horsley, 2010, p. 5)

Maximize Your Experience

Workshop Norms to (Re)Frame Leadership

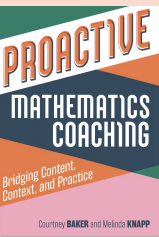
- Assume Positive Intent
- Learn From & With Each Other
- Maintain An Asset-Based Approach
- Value Others' Experiences
- We Teach All Students & Lead/Coach All Stakeholders
- Other?



Part II: Connecting to *Catalyzing Change*



NCTM Book Study: Catalyzing Change Through Proactive Mathematics Coaching
Melinda Knapp & Courtney Baker



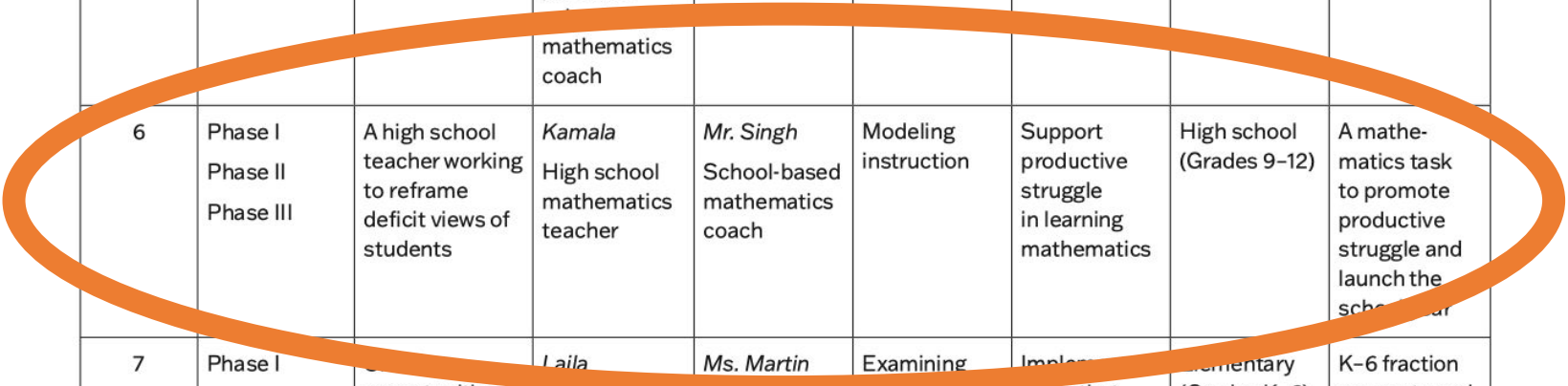
Chapter 6: The Case of Kamala

Chapter 6
Pages 57-74

The Case

The **Case of Kamala** explores how a high school mathematics teacher worked to interrupt deficit views of students prevalent in her school while also advocating for reframing students as capable doers of mathematics.

Case Summary			People		Practices		Context In Brief	
Chapter	PCF Phases Emphasized	Big Idea	Mathematics Leader and Role	Involved School Stakeholders	Mathematics Coaching Practice	Mathematics Teaching Practice	Grade-Level and Grade Band	Content Topic
5	Phase II Phase III	Balancing two roles while implementing a modified coaching cycle	<i>Michelle</i> Part-time Grade 8 classroom teacher; part-time mathematics coach	<i>Mrs. Lee</i> Grade 8 teacher	Coteaching	Facilitate meaningful mathematical discourse	Middle school (Grade 8)	Counting cubes task; linear growth model
6	Phase I Phase II Phase III	A high school teacher working to reframe deficit views of students	<i>Kamala</i> High school mathematics teacher	<i>Mr. Singh</i> School-based mathematics coach	Modeling instruction	Support productive struggle in learning mathematics	High school (Grades 9–12)	A mathematics task to promote productive struggle and launch the school year
7	Phase I Phase II Phase III Phase IV	Creating opportunities for partnering with administrators to dismantle ability grouping	<i>Laila</i> School-based mathematics coach	<i>Ms. Martin</i> School principal	Examining student work	Implementing tasks that promote reasoning and problem-solving	Elementary (Grades K–6)	K–6 fraction concepts and computation



Introducing the Case of Kamala

Case Essentials

Using the PCF to Catalyze Change

The Case of Kamala highlights how a teacher leader focuses on disrupting deficit language and structures within her high school. Deficit language and structures, such as tracking, inhibit deep mathematical learning and are especially harmful when excluding groups of students based on “non-academic factors such as perceived (but not potential) academic ability, socioeconomic status, gender, language, or other expectations ascribed to students by adults” (National Council of Teachers of Mathematics [NCTM], 2018, p. 16). Kamala uses the PCF guiding questions to highlight the importance of ensuring rich and relevant learning opportunities that benefit all students and ensure the mathematical success of every child.

“As early as pre-school and kindergarten, research and policy documents use **deficit-oriented labels** such as ‘maladaptive’ and ‘immature’ strategies to describe black, Latina/o, and poor children’s mathematical learning and **position them as already behind** their white and middle class peers. In practice, the ubiquitous and **dehumanizing labels** such as ‘slow kids,’ ‘low kids,’ ‘high kids,’ and ‘bubble kids’ persist... The **labels bestow privilege and marginalization** leading to a **differentiated and unjust mathematics education.**”

(NCSM & TODOS, 2016, p. 1-2)

“We are challenged that children’s mathematics experiences are of **uneven quality** at every level. **Disparities exist** within individual classrooms, across grade levels within schools, and across schools within districts. The **evidence is compelling** that children who are identified as Black, Latinx, Indigenous, language learners, poor, and with disabilities, along with other **marginalized learners, do not have the same opportunities** as their peers to access and learn in mathematically powerful spaces.”

(NCTM, 2020, p. 1)

Catalyzing Change (NCTM, 2018, 2020a, 2020b)

Key Recommendations

	Early Childhood and Elementary (NCTM, 2020a)	Middle School (NCTM, 2020b)	High School (NCTM, 2018)
Creating Equitable Structures in Mathematics	Early childhood and elementary mathematics should dismantle inequitable structures, including ability grouping and tracking, and challenge spaces of marginality and privilege.	Middle school mathematics should dismantle inequitable structures, including tracking teachers as well as the practice of ability grouping and tracking students into qualitatively different courses.	High school mathematics should discontinue the practice of tracking teachers as well as the practice of tracking students into qualitatively different or dead-end course pathways.

Catalyzing Change (NCTM, 2018, 2020a, 2020b)

Creating Equitable Structures In Math

“Mathematics teaching and learning is complex and embedded in a broader societal context of inequities in which implicit and explicit biases are pervasive (NAEYC, 2019). Ensuring that each and every child has access to just, equitable, and inclusive mathematics learning opportunities demands change in institutional structures, teaching and learning environments, and individual beliefs and actions.”

(NCTM, 2020b, p. 25)

Catalyzing Change (NCTM, 2018, 2020a, 2020b)

Key Recommendations

	Early Childhood and Elementary (NCTM, 2020a)	Middle School (NCTM, 2020b)	High School (NCTM, 2018)
Implementing Equitable Mathematics Instruction	Mathematics instruction should be consistent with research informed and equitable teaching practices that nurture children's positive mathematical identities and strong sense of agency.	Mathematics instruction should be consistent with research informed and equitable teaching practices that foster students' positive mathematical identities and strong sense of agency.	Classroom instruction should be consistent with research informed and equitable teaching practices.

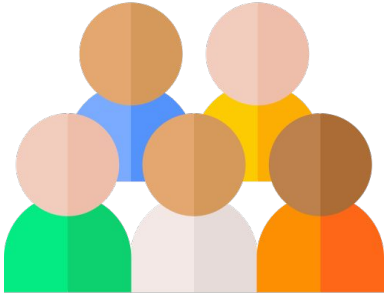
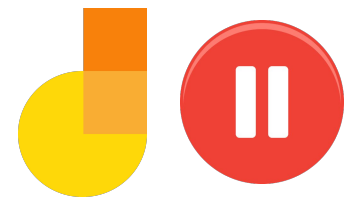
Catalyzing Change (NCTM, 2018, 2020a, 2020b) **Implementing Equitable Instruction in Math**

“Agency development in children is not merely a by-product of good teaching; it is also the result of a system designed to foster relationships and instructional decisions that create the conditions for children to put their identity into action (Kisker et al., 2012; Yeh, Ellis, and Koehn, 2017). This system recognizes the institutional, historical, and cultural forces that have traditionally silenced children who have been marginalized in schools generally, and in mathematics specifically. Teachers must ensure children's' voices and ideas are welcomed.”

(NCTM, 2020b, p. 51)

Using the PCF to Catalyze Change

Breakout Session



Breakout Rooms

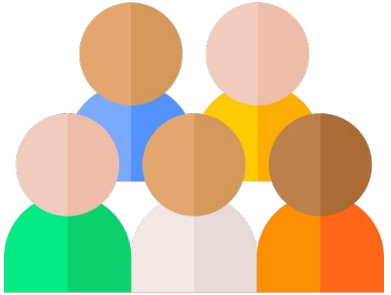
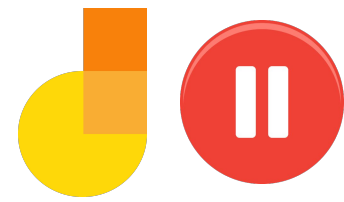
Reflect on and discuss the question(s) below. Use the Jamboard to record your groups' ideas. Slides 1-4

Q1: How can teachers/coaches in our school/district work together to ensure that children feel their ideas are important and appreciated during mathematics lessons?

(NCTM, 2020, p. 50)

Using the PCF to Catalyze Change

Breakout Session



Breakout Rooms

Reflect on and discuss the question(s) below. Use the Jamboard to record your groups' ideas. Slides 5-8

Q2: What school or district professional learning opportunities might surface and challenge beliefs and biases that conflict with the fundamental view that each and every child is mathematically competent and capable?

(NCTM, 2020, p. 50)

How might you design or lead efforts to mitigate the beliefs and biases?

Connecting to *Catalyzing Change*

Group Discussion

What ideas did
you have?

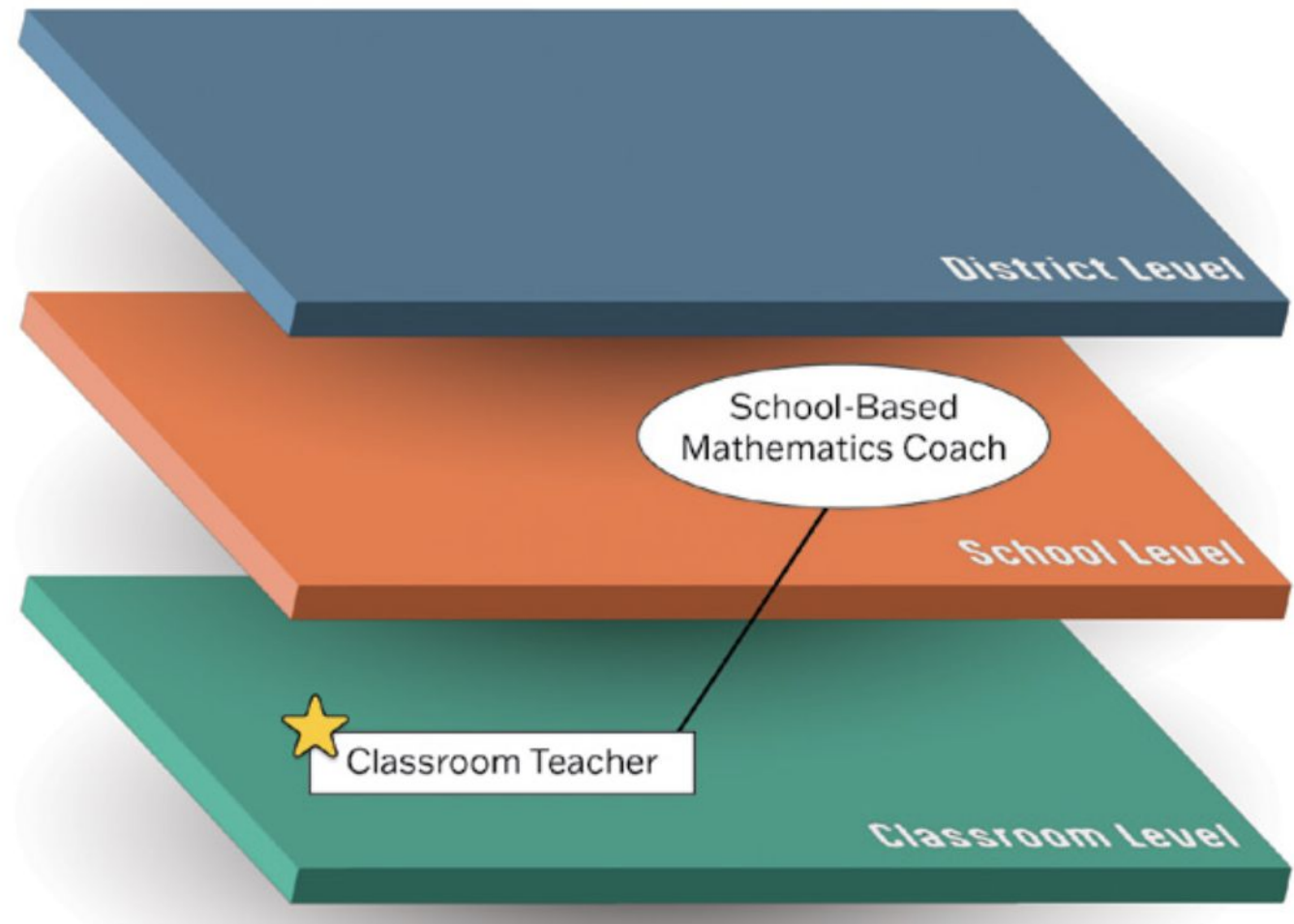
What ideas did
you hear?



Part III: Exploring the Case of Kamala

Introducing the Case of Kamala

Case Essentials



Introducing the Case of Kamala

Case Essentials

Kamala's Problem of Practice

Teachers often forecast students into classes based on the previous year's standardized test scores and teacher referrals; this practice often results in offering unequal learning opportunities for students. Kamala, a high school mathematics teacher, notices that many teachers have deficit views of students, which impede student opportunities. How might Kamala work with school colleagues to interrupt their deficit views of students and see students as capable of doing mathematics?

Introducing the Case of Kamala

Case Essentials

Model instruction for a mathematics coach's professional learning in a high school for the purpose of eliminating deficit language connected to allowing productive struggle in learning mathematics.

Long-Term Goal

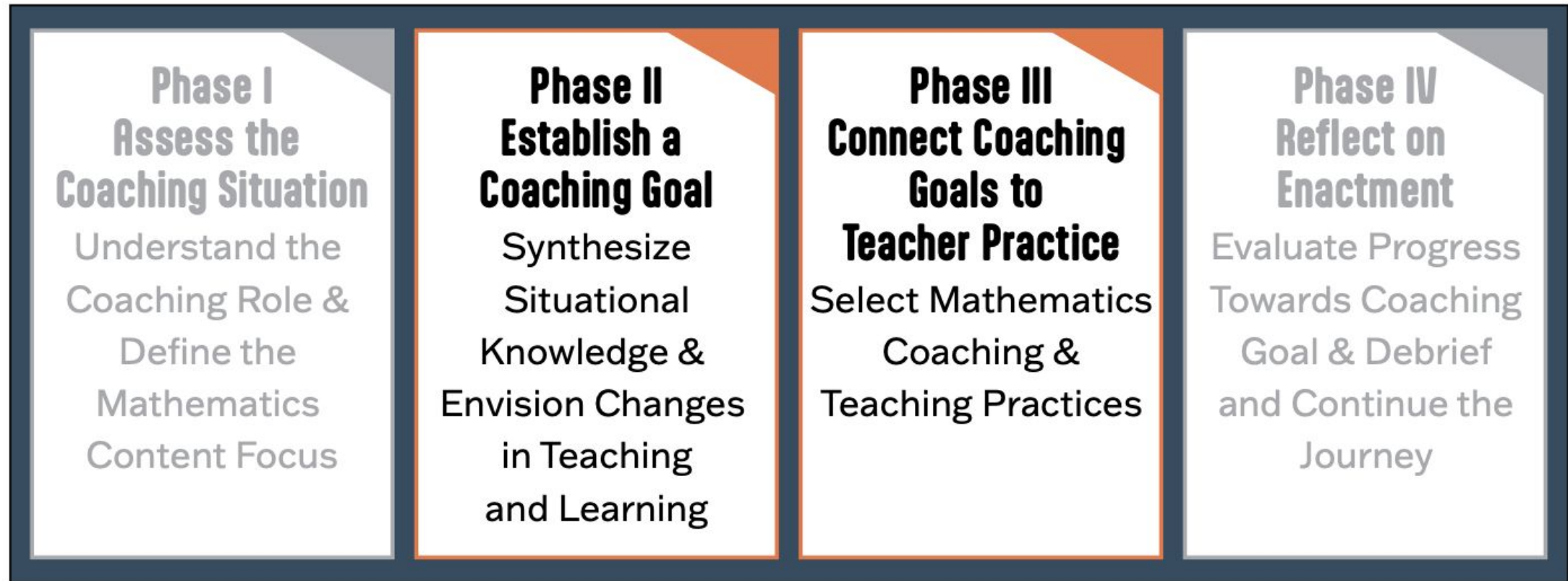
Create equal opportunities for students to have access to rigorous mathematics courses.

Short-Term Goal

Provide resources to the mathematics coach that will build an awareness of the harm deficit language has on students and how labeling of students has led to fewer mathematical opportunities for some students.

Introducing the Case of Kamala

Case Essentials



Introducing the Case of Kamala

Case Essentials

Mathematics Coaching

Practices (adapted from Baker & Knapp, 2019; Gibbons & Cobb, 2017; TDG, 2010)

- Engage in Mathematics
- Examine Student Work
- Analyze Classroom Video
- Rehearse Aspects of Practice
- Engage in Lesson Study/Studio Day/Math Labs
- Co-teach
- Model Instruction

Mathematics Teaching Practices (NCTM, 2014)

- Establish mathematics goal
- Implement tasks that promote reasoning and problem solving
- Use and connect mathematics representations
- Facilitate meaningful mathematical discourse
- Pose purposeful questions
- Build procedural fluency from conceptual understanding
- Support productive struggle
- Elicit and use evidence of student thinking

Calling-In & Calling-Out Moves



Chapter 6
Pages 62-63

Calling-In Moves

Taking Action

Calling In:

- When there is an opportunity to explore deeper, make meaning together, and find a mutual sense of understanding across difference
- When we are seeking to understand or learn more
- When we want to help imagine different perspectives, possibilities, or outcomes
- Provides for multiple perspectives and encourages paradigm shifts
- Focused on reflection, not reaction
- Is not just a suggestion with an uptick (Don't you think you should...?)

Calling-In Moves Taking Action

I'm curious. What was your intention when you said that?	How might the impact of your words/actions differ from your intent?	What sort of impact do you think your decision/comment/action might have?
How might someone else see this differently? Is it possible that someone might misinterpret your words/actions?	How might your own comfort level, assumptions, expectations, prior experiences be influencing your beliefs, decisions, process?	How is ___ different from ___? What is the connection between ___ and ___?
What criteria are you using to measure/assess etc?	How did you decide, determine, conclude...	What would have to change in order for _____?
What do you assume to be true about _____?	Why is this the best way to proceed? What other approaches have you considered?	What is making you the most fearful, nervous, uncomfortable or worried?
Why do you think that is the case? Why do you believe that to be true?	Why do you think others have/haven't moved in that direction?	How do you know it's working?
Why did the result or response cause a problem for you?	What would other stakeholders say/think/feel?	In your opinion, what is the best case scenario?
Think: How might we call out the behavior, while calling in the person?		

Adapted from the School Reform Initiative *Pocket Guide to Probing Questions*

Calling-Out Moves

Taking Action

Calling Out:

- When we need to let someone know that their words or actions are unacceptable and will not be tolerated
- When we need to interrupt in order to prevent further harm
- Will likely feel hard and uncomfortable, but necessary
- Allows us to hit the “pause” button and break the momentum

Calling- Out Moves

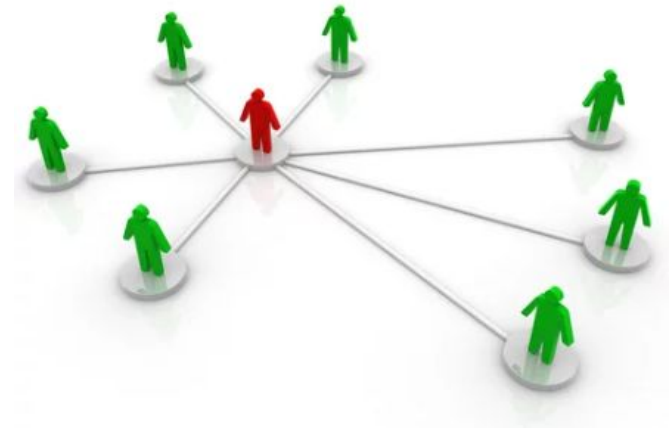
Taking Action



Wow. Nope. Ouch. I need to stop you right there.	That word/comment is really triggering and offensive. Be mindful and pick a different word.	I need to push back against that. I disagree. I don't see it that way.
Okay, I am having a strong reaction to that and I need to let you know why.	I don't find that funny. Tell me why that's funny to you.	I wonder if you've considered the impact of your words.
Hmmm.. maybe you want to think this one through a bit more and speak about it later.	I need you to know how your comment just landed on me.	That's not our culture here. Those aren't our values.
Is sex/gender/gender identity/gender expression/race/class/ethnicity/religion/ability/immigration status/ body type/ marital status/ age relevant to your point?	It sounded like you just said _____. Is that really what you meant?	I feel obligated as your peer/colleague/co-worker/friend/supervisor/teacher to tell you that your comment wasn't okay.
It sounds like you're making some assumptions.	You may or may not realize this, but you're talking about me/my story/my identity markers.	I need to leave the room if the conversation is going to continue down this road.
Remember, it is a powerful thing for the target of oppression to hear these words from the mouth of an ally!		

Positioning

Agency & Agenda



Positioning, refers to an **individual's actions** and the **interactions** between **themselves** and **other stakeholders**.

(Hunt & Handsfield, 2013)

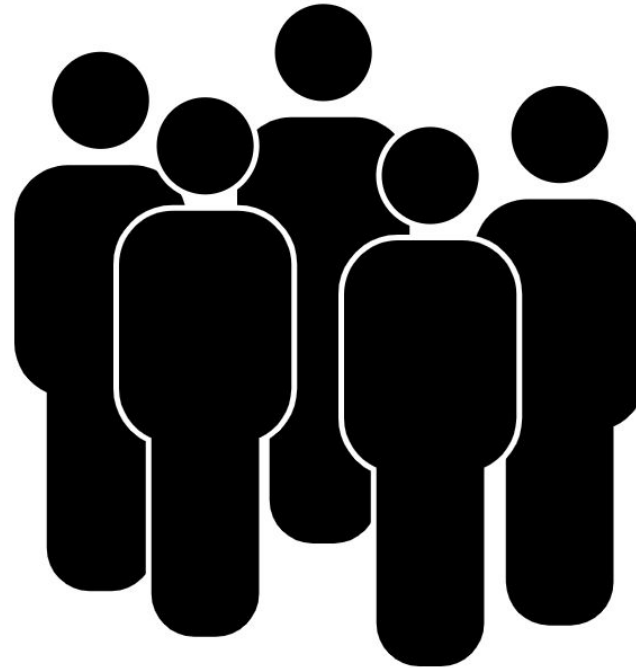
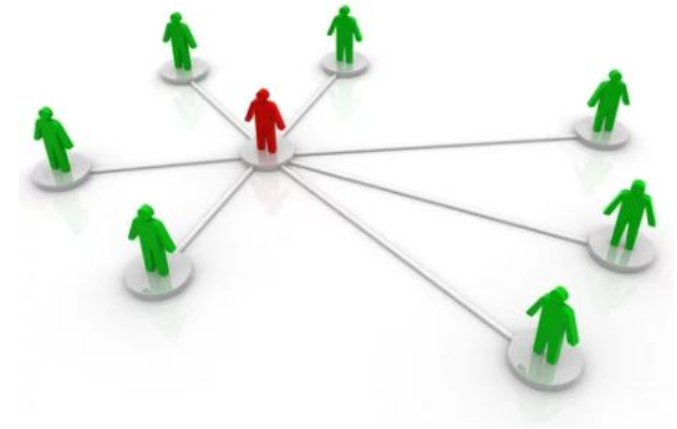
Beliefs on Coaching Mathematics

Your inaction is as impactful as your action



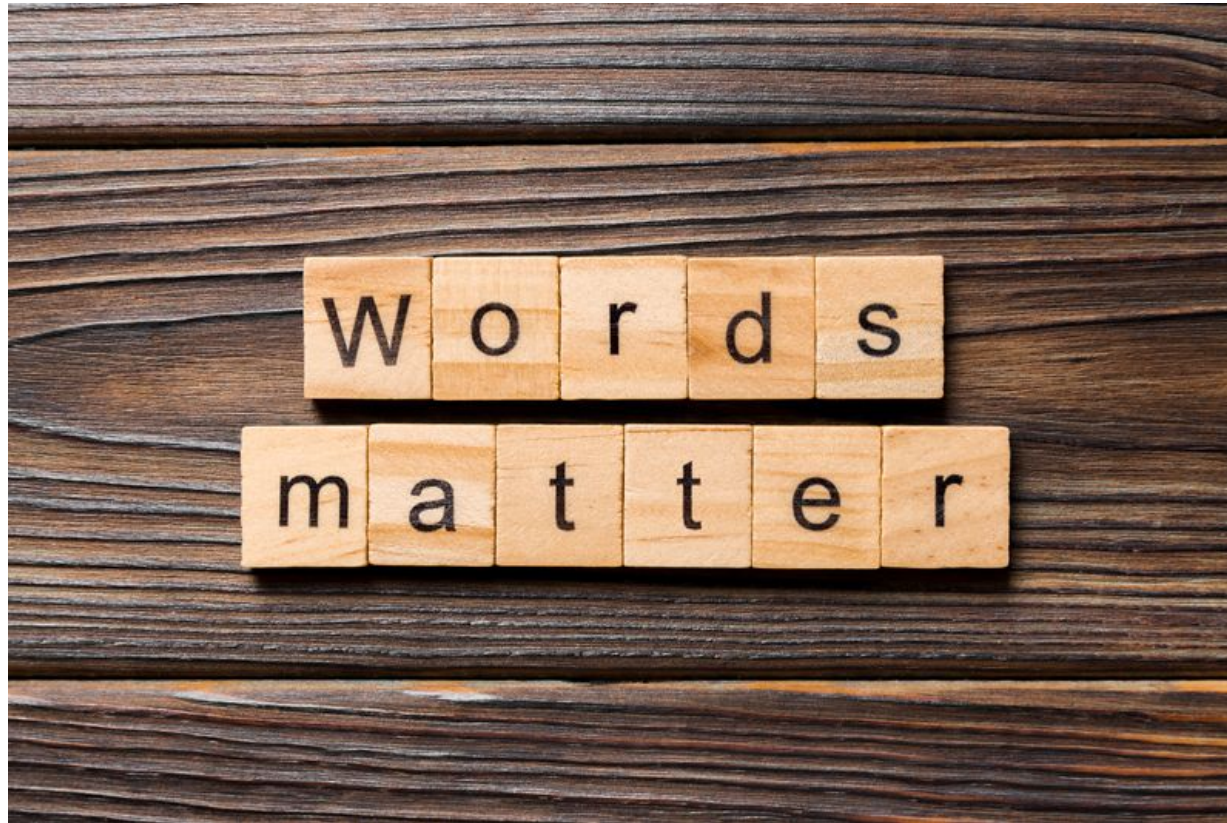
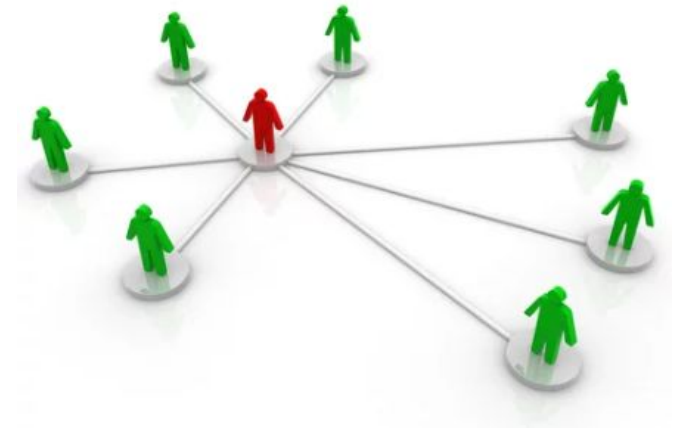
Positioning

Agency & Agenda



Positioning

Agency & Agenda



Deficit Language

Small Group Discussion

1. Discuss:
 - a. Why are these statements are problematic?
 - b. How you might respond if teachers used each of those statements about students?
[[Rehearse using the calling in/calling out moves](#)].
 - c. How might you respond if it is was a teacher/coach/administrator who said this about another teacher?

- ▶ “They aren’t ready for that.”
- ▶ “They don’t grasp the simplest concepts.”
- ▶ “They don’t know the language.”
- ▶ “They do not participate.”
- ▶ “They do not want to learn.”

Developing the PCF

Connecting to *Catalyzing Change* (NCTM, 2020)

An actionable step includes providing “teachers, coaches, and specialists with professional development opportunities, both in and out of the school setting, to critically examine, learn, and reflect on mathematics content, pedagogy, beliefs and biases.” (p. 126).

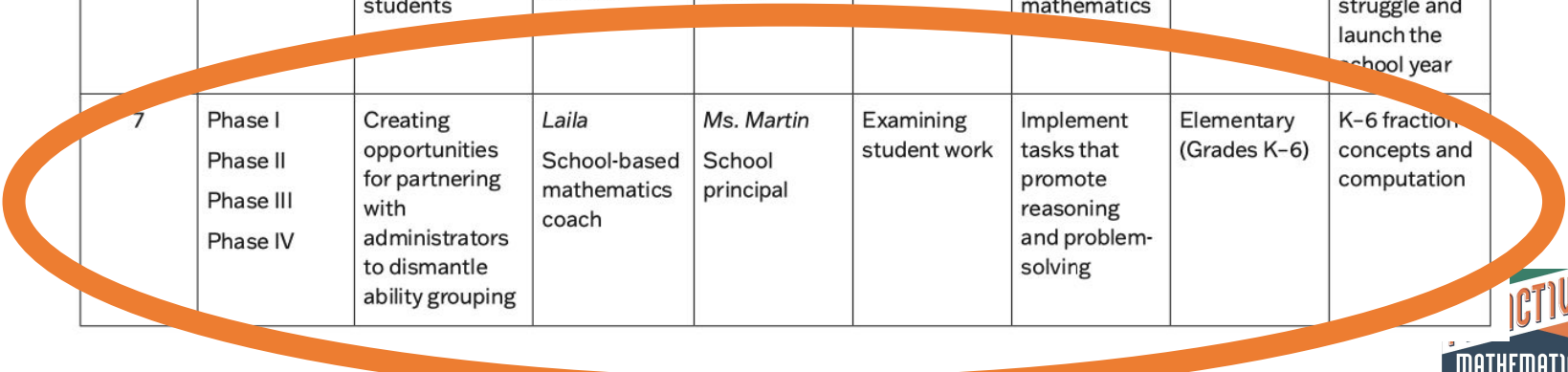
Chapter 7: The Case of Laila

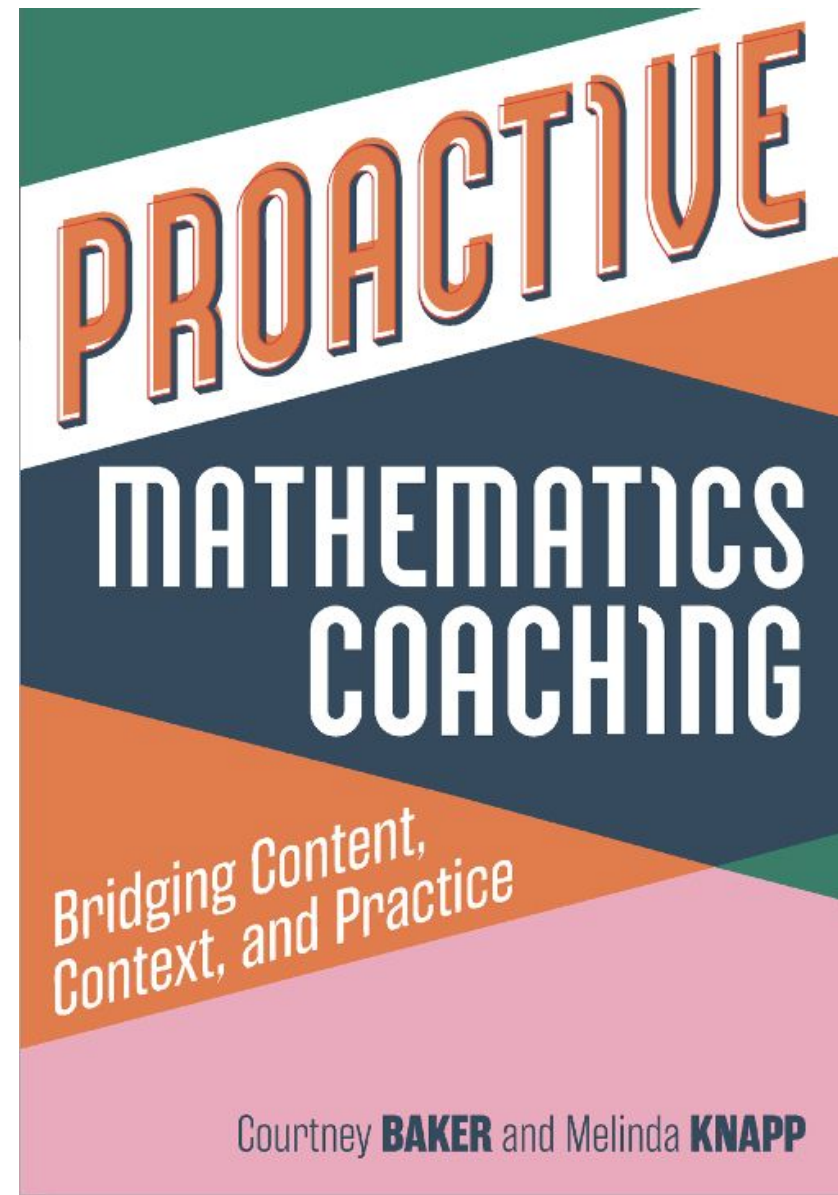
Chapter 7
Pages 75-91

The Case

The **Case of Laila** explores a school based coach who wants to dismantle ability grouping through the use of rich math task instead of computer programs.

Case Summary			People		Practices		Context In Brief	
Chapter	PCF Phases Emphasized	Big Idea	Mathematics Leader and Role	Involved School Stakeholders	Mathematics Coaching Practice	Mathematics Teaching Practice	Grade-Level and Grade Band	Content Topic
5	Phase II Phase III	Balancing two roles while implementing a modified coaching cycle	<i>Michelle</i> Part-time Grade 8 classroom teacher; part-time school-based mathematics coach	<i>Mrs. Lee</i> Grade 8 teacher	Coteaching	Facilitate meaningful mathematical discourse	Middle school (Grade 8)	Counting cubes task; linear growth model
6	Phase I Phase II Phase III	A high school teacher working to reframe deficit views of students	<i>Kamala</i> High school mathematics teacher	<i>Mr. Singh</i> School-based mathematics coach	Modeling instruction	Support productive struggle in learning mathematics	High school (Grades 9–12)	A mathematics task to promote productive struggle and launch the school year
7	Phase I Phase II Phase III Phase IV	Creating opportunities for partnering with administrators to dismantle ability grouping	<i>Laila</i> School-based mathematics coach	<i>Ms. Martin</i> School principal	Examining student work	Implement tasks that promote reasoning and problem-solving	Elementary (Grades K–6)	K–6 fraction concepts and computation



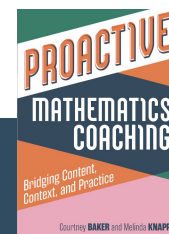


Next
Time


Chapter 7
Case of Laila
April 4th



NCTM Book Study: Catalyzing Change Through Proactive Mathematics Coaching
Melinda Knapp & Courtney Baker



new



current

H: °

S: %

V: %

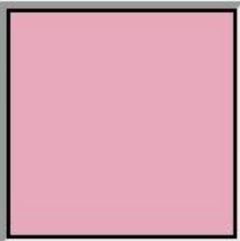
R:

G:

B:

#:

new



current

H: °

S: %

V: %


R:

G:

B:

#:

new



current

H: °

S: %

V: %


R:

G:

B:

#:

new



current

H: °

S: %

V: %

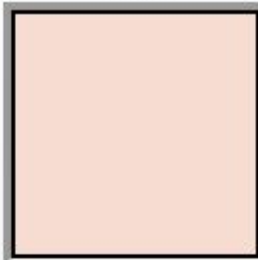
R:

G:

B:

#:

new



current

H: °

S: %

V: %

R:

G:

B:

#:



Maximize Your Experience

Workshop Norms to (Re)Frame Leadership

- Assume Positive Intent
- Learn From & With Each Other
- Maintain An Asset-Based Approach
- Value Others' Experiences
- We Teach All Students & Lead/Coach All Stakeholders
- Other?



Connecting to *Catalyzing Change*

Group Discussion

What ideas did
you have?

What ideas did
you hear?



Book Orientation

Chapters 5-11

Check Out
Pages
197-199

The 9 Cases

- Part-Time Leaders
- Leaders at Multiple Schools
- District Leaders
- Classroom Teachers
- Department Chair
- STEM Coach
- ...

Case Summary			People		Practices		Context In Brief	
Chapter	PCF Phases Emphasized	Big Idea	Mathematics Leader and Role	Involved School Stakeholders	Mathematics Coaching Practice	Mathematics Teaching Practice	Grade-Level and Grade Band	Content Topic
5	Phase II Phase III	Balancing two roles while implementing a modified coaching cycle	<i>Michelle</i> Part-time Grade 8 classroom teacher; part-time school-based mathematics coach	<i>Mrs. Lee</i> Grade 8 teacher	Coteaching	Facilitate meaningful mathematical discourse	Middle school (Grade 8)	Counting cubes task; linear growth model
6	Phase I Phase II Phase III	A high school teacher working to reframe deficit views of students	<i>Kamala</i> High school mathematics teacher	<i>Mr. Singh</i> School-based mathematics coach	Modeling instruction	Support productive struggle in learning mathematics	High school (Grades 9–12)	A mathematics task to promote productive struggle and launch the school year
7	Phase I Phase II Phase III Phase IV	Creating opportunities for partnering with administrators to dismantle ability grouping	<i>Laila</i> School-based mathematics coach	<i>Ms. Martin</i> School principal	Examining student work	Implement tasks that promote reasoning and problem-solving	Elementary (Grades K–6)	K–6 fraction concepts and computation

Book Orientation

Chapters 5-11

The Book Centered On Cases

Provides opportunities to learn about each of the Mathematics Coaching Practices and see how a mathematics leader uses the **Proactive Coaching Framework**

Our Book Study Centered On Coaching Practices

Affords opportunity to delve immediately and deeply into the **Mathematics Coaching Practices**

Book Orientation

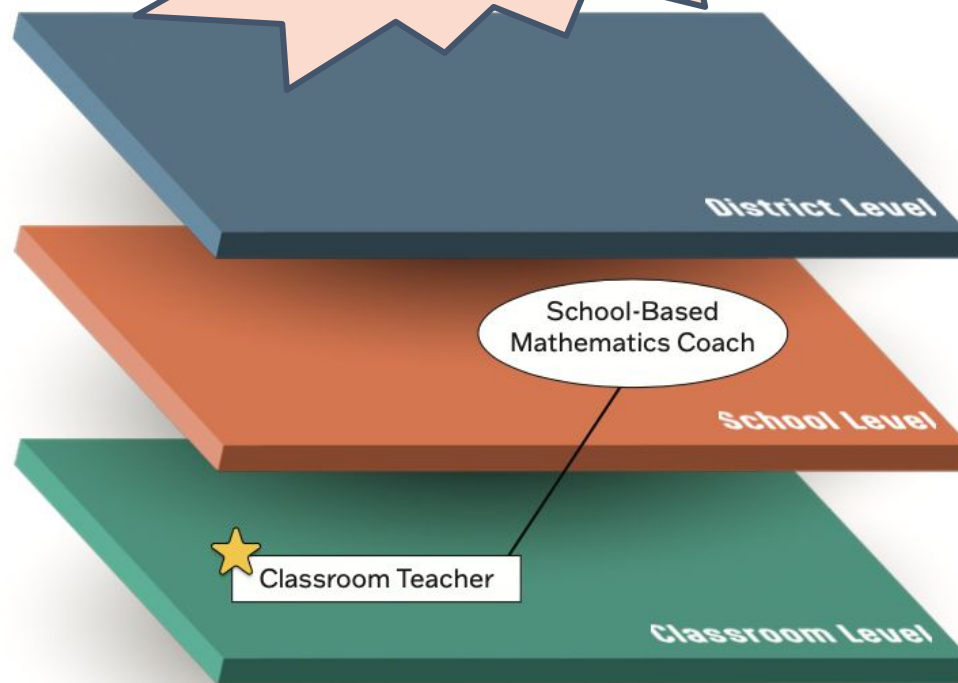
Case Elements

Long- & Short-Term Goals

Coteaching for a classroom teacher's professional learning in an after-school meeting for the purpose of increasing student-to-student dialogue connected to facilitating meaningful mathematical discourse

Long-Term Goal	Increase student discourse within all mathematics classrooms.
Short-Term Goal	Implement, through coteaching, talk moves in Mrs. Lee's classroom.

Math Leader Positioning



Key

Rectangle w/ star → the user of the Proactive Coaching Framework (planning or enactment)

Oval → the intended audience of the coaching interaction

Book Orientation

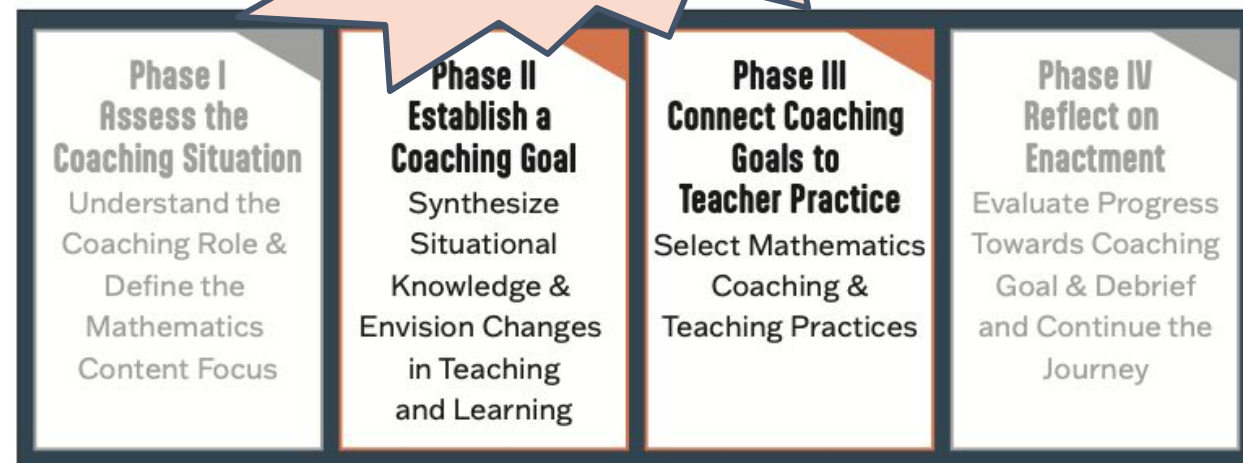
Case Elements

Connections to Catalyzing Change

Connections to Catalyzing Change

The case of Michelle highlights a part-time mathematics teacher and part-time mathematics coach who has regularly used coaching cycles to support equity-focused instructional shifts in her school. When mathematics classrooms are not student-centered and inclusive, they fail to support high-quality, deep mathematical learning experiences for all students that can impact the development of a positive mathematical identity. Michelle uses the PCF to make a plan that honors the goal her colleague has identified to increase student-to-student discourse knowing that this has the potential to foster students' positive mathematical identities.

Enacted Phases



Book Orientation

Case Elements

The Problem of Practice

Michelle's Problem of Practice

Mrs. Lee, a Grade 8 mathematics teacher, has asked to coteach a mathematics lesson so that she can increase student discourse in her classroom. Although excited for this opportunity, Michelle, a part-time mathematics coach and part-time classroom teacher, is wary of the short timeline because there is not enough time to do a full coaching cycle with in-depth planning beforehand. How can Michelle engage in a modified coaching cycle that honors the process of the coaching cycle, meets the realistic time constraints of this situation, and moves past the barriers to implementation?

Planning

Planning Guide: Phase III

Context

Select Mathematics Coaching Practice

How will you negotiate and justify the choice of one or more MCPs?

Mrs. Lee requested that we coteach together, but we have a limited amount of time to prep together. She can meet for 15 minutes after school and the rest of our coordination and planning can be through email.

Which MCP best aligns with your coaching situation and your coaching goals?

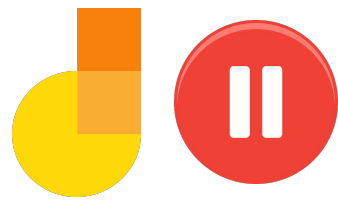
Coteaching, because it was requested by the teacher, but I'm not sure which model we will use during the lesson.

Michelle: I think I have found a way to honor many of the aspects of the coaching cycle, while trying to honor both Mrs. Lee's learning as well as her time. I am hoping that Mrs. Lee will appreciate the efforts that I have put into planning for our meeting so that we can be focused on tasks like taking the time to research and draft out some ideas for each of the tasks and considering ways she can be involved in either observing or supporting the lesson. I hope she feels that this is beneficial to her and that we can move forward from there. We might end up with a short lesson or even trying this a few more times to see what works. The work that results might be data I could collect in the future to see if Mrs. Lee is ready to continue or if she needs more support. I am going to look for in terms of her ability to implement a particular model.

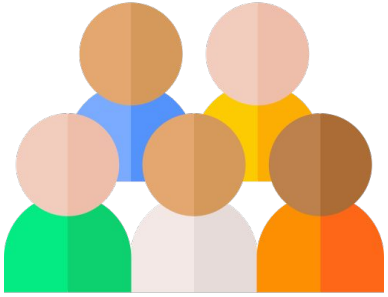
Perspective

Using the PCF to Catalyze Change

Breakout Session



Breakout Rooms



Reflect on and discuss the question(s) below. Use the Jamboard to record your groups' ideas.

What obstacles or barriers do you face when trying to catalyze change in your community?

- What actions have you taken?
- What results have you experienced/observed?

Using the PCF to Catalyze Change

Group Discussion

What ideas did
you have?

What ideas did
you hear?



Modeling Instruction As A Coaching Practice

Connecting To Your Practice

What is your familiarity with modeling instruction?

- I have never heard of modeling instruction
- I have read about modeling instruction
- I have tried modeling instruction a few times
- I regularly use modeling instruction



Modeling Instruction As A Coaching Practice

Defining the Practice

Mathematics Coaching Practice: Model Instruction

Effective coaching of mathematics involves demonstrating for teachers the delivery of instruction in the classroom. The coach and teacher work collaboratively to purposefully highlight coach-student interactions to maximize student learning.

Modeling Instruction As A Coaching Practice

Connecting to Research

- Modeling can look like a coach taking on the role of the teacher in a classroom to demonstrate a pedagogical practice or instructional routine (Saclarides & Munson, 2021).
- Modeling can be used in professional learning settings as a way of engaging audience members and helping them experience learning as their students might.
- Modeling can be used in professional development settings where an individual models a routine (e.g., number talk) in the presence of multiple teachers to intentionally demonstrate what is possible for particular instructional practices.

Modeling Instruction As A Coaching Practice

Connecting To Practice



What insights or questions do you have about modeling instruction?

- From reading Chapter 6?
- From your own experiences?

