

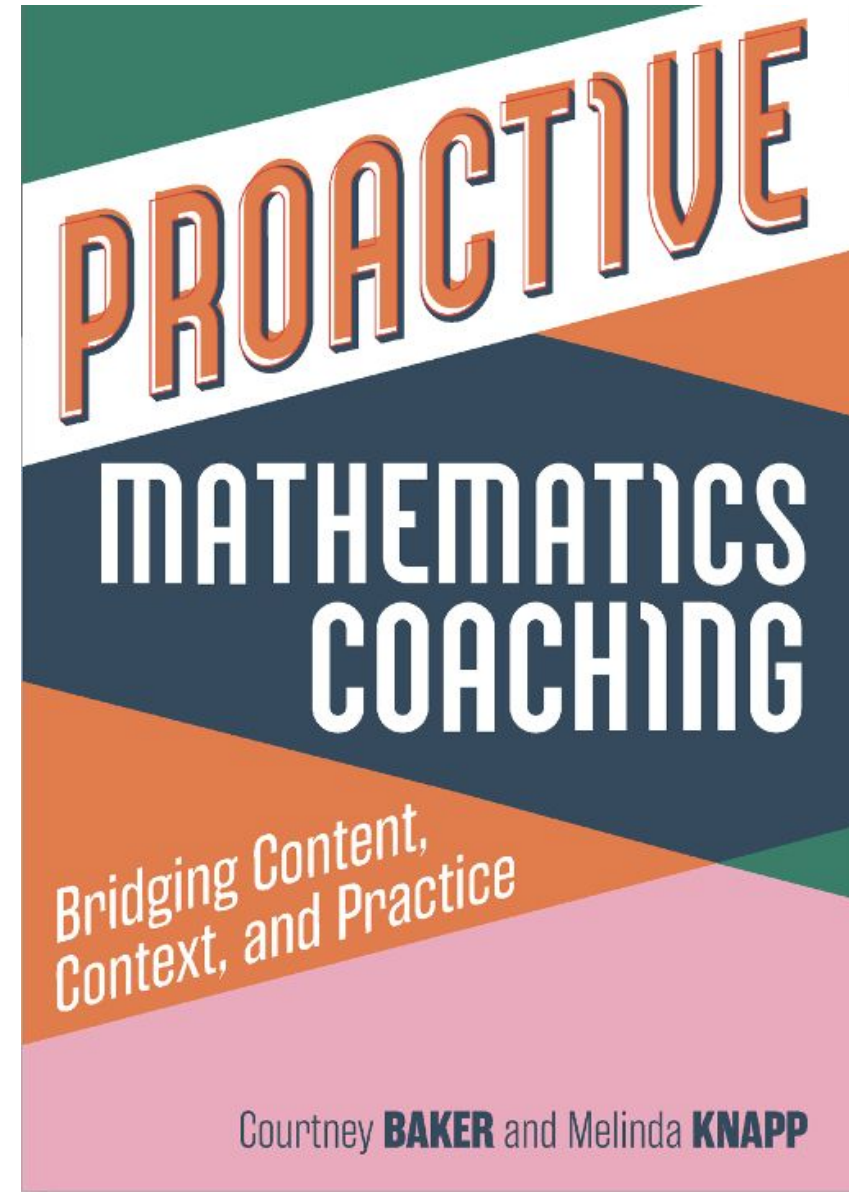
WELCOME!

NCTM Book Study

Catalyzing Change Through Proactive Mathematics Coaching

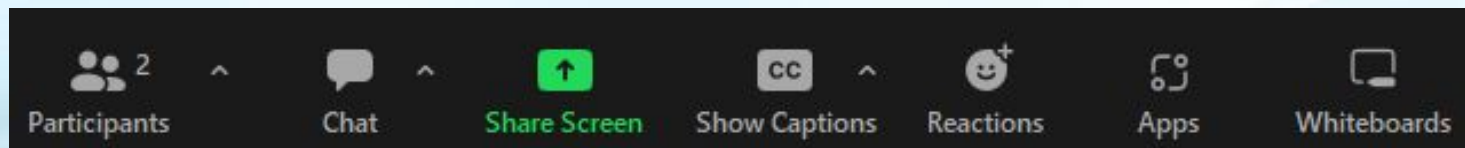
Melinda Knapp, PhD

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.

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Catalyzing Change Through Proactive Mathematics Coaching

Today's Agenda

Part I: Welcome

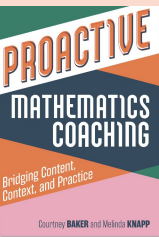
Part II: Connecting to *Catalyzing Change*

Part III: The Case of Brayden, Morgan, and Carys

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

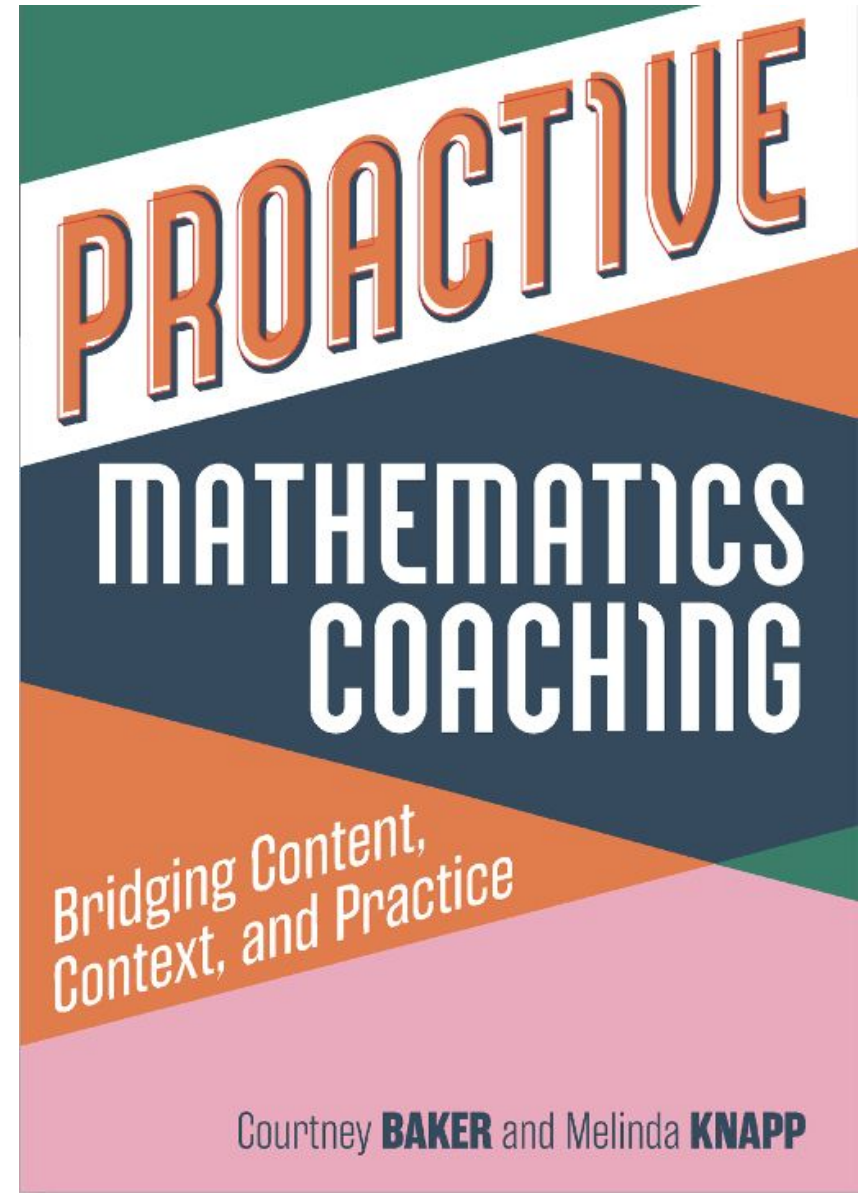
Connecting Research & Practice

- 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

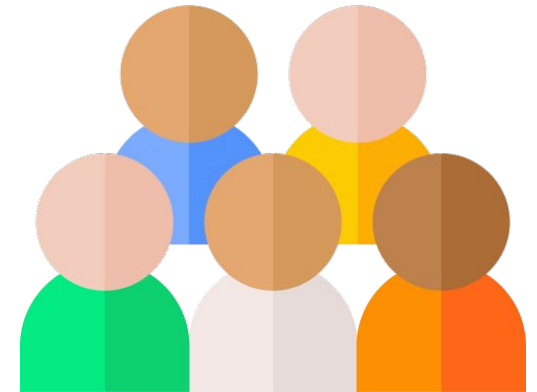
Chat Box



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

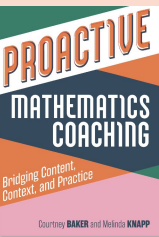
- Assume Positive Intent
- Learn From & With Each Other
- Maintain An Asset-Based Approach
- Value Others' Experiences
- We Teach All Students & Lead/Coach All Stakeholders
- Other?



Part II: Connecting to *Catalyzing Change*



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



Chapter 11: The Case of Brayden, Morgan, Carys

Chapter 11
Pages 167-191

The Case

The **Case of Brayden, Morgan, Carys** explores how district leaders plan for and **rehearse** an important meeting with other district leaders regarding the use of pacing guides. They use a perspective taking protocol to consider different points of view to consider impacts.

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
10	Phase III	Use of a video club to support teachers to learn to present justifications and generalizations	<i>Karina</i> K-8 school-based STEM coach	Video club for middle school mathematics teachers	Analyzing video	Pose purposeful questions	Middle school (Grades 6-8)	The hexagon pattern task
11	Phase I Phase III	Professional learning that seeks to change structural barriers	<i>Brayden</i> K-12 district mathematics supervisor <i>Morgan</i> Grades 6-12 mathematics instructional specialist <i>Carys</i> K-5 mathematics instructional specialist	K-12 school-based leaders	Rehearsing aspects of practice	Create equitable structures in mathematics	Grades K-12	All K-12 mathematics content

Introducing the Case of Brayden, Morgan, Carys

Case Essentials

Using the PCF to Catalyze Change

In this case, Brayden, Morgan, and Carys have just returned from annual conferences where they attended sessions that enhanced their understanding of inequitable structures in schools. Brayden, the district K–12 mathematics supervisor, is ready to reimagine the district pacing guides to explicitly promote equitable mathematics teaching and learning. Though not intended to promote inequities, pacing guides can perpetuate barriers and obstacles for some students to receive rigorous and relevant mathematics instruction because pacing guides often include elements that are problematic, such as rigid timelines and content allocation recommendations across the school year, including high-stakes common assessments. Together, Brayden, Morgan, and Carys use the PCF to analyze the district pacing guides for embedded inequities and examine how they might be limiting students' success in math.

“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)

Key Recommendations

	Early Childhood and Elementary (NCTM, 2020a)	Middle School (NCTM, 2020b)	High School (NCTM, 2018)
Develop Deep Mathematical Understanding	Early childhood settings and elementary schools should build a strong foundation of deep mathematical understanding, emphasize reasoning and sensemaking, and ensure the highest quality mathematics education for each and every child.	Middle schools should offer a common shared pathway grounded in the use of mathematical practices and processes to coherently develop deep mathematical understanding, ensuring the highest-quality mathematics education for each and every student.	High schools should offer continuous four-year mathematics pathways with all students studying mathematics each year, including two to three years of mathematics in a common shared pathway focusing on the Essential Concepts, to ensure the highest quality mathematics education

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

Creating Equitable Structures In Math

“Extensive research shows that curriculum mandates that require high fidelity lead to a breadth of coverage rather than depth. Pressures to stay on pace with instructional materials lead to teacher centered mathematics instruction and the omission of cognitively rigorous tasks because such tasks require more instructional time to implement well. While all teachers are pressed for time, teachers working with children perceived to be low performing in mathematics of children of color are far more likely to drop rigorous and relevant mathematics tasks to focus on rote skills and procedures because of time constraints (Ellis, 2008; Yeh, 2018).”

(NCTM, 2020a, p. 38)

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

Creating Equitable Structures In Math

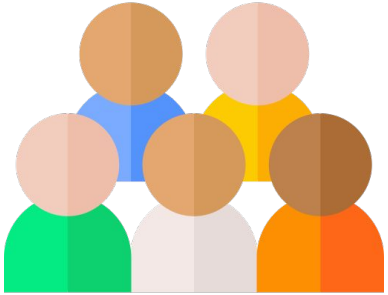
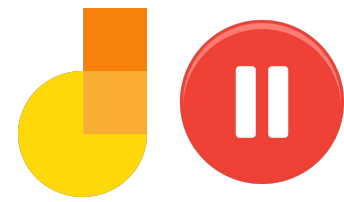
Actions for Leaders

- Analyze and evaluate policies and practices that restrict children's access to and success in mathematics, including but not limited to ability grouping and tracking, high stakes assessments and readiness measures, and inflexible use of curriculum.
- Ensure continuity of children's learning across elementary, middle and high school mathematics by creating coherent mathematics pathways with standards, curriculum, and assessments focused on deep mathematical understanding.

(NCTM, 2020a, p. 126)

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.

Q1: *What policies and practices in your school, district, or state inhibit teachers from implementing high quality mathematics curriculum with integrity?*

Q2: *How might pacing guides promote inequitable mathematics instruction?*

(adapted from NCTM, 2020a; 2020b)

Connecting to *Catalyzing Change*

Group Discussion

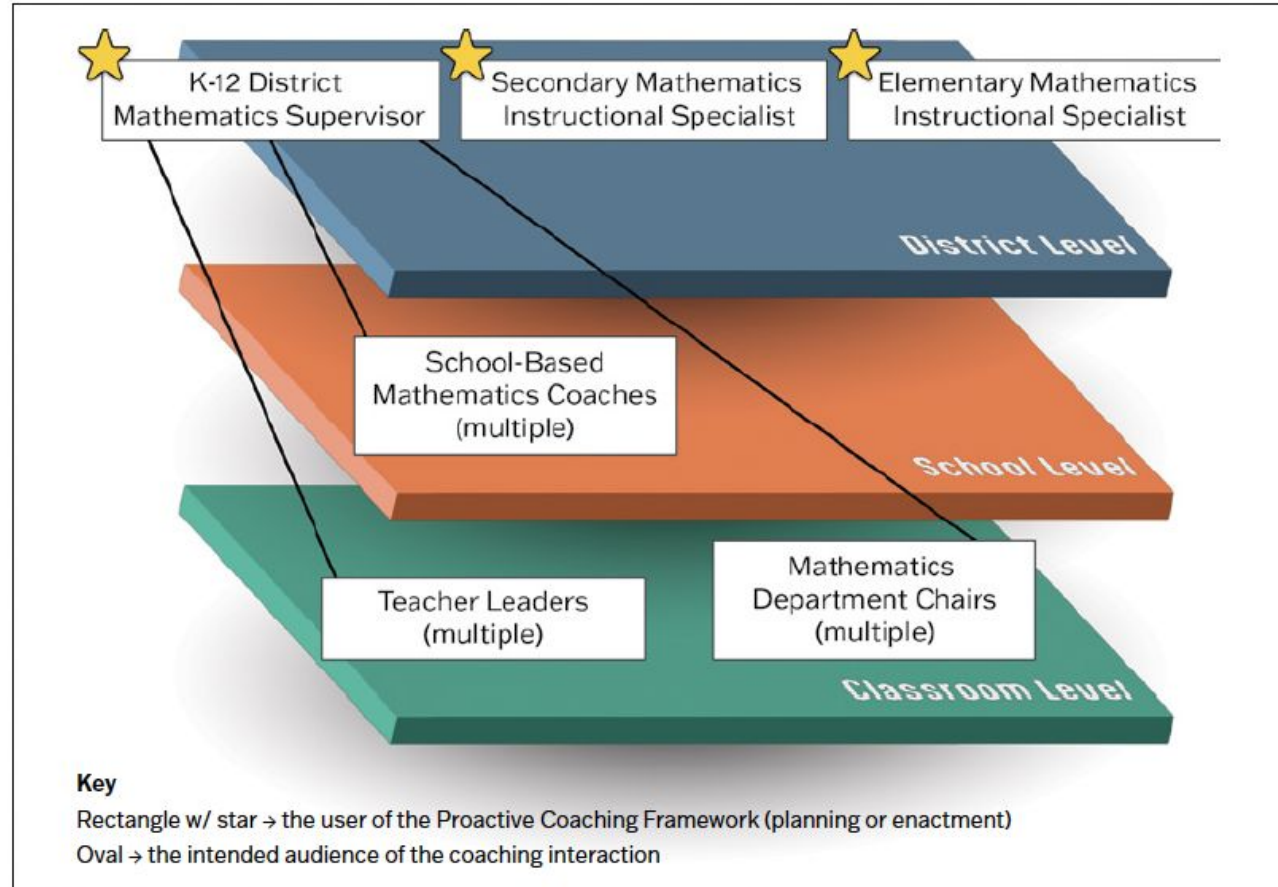
What did this
conversation
prompt for you?



Part III: Exploring the Case of Brayden, Morgan, and Carys

Introducing the Case of Brayden, Morgan, and Carys

Case Essentials



Introducing the Case of Brayden, Morgan, and Carys

Case Essentials

Brayden, Morgan, and Carys's Problem of Practice

Although perceived as a support by some, the implementation of district pacing guides has ultimately served as a tracking structure that isolates mathematical topics and is disadvantageous to enacting rich and relevant mathematics. District-based leaders Brayden, Morgan, and Carys are working together to examine and reimagine district pacing guides so that they eliminate inequities and ensure access to all mathematical content for all students. As a district-based team, how can Brayden, Morgan, and Carys initiate conversations with school-based mathematics leaders that highlight the embedded inequities within pacing guides?

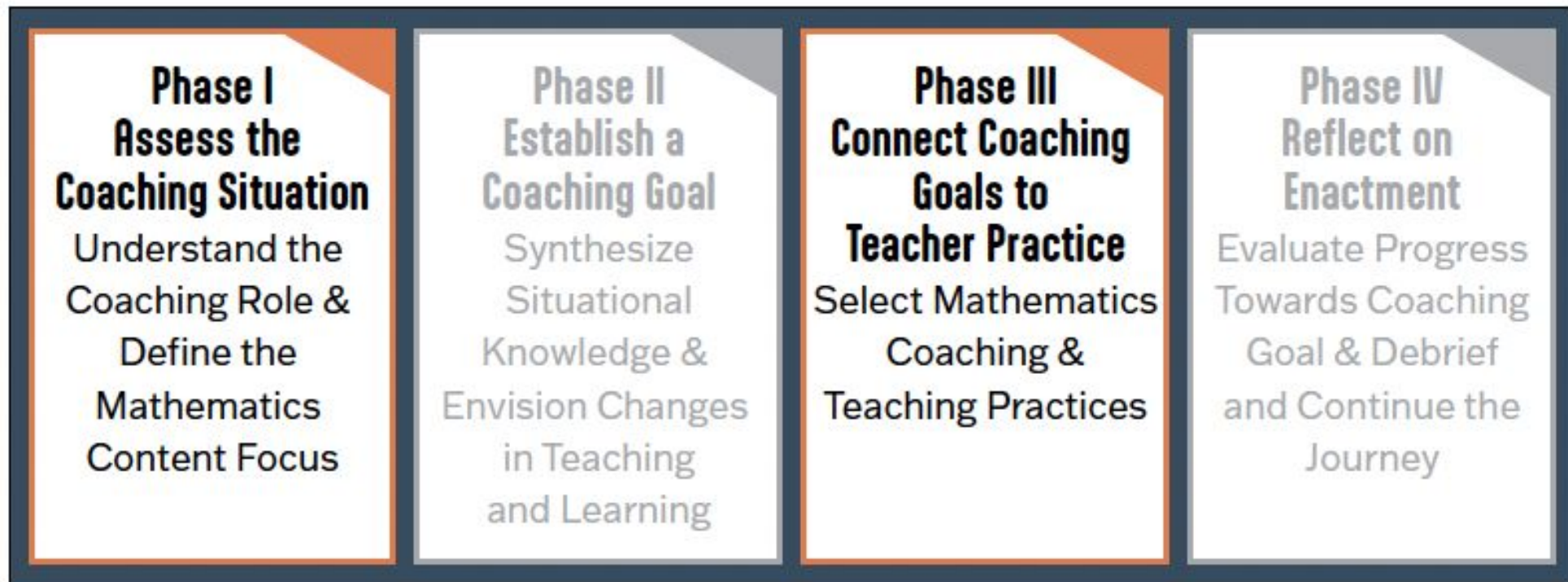
Introducing the Case of Brayden, Morgan, and Carys

Case Essentials

Rehearsing aspects of practice for school-based mathematics coach professional learning in a monthly meeting for the purpose of examining pacing guides as they connect to creating equitable structures in mathematics.	
Long-Term Goal	Redesign pacing guides in a way that inhibits ability grouping/tracking and promotes rich and rigorous mathematics resources and instruction.
Short-Term Goal	Have the Vertical Math Team consider, via a rehearsal, the perspectives of school stakeholders (classroom teachers; administrators; mathematics coaches, department chairs, and teacher leaders) regarding use of district pacing guides.

Introducing the Case of Brayden, Morgan, and Carys

Case Essentials



Introducing the Case of Laila

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

Perspective Taking



Chapter 11
Pages 182-183

Step Inside/Perspective Taking Protocol

Taking Action

Step Inside Protocol (adapted from Ritchhart et al., 2011, p. 178)

- What can this stakeholder see, observe, or notice about this structure?
- What might the stakeholder know, understand, hold true, or believe about this structure?
- What might the stakeholder care deeply about?
- What might the stakeholder wonder about or question?

Perspective Taking

Try It

Group 1: Ability Grouping

Group 2: Standardized Testing

Group 3: Tracking/Detracking

Perspective Taking

Try It

Perspective Taking Protocol

Breakout Room 1:

Knowledge, Beliefs → Stakeholder ↓	What can this stakeholder observe or notice about this structure?	What might the stakeholder know, understand, or believe about this structure?	What might the stakeholder care deeply about?	What might the stakeholder wonder about or question?

Connecting to *Catalyzing Change*

Group Discussion

How did the
Perspective
Taking structure
support your
conversation?



Reflecting On Other Possibilities



Share Your Thinking!

How could the rehearsal structure promote school-based leader learning--especially during high stakes conversations?



What Will Be Your Next (Proactive) Step?



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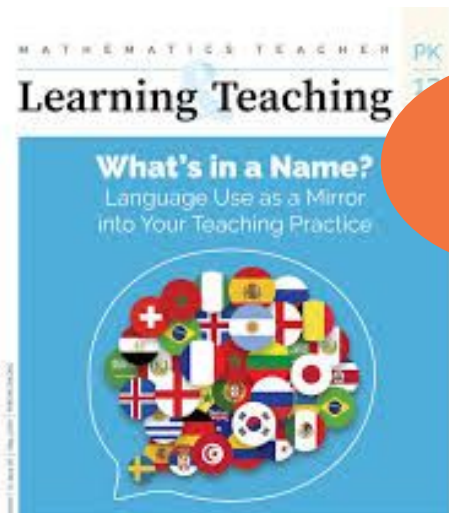
Proactive Mathematics Coaching

Continuing To Engage

Upcoming
NCTM Article

2024 NCTM
Conference

2024 NCTM
Pre-Conference
Workshop



June
2024

The Math of Their Dreams:
Illuminating Students'
Brilliance

 **2024**
ANNUAL MEETING
& EXPOSITION
Sept. 25-28, Chicago



Preconference Workshops


9:00 AM–4:30 PM

Catalyzing Change through





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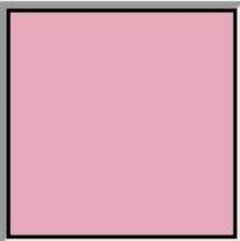
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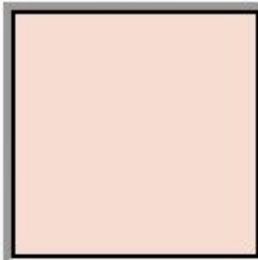
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