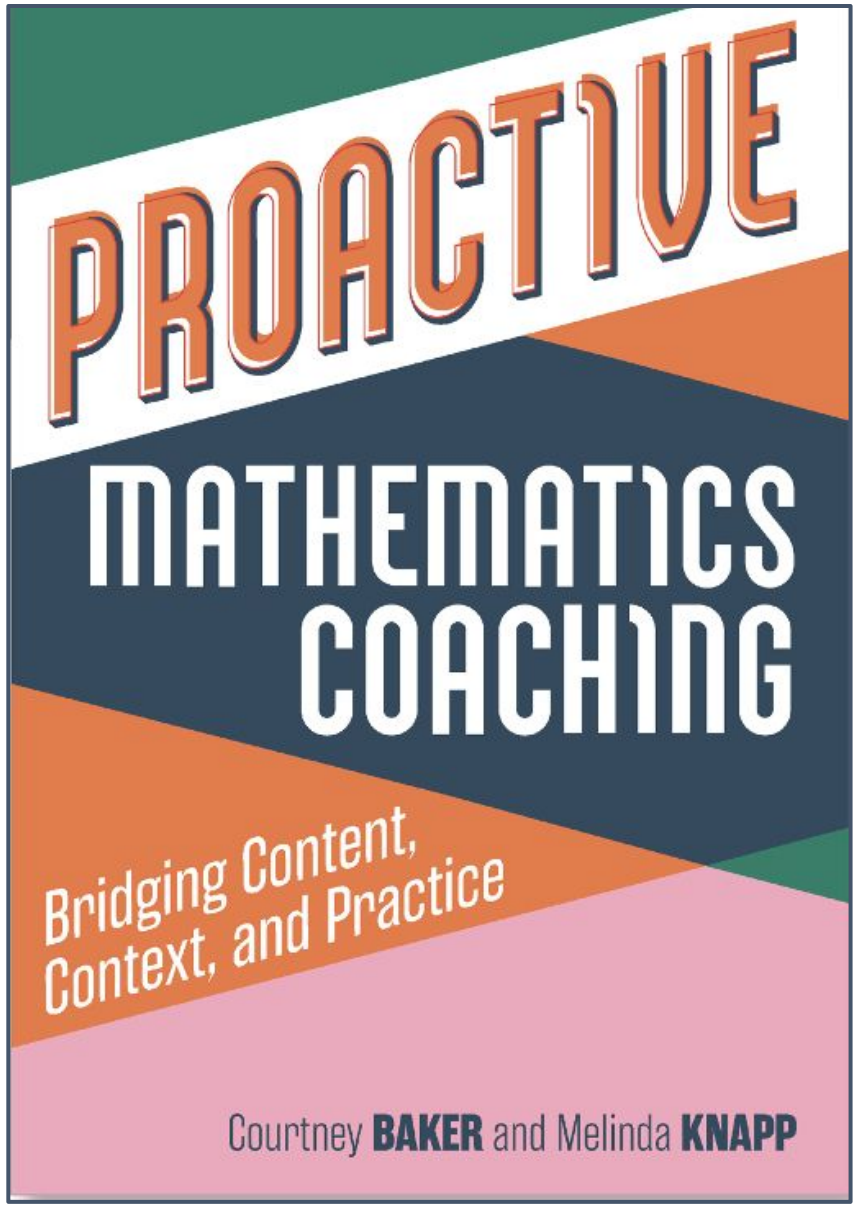
WELCOME!

NCTM Book Study

Proactive Mathematics Coaching

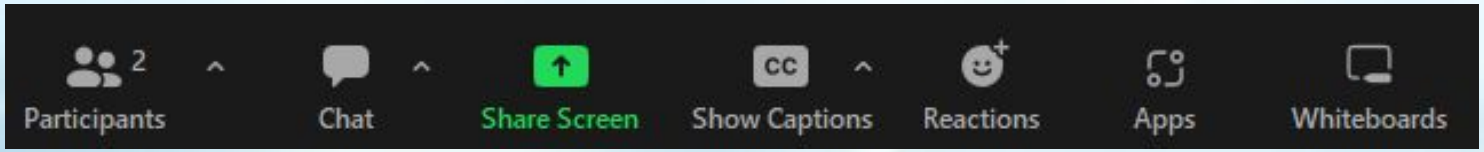
Engaging In Mathematics

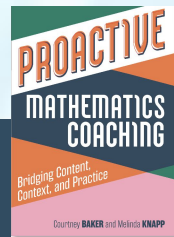


Courtney Baker, PhD
Melinda Knapp, PhD

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.

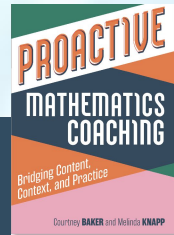




NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

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.



NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS

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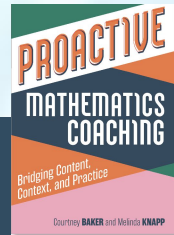
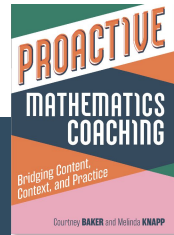


Proactive Mathematics Coaching

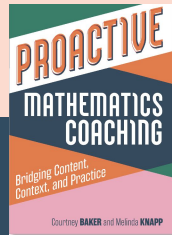
Today's Agenda

Part I: Welcome & Overview

Part II: Exploring The Case of Devon & Engaging In Mathematics as a Mathematics Coaching Practice



Part I: Welcome & Overview



Introductions

Mathematics Coaches At Heart

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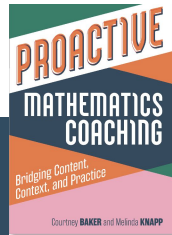
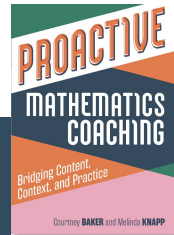


Understanding Our Influence

Questions At The Core of Our Practice

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



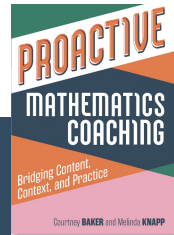
Understanding Our Influence

Developing A Proactive Practice

Our Book Study Goals

Connecting Research & Practice

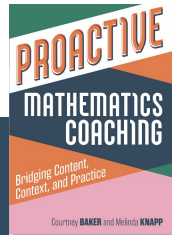
- Explore a specific MCP through example cases that provide broad exposure to instructional practices and leadership approaches.
- Analyze cases that recognize a range of coaching contexts, focus on math content, and empower school communities to surmount obstacles.
- Gain insights into what it takes to plan professional learning and/or coaching interactions that advance leadership agendas for both long- and short-term goals.



Our Book Study Goals

Connecting Research & Practice

- Bring transparency to decision making and illustrate how the use of the PCF advances the vision of teaching and learning mathematics described within the Catalyzing Change series.
- Engage in discussions (network and collaborate) with peers to share common problems of practice, evaluate contexts, define a content focus, establish goals, select practices, and engage in debriefs that can inform future actions.

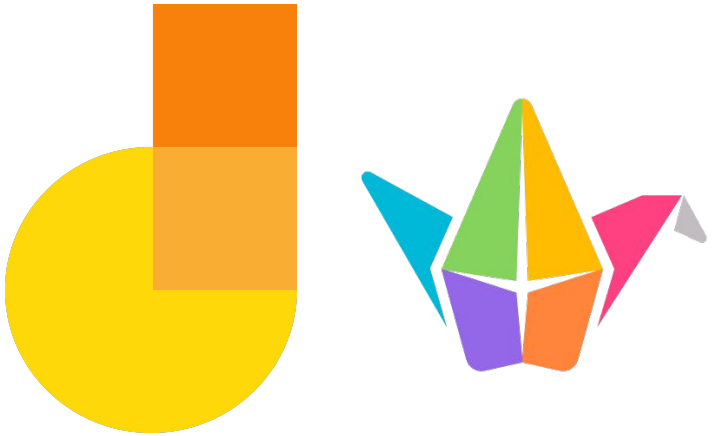


Maximize Your Experience

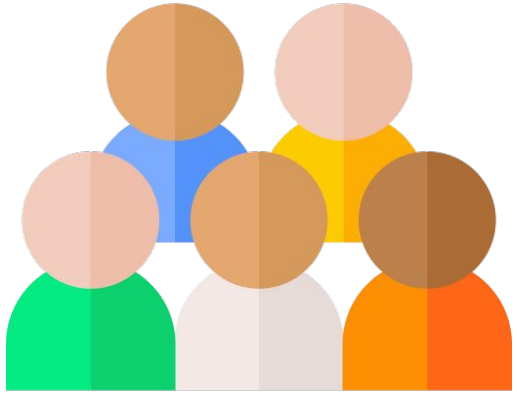
Engage in Multiple Formats

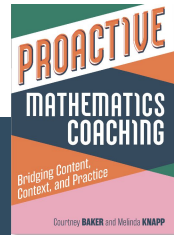
Chat & Microphone

Jamboards & Padlets



Breakout Rooms





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?

Creating Alliances

Building Your Network

Please Share on Our Google Sheet

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

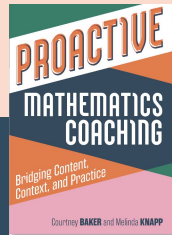
Invitation to Share

Your Turn

What did you try?

- 1-2 questions?
- A specific phase?
- The entire PCF?

Part II: Exploring the Case of Devon and Engaging In Mathematics as a Mathematics Coaching Practice

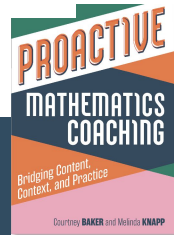


Engaging In Mathematics As A Coaching Practice

Defining the Practice

Mathematics Coaching Practice: Engage in Mathematics

Effective coaching of mathematics encourages collaborative discussions and problem-solving to plan lessons, build content knowledge, anticipate or analyze student responses, prepare purposeful questions, explore manipulatives, select mathematics goals, and analyze the rigor and quality of the mathematics tasks. Engaging in mathematics within these activities deepens teachers' specialized disciplinary knowledge.



Engaging In Mathematics as a Coaching Practice

Connecting To Your Practice

What is your familiarity with engaging in mathematics?

- ❑ I have never heard of engaging in mathematics
- ❑ I have read about engaging in mathematics
- ❑ I have tried engaging in mathematics a few times
- ❑ I regularly engage in mathematics

Engaging In Mathematics as a Coaching Practice

Connecting To Your Practice

What do you notice?

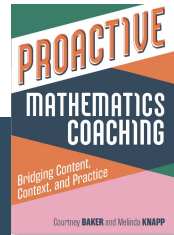
What do you wonder?

	Never Heard Of	Read About It	Tried a Few Times	Use Regularly
Co-Teaching	0%	13%	67%	20%
Modeling	6%	18%	41%	35%
Examining Student Work	0%	20%	40%	40%
Engaging In Mathematics	0%	0%	40%	60%

Engaging In Mathematics As A Coaching Practice

Connecting to Research

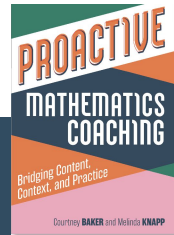
- Consistently engaging in mathematics can support teachers' learning (Borko et al., 2014; Elliott et al., 2009; Lesseig et al., 2017) and bolster participants' self-efficacy and confidence as doers of mathematics.
- Saclarides and Kane (2022) found that the participants in their study appreciated having the opportunity
  - to be placed in the seat of a learner,
  - to deepen their understanding of how to support students' access to mathematical tasks, and
  - to share the task as a resource with teachers.



Engaging In Mathematics As A Coaching Practice

Connecting to Research

- When coaches emphasize and include engaging in mathematics or "doing math" with other teachers they can initiate conversations about mathematics - including discussing big picture ideas of mathematical content, as well as how students would make sense of particular mathematical ideas and concepts.
- When mathematics leaders engage teachers in disciplinary content with other teachers and when mathematics leaders engage teachers in disciplinary inquiry, there is potential to deepen teachers' specialized content or disciplinary knowledge.

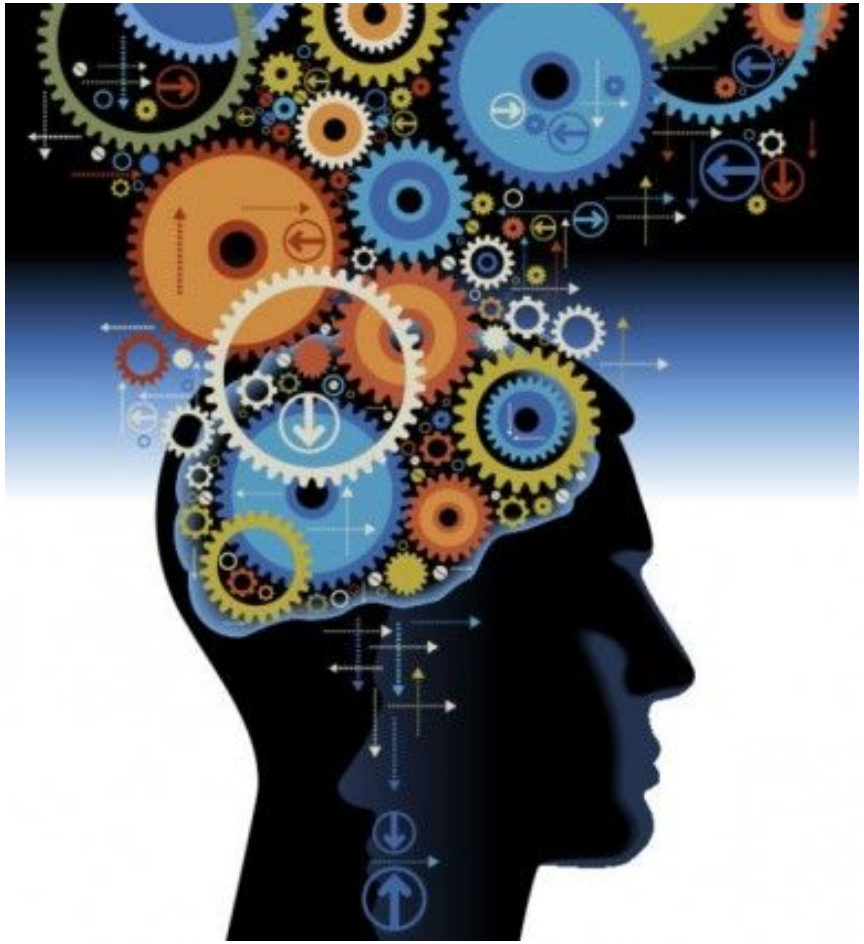


Engaging In Mathematics As A Coaching Practice

Connecting To Practice

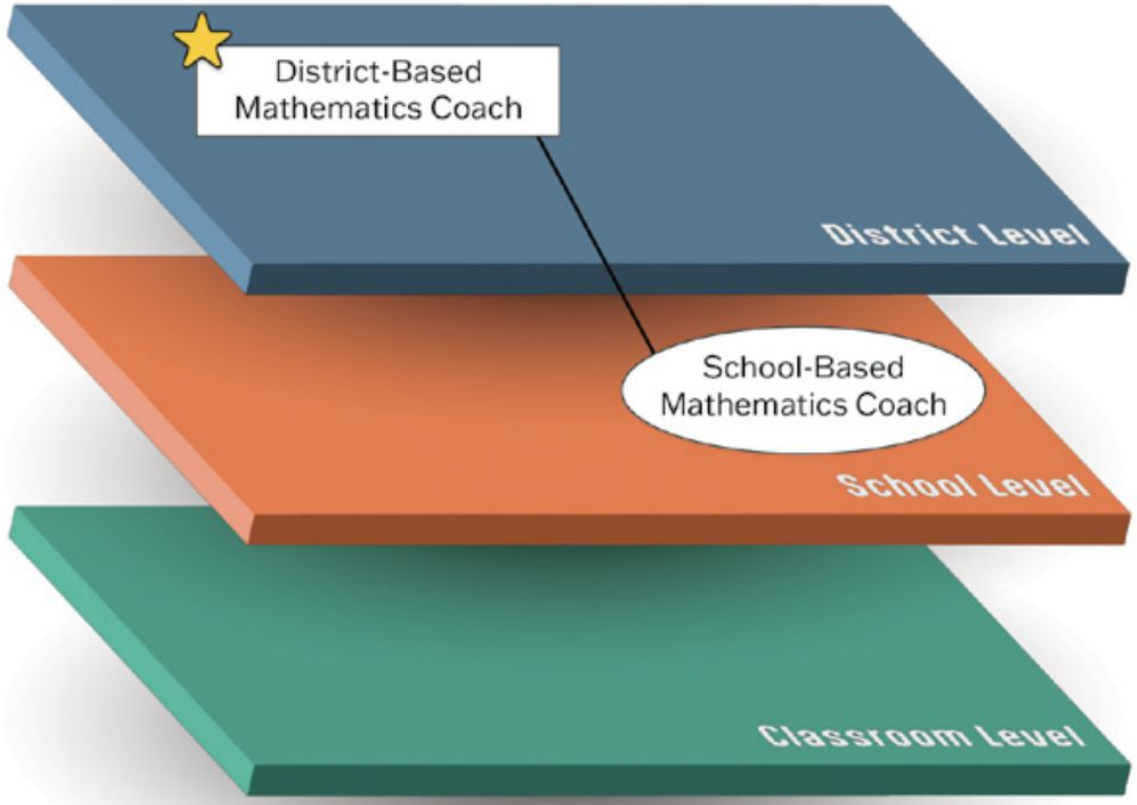
What insights or questions do you have about engaging in mathematics?

- From reading Chapter 8?
- From your own experiences?



Introducing the Case of Devon

Case Essentials



Key

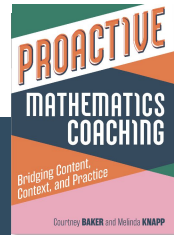
Rectangle w/ star → the user of the Proactive Coaching Framework (planning or enactment)

Oval → the intended audience of the coaching interaction

Introducing the Case of Devon

Case Essentials

Engaging in mathematics for coaches' professional learning in an individual meeting for the purpose of examining shifts connected to establishing goals for learning.	
Long-Term Goal	Build reflection into the school-based mathematics coaches' practice so that each recognizes reflection and metacognitive questions as powerful tools for their own growth.
Short-Term Goal	Increase coach noticing and naming of instructional shifts in their own practice so that there is a parallel increase in ownership and self-efficacy of the teachers they work with.

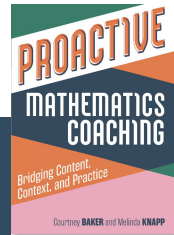


Introducing the Case of Devon

Case Essentials

Using the PCF to Catalyze Change

The Case of Devon highlights how a district-based mathematics coach fosters an environment of continuous learning and reflection. Often, teachers plan in isolation and infrequently observe their colleagues' teaching. We envision opening classroom doors to make teaching and learning transparent to all in order to "serve as a catalyst for creating a school culture of deeper mathematics learning and mathematically powerful learning spaces for each and every child" (National Council of Teachers of Mathematics, 2020, p. 121). Devon uses the PCF to frame and design an important conversation with a school-based mathematics coach in order to prompt self-reflection and critical examination of her coaching practice at the end of a school year.



Introducing the Case of Devon

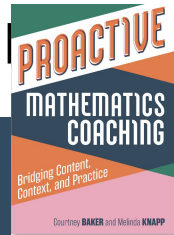
Case Essentials

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

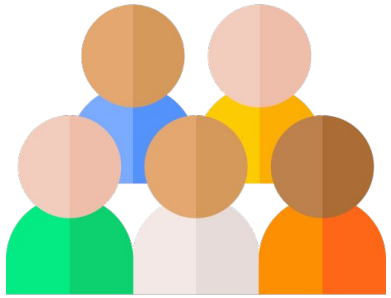
Mathematics Teaching Practices (NCTM, 2014)

- 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



Engaging In Mathematics As A Coaching Practice

Pause & Ponder: Breakout Session

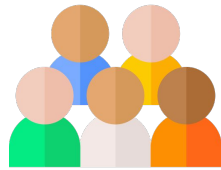


Breakout Rooms

Reflect on and discuss the questions on the next slide. You can also use the linked Jamboard to record your ideas.

Engaging In Mathematics As A Coaching Practice

Pause & Ponder: Breakout Session Qs



How did Devon revisit her short- and long-term goals in planning for this coaching interaction? What might she do in her next coaching interaction with Stephanie?

Devon's first instinct was to identify the MTP building procedural fluency from conceptual understanding. However, upon further reflection, Devon decides to use the MTP to establish mathematics goals to focus learning. How might this switch of practices influence Devon's planning and outcomes?

Engaging In Mathematics As A Coaching Practice

Pause & Ponder: Discussion

What ideas did you have?

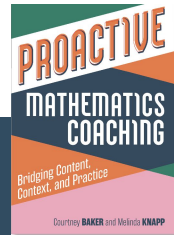
What ideas did you hear?

Engaging In Mathematics As A Coaching Practice

Proactive Coaching Framework Questions

Share Your Thinking!

What are you inspired to try out related to the **Mathematics Coaching Practice engaging in mathematics**? What is your rough draft thinking about this?



Next Time [11/15]

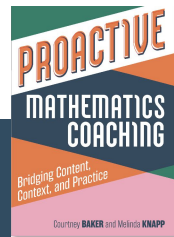
Engaging In Lesson Study, Math Lab & Math Studio Chapter 9

Check Out Chapter 9 Pages 106-151

The Case

In this case you will meet **Stuart**, a district mathematics coach working to support school-based coaches to implement side-by-side coaching as part of their coaching practice.

Case Summary			People		Practices			
Chapter	PCF Phases Emphasized	Big Idea	Mathematics Leader and Role	Involved School Stakeholders	Mathematics Coaching Practice	Mathematics Teaching Practice		
8	Phase I Phase II	Fostering reflective practice and capacity to lead in others	*Devon* District-based mathematics specialist	*Stephanie* School-based mathematics coach	Engaging in mathematics	Establish mathematics goals to focus learning	Elemen (Grades K-	
9	Phase I Phase II Phase III Phase IV	Empowering teachers to sha classroom authority	*Martina* School-b mathematics coach in two middle schools	Classroom teachers	Lesson study, math labs and math studio	Facilitate meaningful discourse	Middle school (Grade 7)	Making sense of and solving inequalities in real-world contexts
9	Phase I Phase II Phase III Phase IV	Engaging in a math studio to support side-by-side coaching	*Stuart* District mathematics coach	School-based mathematics coaches	Lesson study, math labs, and math studio	Elicit and use evidence of student thinking	Elementary (Grade 6)	Use rate and ratio to solve real-world and mathematical problems
[illegible]	Phase I [illegible] Phase III	Collaboratively learning to [illegible] social justice mathematics lessons	*Willow* High school [illegible] teacher and department lead	Mathematics team members	Lesson study, math labs, and math	Implement tasks that promote [illegible] and problem-solving	High School (Grades 9–12; [illegible] an Algebra 1 or Integrated Algebra course)	Geometry: recogni[illegible] congruence, similarity, symmetry, measurement opportunities. Right angle trigonometry in real-world contexts.

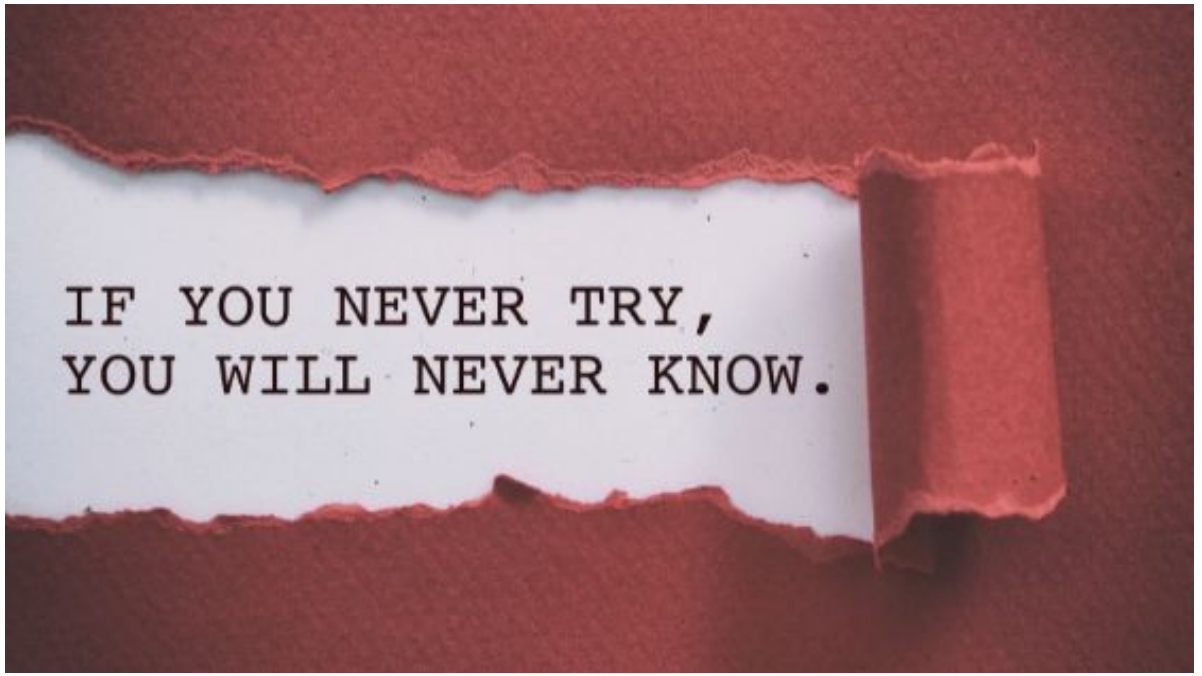


Next Time

Consider Implementing the PCF

What might you try?

- 1-2 questions?
- A specific phase?
- The entire PCF?



There will be space next session to share!

Next Time

November 15