

Context

- Interviews with MNPS Numeracy coaches at school and district level
- Research partly informed by the sources that they referenced in interviews

Problems of Practice

- Negotiating and working toward a vision of math instruction that supports productive views of students' mathematical capabilities
- Building strong relationships with teachers that allow for co-inquiry into practice and avoid an evaluative power dynamic
- Meeting the needs and motivations of individual teachers where they are in their current practice

"As a numeracy coach you have to be able to say 'okay, this is where I'm going to start with everybody and know that everybody's on different levels' and then try to cater to that need."

"So, this [developing vision] is different with every group, it's different with every year and it's not something that changes in a month or even in a blink of an eye."

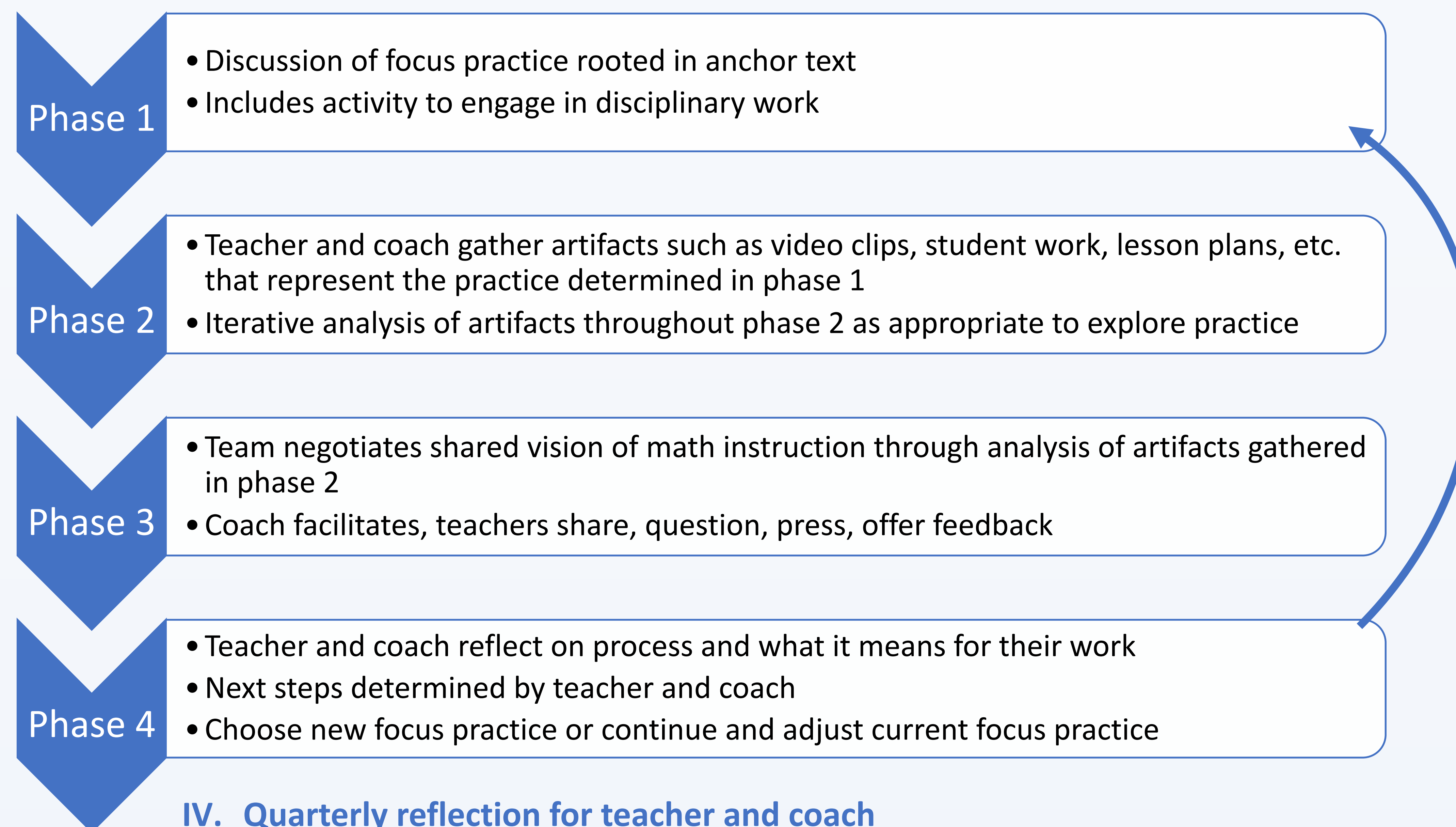
"Establishing those strong relationships and then they [teachers] start to trust you. And then it's just 'let's try it and see' and like I said not taking the stance that 'this is what you need to do, and you do it because I said', but 'hey, let's try this see and see how it works.'"

Elements of Design

The purpose of this design is to clarify a shared vision of math instruction over the course of a school year in a secondary math department. The structure roots ongoing work in research-based practices using an anchor text. Teachers collect and share artifacts representative of focus instructional practices to create an archive of what math instruction looks like for them in their school with their students.

Design materials include...

- I. Coach consideration guide for use prior to implementation
- II. Beginning of year meeting structure to frame purpose
- III. Four phase cycle of inquiry into focus practice from anchor text



- IV. Quarterly reflection for teacher and coach
- V. Example for a specific anchor text and suggestions for potential texts

Assumed Context for Use

- School-based secondary math coach
- Works with a team of teachers in both 1-1 settings and collaborative spaces
- Context was primarily MS, but could be utilized for HS with no significant adjustment
- Coach takes a stance of co-inquiry
- Available time during the work-day for collaborative teacher meetings on a regular basis

Opportunities to Tailor for Context

- Could be adapted for use in shared settings, 1-1 coaching settings, or a combination of shared and 1-1 settings
- Frequency and duration of meetings
- Choice of anchor text and progression of focus practices

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the full design



Research Question

How can school-based math coaches clarify a shared *vision of high-quality math instruction* through their support of secondary mathematics teachers' instructional practice over a school year?

Theoretical Framework

Situative (Lave & Wenger, 1991)

- Learning as a social practice
- Communities of practice

Views of Students' Mathematical Capabilities

"Professional learning opportunities focused on shifting views of students' mathematical capabilities must be tightly integrated with a focus on other key aspects of teaching and learning mathematics..."

(Jackson et al, 2015, p. 34)

Research that informs design

Vision of High-Quality Math Instruction

"The results of a number of studies have revealed that professional development, collaboration between teachers, and collegiality between teachers and school leaders are rarely effective unless they are tied to a shared vision of high-quality instruction that gives them meaning and purpose."

(Munter, 2014, p. 586)

Potentially Productive Coaching Activities (Gibbons & Cobb, 2017)

- Elements of high-quality professional learning
- Activities to support teacher learning in both 1-1 or group settings; book study, analyzing video, engaging in the discipline, and examining student work

Teacher Collaborative Time (Horn et al, 2018)

- Activities aligned to shared long term goals for teachers' instructional improvement
- Pedagogies of enactment and investigation
- Expert facilitation