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# Meta-coaching: A novel approach to supporting the practice of mathematics coaches

Michael Jarry-Shore<sup>1</sup>, Meghan Smith Durkin<sup>2</sup>, Hilda Borko<sup>2</sup>, Marsha Ing<sup>3</sup> and Thomas Smith<sup>4</sup>

<sup>1</sup>North Carolina State University, United States; [majarrys@ncsu.edu](mailto:majarrys@ncsu.edu)

<sup>2</sup>Stanford University, United States

<sup>3</sup>University of California, Riverside, United States

<sup>4</sup>Vanderbilt University, United States

*Coaching can help teachers make shifts in their teaching practice that may enhance student learning, yet little is known about efforts to prepare coaches to support teachers in making such shifts. We examined an approach to the professional development of coaches we call meta-coaching, in which an experienced coach supported coaches' learning. We analyzed interviews with a meta-coach and three coaches. Analysis reveals that the meta-coach focused on supporting the coaches to: 1) push teachers to shift their teaching practice, 2) use multiple data sources in lesson debriefs to broach specific topics for discussion, and 3) improvise during lesson debriefs in response to which topics did or did not come up. The coaches, on the other hand, focused on other aspects of their practice (e.g., being responsive to teachers' needs) and described a divergence between their coaching style and that of the meta-coach. We discuss implications and propose future research directions.*

*Keywords: Coaching, meta-coaching, professional development, mathematics teacher educators.*

Coaching is increasingly viewed as a viable means of helping teachers make the shifts in teaching practice currently being called for in the field (Jackson et al., 2017; NCTM, 2014; Russell et al., 2020). And yet, little is known about the preparation of coaches to support teachers in making such shifts (Saclarides & Kane, 2021).

It is common for experienced teachers to take on the role of coach, with the assumption being that an accomplished teacher will make an effective coach (Chval et al., 2010; Fennell et al., 2013). However, the role of a coach is quite distinct from that of teacher, and teaching experience alone does not guarantee that those who become coaches will have the knowledge and skill required to coach teachers (Hill, 2010). Among other things, coaching requires interpersonal skills; content knowledge, pedagogical knowledge, and knowledge of the curriculum; an awareness of coaching resources; and knowledge of coaching practices (Feger et al., 2004). Developing such knowledge and skill requires dedicated support and preparation, yet coaches often receive insufficient support to enact their role (Russell et al., 2020). Moreover, minimal research has examined efforts to prepare coaches for the work of coaching (Saclarides & Kane, 2021). In this study, we examined one such effort – meta-coaching – in which an experienced coach supported the learning of three mathematics coaches.

## **Theoretical framework**

### **Supporting teachers' teaching practice through coaching**

Coaching is an approach to professional development in which a knowledgeable colleague typically works one-on-one with several teachers in supporting the teachers to make shifts in their teaching

practice that may benefit student learning (Gibbons & Cobb, 2017). Coaching has become increasingly prevalent of late (Desimone & Pak, 2017) and a growing body of evidence demonstrates that it may bring about important shifts in teachers' teaching practice and gains in student learning (Russell et al., 2020; Stein et al., 2022).

Studies have begun to examine what coaches do that may bring about such changes. With individual teachers, coaches can model the teaching of a lesson or co-teach a lesson with the teacher (Gibbons & Cobb, 2017). They can also facilitate a coaching cycle, in which they co-plan a lesson with a teacher, observe and gather artifacts from the lesson, then debrief the lesson with the teacher. With a group of teachers, a coach can facilitate discussions of classroom video or samples of students' written work; they can also facilitate a lesson study cycle, in which a lesson is planned, taught, and iteratively refined by a group of teachers (Huang & Shimizu, 2016).

Those who take on the role of coach are often experienced, accomplished teachers (Chval et al., 2010; Fennell et al., 2013). While teaching experience may bring about gains in the knowledge required to coach (e.g., Huang & Li, 2012; Jacobs et al., 2010), this is not guaranteed. Indeed, Hill (2010) found that teachers' content and pedagogical content knowledge increased only slightly with teaching experience and that those working in leadership positions in schools, including coaches, did not have markedly more such knowledge than others. Moreover, teaching experience is unlikely to provide one with an awareness of coaching practices or the ability to work with and support the professional learning of adults. Hence, while helpful, teaching experience does not prepare one adequately for the demands of coaching. Coaches require professional support in learning to do the work of coaching (Russell et al., 2020). Meta-coaching is one approach to providing such support.

### **Supporting coaches' coaching practices through meta-coaching**

For this study, we examined the work of a coach of coaches, or "meta-coach," as she supported three middle-school mathematics coaches in developing their knowledge and coaching practices. This meta-coach was a former coach herself, with several years of experience coaching teachers.

To understand the work of this meta-coach, we draw from Prediger et al.'s (2019) Three-Tetrahedron Model of teacher professional development. First, we draw parallels between the role of meta-coach and that of facilitator educator. A facilitator educator supports the preparation of facilitators for the work of facilitating professional development with groups of teachers. Likewise, a meta-coach supports the preparation of coaches for the work of coaching teachers. Second, we anticipated that the meta-coach in this study might "lift" (Prediger et al., 2019) practices from her work as a coach and implement these in her work as a meta-coach. For example, while a coach might model the teaching of a lesson for a teacher, a meta-coach might model a lesson debrief with a teacher for a coach. As another example, much as a coach can help a teacher in planning for an upcoming lesson (e.g., by selecting a rich task and identifying an aspect of teaching practice to work on), so, too, could a meta-coach help a coach plan for an upcoming lesson debrief (e.g., by selecting artifacts from a lesson to debrief, while also identifying an aspect of coaching practice to work on). Finally, a meta-coach could enact a variation of a coaching cycle, leading a planning session with a coach in advance of a plan-observe-debrief coaching cycle, then debriefing the coaching cycle with the coach.

Similar to how a coach works to support a teacher in shifting their teaching practice, a meta-coach works to support a coach in shifting their coaching practice. In this study, we examined which coaching practices a meta-coach chose to focus on in working with three coaches. We also examined whether the coaching practices the meta-coach chose to address were the same practices the coaches described wanting to work on. Our overall research question was: Which aspects of coaching did a meta-coach focus on in supporting the professional learning of three mathematics coaches?

## **Methods**

### **Setting and participants**

We explored a meta-coaching program in which an experienced and accomplished coach, a meta-coach, supported coaches in their efforts to help teachers shift their teaching practice. The meta-coach previously worked for the coaches' district in ensuring coherence across various district professional development initiatives and aiding in the rollout of the district's new mathematics curriculum. Following her work in that role, she served as a meta-coach.

The meta-coach worked with three coaches who each supported several middle-school mathematics teachers via coaching cycles over a two-year period. In these coaching cycles, the meta-coach and coach met with a teacher to plan a lesson, observed the lesson, then debriefed the lesson with the teacher. The meta-coach added several meetings with the coach to this cycle. Specifically, she met with each coach prior to and after the full coaching cycle. She also met with each coach between the lesson observation and lesson debrief in each coaching cycle in order to prepare for the lesson debrief.

### **Data collection**

In the 2019-2020 and 2020-2021 school years, members of our research team conducted interviews with the meta-coach and coaches at the start (October) and end (May) of the school year. Interviews in 2019-2020, in which the meta-coach and coaches described the work they were engaging in together, comprised the data source for this study. Interviews with the meta-coach at the start of the school year focused on the nature of the meta-coaching work, challenges encountered up to that point, how classroom data might figure into lesson debriefs, and her vision of high-quality mathematics instruction. Interviews at the end of the year addressed the meta-coach's goals, successes, and challenges in working with each of the coaches, as well as data sources she used in meetings with the coaches, the impact of meta-coaching on each coach, and reflections on the role of meta-coach. Interviews with the coaches at the start of the school year focused on coaches' responsibilities, goals for teachers in coaching, challenges encountered in coaching, logistics to coaching, and their vision of high-quality mathematics instruction. Interviews at the end of the year addressed aspects of coaching that the coaches worked on during the year, whether their experiences working with the meta-coach changed over the course of the year, and what they had learned about their coaching.

### **Data analysis**

Via qualitative analysis, we examined which aspects of coaching the meta-coach and coaches described working on together. We first created an initial codebook based on key ideas that repeatedly came up in the interviews. After discussing the initial codes and examples from the interview transcripts, we applied the codes to several transcripts, before then resolving disagreements in our

code applications and modifying the descriptions of the codes as needed. We then applied a finalized set of codes to each interview with the meta-coach and coaches in the 2019-2020 school year. Next, we examined the coded data to identify any salient patterns, focusing specifically on the frequencies of the codes as applied to the interviews with the meta-coach and the coaches. This allowed us to identify the respective foci of the meta-coach and the coaches, and the extent to which the meta-coach and the coaches had the same focus in their work. In the results below, we describe the meta-coach's focus and the coaches' focus, as well as how these foci diverged.

## **Results**

In her interviews, the meta-coach spoke of three aspects of coaching practice: 1) pushing teachers to make shifts in their teaching practice; 2) using multiple data sources during lesson debriefs to broach specific topics for discussion; and 3) improvising during lesson debriefs in response to what did or did not come up. The coaches spoke of these same ideas to some extent, yet appeared more focused on other aspects of their coaching practice.

### **The meta-coach's focus**

Pushing coaches to push teachers to make shifts in their teaching practice was one idea that came up often in the interviews with the meta-coach. When the meta-coach reflected on challenges encountered in the meta-coaching work, she shared the following:

I think the challenges are, how do we help teachers look at the data and question the data in a way that's going to help their practice move forward. You know, coaches are being very delicate about how to have a conversation with the teacher ... So, I think, for me, that's been the challenge, because in some cases, it's really obvious what you need to work on and when the coach is hesitant to have that conversation, that's a challenge. So how do I push the coach to see that?

One example of pushing a teacher through coaching that the meta-coach shared came from a lesson debrief in which the coach and meta-coach presented data from a student survey to the teacher. According to the meta-coach, the data showed that students were "listening to each other and valuing what [other students] were saying, but still not quite grasping the new idea their fellow students introduced." This opened up a conversation in which the teacher reflected on and considered making changes in her practice. Specifically, the teacher reflected on her facilitation of learning, what she was doing when students were talking, and the rephrasing of student ideas. As the meta-coach recalled, the teacher asked of herself "how do I dig deeper into the student that is presenting so that other students understand?"

The meta-coach also shared that using multiple data sources was helpful in foregrounding aspects of teaching practice to discuss in lesson debriefs. She encouraged the coaches to present teachers with multiple data sources (e.g., video, student survey data, observations) during these debriefs. The meta-coach described how this allowed teachers to look at their lessons "from different angles." According to the meta-coach, looking at multiple data sources increased the odds that a particular aspect of the teacher's practice that the meta-coach and coach wanted to discuss would come up in a lesson debrief.

One example of this involved a lesson debrief between the meta-coach, a coach, and a teacher. Prior to the debrief, the meta-coach and coach looked at the video of the lesson and noted that what the

teacher wanted to happen did not quite occur. The students were supposed to work together in generalizing a procedure and the teacher wanted to see which students had done this and how they described doing it in their own words. The student survey data was very positive and if this had been the only data source discussed, the lesson would have seemed very effective. However, when the meta-coach and coach showed the teacher the video, the aspect of practice they wanted to come up for discussion did come up, and the teacher was able to see her practice in a new light. According to the meta-coach, the teacher reflected on her practice by saying “yes, they all got it [according to the survey data], but I told them exactly what to do and say [in the video] about twenty times before they told me.”

Improvising during lesson debriefs was another idea that came up often in the interviews with the meta-coach. The meta-coach participated in lesson debriefs with the coaches and teachers, and reflected on instances where the conversation did not necessarily go as planned. Some of these instances were related to data the coach brought to the debriefs. The meta-coach reflected on this by saying “you never know where you’re going when you put data in front of people, but you just need to be prepared to be able to have that open-ended conversation.” She went on to share that all three coaches “learned a lot from that type of interaction with the teachers.”

Another instance when the topic of improvising during debriefs arose was when the meta-coach described what to do when a teacher does not discuss the idea that a coach hoped they would discuss. The meta-coach shared that, at one school, there were several instances when the responses they were expecting from a teacher to particular questions they posed did not come up in the lesson debrief. The meta-coach reflected on the coach’s ability to improvise in such instances, sharing that the coach was “able to go a different direction, not necessarily planned.”

### **The coaches’ focus**

In their interviews, the coaches tended to focus on topics other than those foregrounded by the meta-coach. In particular, they discussed being responsive to the needs of the schools and teachers they worked with. On occasion, they also discussed how their approach to coaching diverged somewhat from that of the meta-coach. The coaches rarely discussed acting improvisationally in lesson debriefs.

Coaches described how their coaching differed depending on the specific needs of each school site and who they were working with. One coach shared the following when describing her coaching:

About 20% of my time or more is to support induction teachers, primarily in mathematics .... We have Friday meetings [among all the coaches] where we get together and do our own learning ... And then that leaves me about three days to support my school sites and individual teachers with their work in basically understanding and using the curriculum, developing and encouraging student discourse. And, most recently with some of my schools that I’ve been with for a while, it’s developing that collaborative nature and onsite teacher leadership.

Another coach described how her work differed depending on the resources available. She indicated that one school already had a former coach who was hired as an instructional reform facilitator. Given this, the coach found her work with teachers to be minimal at that school and thus met with administrators instead to identify other needs beyond coaching. Another school without access to

these same resources had several teachers involved in an induction program. As there was coaching available to these early-career teachers through the induction program, the coach decided to provide support instead to the mathematics department head. This variation in needs and resources from one school to another required the coaches to be responsive and adaptive in their work.

Coaches also discussed how their focus in working with each teacher varied based on what individual teachers wanted to focus on. One coach reflected on two different teachers who were focused on similar ideas related to student discourse. While one teacher was interested in “which students were speaking up and how they were interacting with each other,” another teacher “was interested in students that weren’t vocal in the whole group, but might have been very vocal in a small group.” Still another teacher was interested in understanding students’ comfort sharing during whole class discussions and who talked the most in these discussions, as well as her role in facilitating discussions. The coach shared that her work with this teacher was to take scripted notes in addition to video, as this allowed her to talk with the teacher about the types of questions the teacher asked during discussions and the impact this had on students. Overall, depending on teachers’ goals, coaches made adjustments regarding which data sources they gathered and shared with teachers in lesson debriefs.

The coaches also discussed a divergence between their coaching style and that of the meta-coach. One coach discussed the topic of pushing teachers in their practice, sharing how she was less comfortable doing this than was the meta-coach: “[The meta-coach] and I talked about this a couple times, that we both had super different styles and my style absolutely depends on building trust, at the risk of going too slow.” This coach recognized the value the meta-coach placed on pushing teachers, but shared that she felt “it’s better to go slow and then work to be able to push them.” This divergence in styles was also evident in an interview with another coach, who shared how she had debriefed a lesson with a teacher differently because of the meta-coach’s presence during the debrief.

### **Seeing value in meta-coaching**

The meta-coach shared how she saw value in the meta-coaching work. As an example, in speaking of the impact of the meta-coaching, the meta-coach shared the following:

I think [meta-coaching] is making a huge impact, having these three schools and these focal teachers, how many do we have, two, four, seven? I think these seven teachers are in such a different place this year even after only one cycle with us. Their thinking is just so different than it was last year.

Although the coaches did not tie growth they observed in teachers’ practice to the meta-coaching work, they provided evidence throughout their interviews that they had reflected on and considered modifying their coaching practice. For instance, the coach who shared her preference for moving slowly before pushing teachers appeared to consider the merits of pushing in such ways sooner.

### **Discussion**

Meta-coaching is a promising approach to the professional development of coaches with the potential to develop coaches’ knowledge and practice. Indeed, the meta-coach in this study spoke of the positive impacts on teachers’ practice that arose thanks to the meta-coaching and the coaches involved in the work appeared to consider shifts they might make in their coaching practice, as well.

The meta-coach and coaches developed what we regard as a productive approach for facilitating lesson debriefs, in which they sought to be responsive to what may or may not come up for discussion. Following a lesson, the meta-coach and coach met to prepare data from the lesson and consider how examining it might result in some aspect of the teacher's practice coming up for discussion in the debrief. Hence, rather than tell a teacher about some aspect of practice they wanted to discuss based on their observations of the lesson, the meta-coach and coach sought to rely on the data to bring the topic up for discussion. Planning lesson debriefs in this manner is reminiscent of the planning teachers do in advance of lessons that are largely improvisational in nature. In preparing to teach lessons that are improvisational, teachers set clear objectives for students' learning and anticipate how students might solve the problems given to them (Stein et al., 2008). Likewise, in preparing for responsive lesson debriefs, the meta-coach and coaches set clear objectives for a teacher's learning, anticipated how lesson debriefs might unfold, and had various data sources on hand to help broach specific topics for discussion. Leading a lesson debrief in this way seems less likely to feel evaluative and this, we believe, is part of the reason why the meta-coach and coach developed this particular approach.

There were some aspects of coaching that both the meta-coach and coaches addressed in their interviews, such as the importance of choosing data to broach particular topics in lesson debriefs. However, there were also key differences. For example, while the meta-coach emphasized her efforts to support coaches to be responsive and improvisational during lesson debriefs, the coaches focused more so on being responsive to the overall needs of schools and teachers. Hence, although both the meta-coach and coaches were focused on being responsive in their practice, it may be that in-the-moment improvisation and responsiveness in coaching, like improvisational teaching (Borko & Livingston, 1989), is a complex skill that the coaches needed more practice with before seeing it as a central focus of their work.

In future work, we will examine the plans the meta-coach and coach set for lesson debriefs, the nature of those debriefs, and their reflections on the debriefs, paying particular attention to whether the topics they wanted to come up actually arose and what they did when these topics did, or did not, come up.

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