

VIEWS OF COACHING PRACTICE EXPRESSED BY SCHOOL-BASED COACHES

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Abstract

This study reports on the views of coaching expressed by school-based coaches and coaching experts in response to observing the practice of a novice coach featured in a video. Researchers hypothesized that a coach participant's observations about another coach's practice would be a useful tool for examining participants' beliefs about coaching. Researchers compared responses from school-based coaches to the responses of coaching experts and views expressed in leading coaching literature in order to examine the variation in school-based coaches' views. Analysis of responses from both practicing coaches and coaching experts revealed eight themes that describe components of the videotaped coaching cycle: 1) coaching relationships; 2) the use of praise by the coach; 3) discussions of student learning; 4) how coaches respond to teachers' questions; 5) how coaches prompt reflection; 6) how coaches address teacher knowledge and learning; 7) discussions of mathematics content; and, 8) facilitation of the coaching session. The analysis also revealed that these themes correspond to accepted domains of coaching knowledge reported in the coaching literature.

Introduction

Ongoing initiatives to improve mathematics teaching in the United States and the below-average performance of American students on international assessments have resulted in calls for changes in mathematics classrooms [1-3]. Some school districts have turned to mathematics coaches as one method of improving achievement [4]. The duties of a mathematics coach vary,

from conducting professional development to providing lesson demonstrations and instructional feedback to teachers [5]. Regardless of the specific duties, the coach's primary goal is to "impact teaching and student learning" [6]. Some recent research studies have demonstrated that mathematics coaches can have a positive impact on mathematics achievement [7-9]. The level of impact is related to the coach's knowledge of what constitutes effective coaching [7].

Currently in the United States, coaching practice is defined through its enactment following various models prescribed by those who train coaches and write about coaching. At present, there is little empirical basis for the effectiveness of these models. Recently, in an attempt to consolidate a knowledge base about coaching, researchers have begun to identify domains of mathematics coaching knowledge [10]. The eight domains presented within that work represent "a starting point for further analysis of mathematics coaching knowledge." Still, if these domains represent a general consensus within the field regarding what constitutes coaching knowledge, the challenge remains to understand what practicing coaches view as effective coaching. It is conceivable that the views of effective coaching held by practicing coaches might be quite different than those expressed by coaching authors or coach trainers. This is important since local school districts might desire to implement a vision of coaching consistent with that expressed in a particular coaching model, yet hire coaches who hold or develop views inconsistent with that model.

With this motivation, we designed a unique coaching assessment that uses video of a novice coach. Video has been effectively used as a means for exploring teachers' content knowledge, as well as examining teachers' ideas regarding effective pedagogy [11, 12]. We hypothesized that a coach's assessment of another coach's practice as depicted in a video would give an important "view" of what school-based coaches believe to be important, and how these views might differ from views expressed by the coaching authors and expert coaches. Through comparisons of responses from minimally trained, school-based, practicing coaches to responses from expert coaches and coaching literature, we address the following two research questions: 1) what variation can be found in the views about coaching practice expressed by practicing coaches; and, 2) how do these views compare to those expressed by experts and coaching authors?

Methodology

Research Context — The Examining Mathematics Coaching (EMC) Project is a five-year research study investigating the types and depths of knowledge needed by effective coaches in K-8 mathematics classrooms. The EMC Project defines a mathematics coach as “an on-site professional developer who enhances teacher quality through collaboration, focusing on research-based, reform-based, and standards-based instructional strategies, and mathematics content that includes the why, what, and how of teaching mathematics.” In this model, a coach works eight times in a school year with each individual teacher in a coaching cycle involving a pre-lesson conference, lesson observation, and a post-lesson conference. The EMC model focuses only on the classroom supporter role of the coach, while acknowledging that within their schools, coaches may take on additional roles [6]. For the EMC Project, coaches identify three teachers with whom they will follow this model. The EMC Project does not hire or assign coaches, so the coaches’ support of teachers beyond the identified three may vary.

Participants

Data were gathered from two groups of participants: EMC coaches, whom we will call “Project coaches,” and coaching experts. Each of these groups represented a sample of convenience and will be described separately in the paragraphs that follow.

Project Coaches — The Project coaches were school-based coaches who had been hired by local school districts to serve as mathematics coaches. At the time of the video assessment, these coaches had been enrolled in the Project for two years, serving as a control group in a crossover treatment research design while coaching in their local schools. However, they had yet to receive any professional development other than a brief, one-hour orientation to the coaching model and Project expectations sixteen months prior to taking this assessment.

Table 1 provides a description of the coaching backgrounds reported by these participants. Their experiences ranged from zero to 130 hours of training in coaching, involving multiple models of coaching. All participants had at least two years of coaching experience in the Project, except two as noted, who had no coaching experience in the Project.

Table 1
Reported Hours and Types of Coach Training

| Project Coach Code | Cognitive Coaching (hours) | Instructional Coaching (hours) | Content-Focused Coaching (hours) | Other Coaching Trainings (hours) | Total Training (hours) |
|---------------------------|-----------------------------------|---------------------------------------|---|---|-------------------------------|
| 1 | | | 55 | | 55 |
| 2 | | | | | 0 |
| 3 ^a | | | | | 0 |
| 4 | | 24 | | | 24 |
| 5 | 40 | 90 | | | 130 |
| 6 | | | 18 | | 18 |
| 7 | | | | 24 | 24 |
| 8 | | | 3 | | 3 |
| 9 | | | | | 0 |
| 10 | | | | | 0 |
| 11 ^a | | | | | 0 |
| 12 | | 12 | | | 12 |
| 13 | | | 3 | | 3 |
| 14 | | | 15 | 10 | 25 |
| 15 | | 12 | | | 12 |
| 16 | | | | | 0 |
| 17 | | | | 40 | 40 |
| 18 | | 12 | 40 | 10 | 62 |
| 19 | 40 | | | | 40 |
| 20 | | | | | 0 |
| 21 | | | | 15 | 15 |

^a Project coach had no coaching experience at the time of this study.

Coaching Experts — Six coaching experts were purposefully selected for participation in this study. These experts were chosen to represent different coaching perspectives. Two of the experts are authors of widely used coaching books, while other experts had the following backgrounds: a Mathematics Specialist researcher with numerous publications in the area; a

Mathematics Specialist policymaker and author of numerous articles; a professional development researcher who has implemented coaching in several projects; and, a professional development provider who has provided training to coaches across the nation.

Coaching Video Assessment

In order to gain insight into participants' views of coaching practices, we used a video-based assessment that featured a coaching session held between a novice coach and two teachers. The coach had participated in approximately three hours of training aimed at providing an overview of the design and purpose of pre- and post-lesson coaching sessions. As a result, she was considered a novice coach.

The video-based assessment featured the novice coach's initial coaching experience in which she worked with a pair of middle-grades teachers whose goal was to prepare and implement a team-taught lesson on stem-and-leaf plots within a summer professional development program. The video-based assessment consisted of three components: a mathematical introduction, the pre-lesson conference (or "pre-conference"), and the post-lesson conference (or "post-conference").

Mathematical Introduction — The mathematics featured in the coaching assessment featured stem-and-leaf plots. To be sure that all participants would have some familiarity with the mathematics and the task featured in the video, one of the authors created a five-minute segment describing the featured task, an overview of stem-and-leaf plots, and possible solutions to the task.

Pre-Conference — In the pre-conference video (approximately seven minutes long), the novice coach's questions and statements focused on three general areas: the challenge level of the task; the launch of the task; and the multiple solutions of the task. The following excerpt provides a typical exchange between the coach and teachers during the pre-conference:

Coach: Because these are eighth graders, maybe that might not be something you even need to address. And that's something that you guys might want to discuss when you're planning it: Do we need to address what a stem-and-leaf plot is? Or do we need to make sure that they—well, but when you're walking around observing ...

Teacher 1: But I'm saying how—how would you go about introducing this activity to the students?

Coach: That's a good question. That's one of the things we might discover. I'm not sure. What kind of confusions do you anticipate during the problem? What do you think might be confusing to them? What kind of confusions? That might be the same question as what problems we might ...

Post-Conference — The post-conference video was approximately eight minutes long. In this video, the novice coach began by asking the teachers for their opinions of the lesson. After each teacher briefly shared her thoughts, thirty-four seconds in total, the coach shared her opinion, stating that the lesson went very well. In addition, the coach indicated different aspects of the lesson that she liked, including the use of the timer, facilitation of group discussion, guiding the students toward understanding, and circulating among students in the classroom during the lesson. Finally, the coach recognized that the lesson had been rushed due to time constraints, and prompted the teachers to consider what they might have done had the time constraints not been in place. The following excerpt represents a typical dialogue between the coach and teachers during the post-conference:

Coach: The twelves and the thirteens, and I also made a note that, umm, then you were walking around to that group, rather than telling them, "Oh, that's not the way," you did a great job at guiding them through understanding what they had written.

Teacher 2: Umm-hmm.

Coach: You did a great job of saying, "Now, these represent what? These represent what?" And they were able to tell you twelves, thirteens ...

Teacher 2: I couldn't think of how to get her to the point of, look, now this is the one with all of my ten. I couldn't think of how to do that.

Coach: But you didn't necessarily need to. I think the fact that you left it at making sure that she understood what she was saying was fine because the group across the table had the one and all the data points.

Teacher 2: Yeah, they did. Yeah.

Assessment Questions — After watching the video, participants responded to the following request: "Please assess this coach's practice as depicted in the video and write a brief summary (under 200 words) of your opinion."

Data Analysis

We analyzed the responses to the assessment prompt separately for the Project coaches and the coaching experts. Using an approach akin to grounded theory, we identified concepts within each data set [13]. We then compared the emergent themes from the two data sets and integrated them to form overarching themes. We then noted differences and similarities in how the Project coaches and the coaching experts viewed the coaching practice of the novice coach. The following section contains elaborations for specific applications of coaching knowledge that emerged from the analysis of the responses provided by the Project coaches and coaching experts.

We did not analyze the data in the context of the model in which the coaches were trained, and instead include the data in Table 1 to show that our sample was diverse in its coaching background. One reason for this is that several of the coaches were trained in more than one model. Another reason is because it is difficult to account for whether a coach has read about another coaching model or discussed other models with other coaches. Moreover, we do not know the extent to which a coach adheres to or agrees with a model in which s/he is trained. Finally, our purpose was to uncover variation in the views expressed by practicing coaches and how these views might differ from those expressed in texts and by experts. We do not make claims about the source(s) of the coaches' views. Attempts to align the participants' views to views expressed in the models in which they were trained would make ontological claims that we are not prepared to make.

Results and Analysis

Eight themes emerged from our analysis. Under each theme, we present concepts and representative quotes that define the theme and a summary of how the theme is discussed in leading coaching texts. We focus on the leading texts and their associated coaching models: "Cognitive Coaching," described in *Cognitive Coaching*; "Mathematics Coaching," described in *A Guide to Mathematics Coaching*; "Instructional Coaching," described in *Instructional Coaching*; and, "Content-Focused Coaching," described in *Content-Focused Coaching* [14-17]. Hereafter, we refer to the ideas encompassed in these texts by their associated model names.

Theme 1: Coaching Relationships — Five of the 21 Project coaches and three of the 6 coaching experts mentioned the coach's relationship with the teachers. Words and phrases used to define this category included: "trust," "rapport," "comfortable," "uncomfortable," "not personally engaging," and "not intimidating." The following quotes are representative:

- Project Coach 15: It was obvious to me that there was a rapport and trust relationship between the [coach and the two teachers].
- Coaching Expert 106: The planning process appeared stilted and uncomfortable for the coach and the teachers.

Our first level of coding identified whether or not the relationship was mentioned by the participant. The second level of coding attempted to identify whether the comments were favorable or unfavorable. By favorable and unfavorable, we mean with regard to effective coaching, not just positive or negative phrasing. A code of neutral was assigned if we could not find evidence that assigned value to the trait in terms of coaching effectiveness.

Using this coding scheme, we found that four Project coaches and one coaching expert made comments that used positive phrases, similar to Project Coach 15, but made no assertions about whether or not this trait contributed to effective coaching. These responses were coded as “neutral.” Similarly, one Project coach and one coaching expert made comments that used negative phrases, similar to Coaching Expert 106, but made no assertion about coaching ineffectiveness. These responses also were coded as neutral.

Only one coaching expert made a comment that we labeled as unfavorable, meaning ineffective coaching. Coaching Expert 105 remarked that “this level of coaching may get ‘relationships’ developed ... but it doesn’t dive deep enough into content and doesn’t challenge practice ...” We must note that the participant did not make specific comments about the relationship of the coach and teachers in the video. Instead, the participant situated comments in the larger concern about the tensions between effective coaching and relationship considerations.

Theme 1: What Do Leading Coaching Texts Say about Relationships? — All of the models in coaching texts we surveyed assert that relationships with teachers are important considerations for coaches. The literature varies, however, in how coach-teacher relationships are developed and maintained.

Instructional Coaching and Cognitive Coaching both identify the need for relationships as a starting point in bringing about teacher change. Mathematics Coaching emphasizes the importance of building rapport with teachers. As stated in *A Guide to Mathematics Coaching*, “a collaborative relationship enables a coach to help teachers develop deep mathematical content knowledge and effective research-based instructional strategies” [15].

Knight asserts that, to build relationships and get around teacher defensiveness, “[Instructional Coaches] can share stories, laugh and empathize, offer positive comments, discuss personal issues, and listen with great care during interviews” [16]. Cognitive Coaching lays out useful communication and relationship-building tools that coaches can employ to help change beliefs that lead to changes in behavior.

There is considerable tension within the coaching literature, however, over whether maintaining positive relationships is sufficient for producing an effective coaching program. Knight poses the question, “What good does it serve students if an [Instructional Coach] and teacher work together in a healthy relationship but their friendly conversation has no impact on the quality of the teacher’s teaching?” At the end of that passage, though, Knight concludes, “If we are viewed in such a way [as any other teacher], and teachers come to see us as colleagues they can trust, there is a good chance that together we can make a difference in the way teachers teach and students learn in schools” [16].

Knight’s concept of the coaching relationship, and its self-evident potential of impact, do not appear to be shared by all coaching authors. For instance, West and Staub do not view Content-Focused Coaches as “any other teacher,” asserting that the relationship between coach and teacher is collegial but that the interaction “will not be symmetrical” [17]. Another coaching author, Killion, draws clear distinctions between coaches who coach “light” and coaches who coach “heavy” [6]. Killion asserts that “coaching light results in coaches being accepted, appreciated, and even liked by their peers,” but that such actions result in “coaches who are valued, although may not be needed.” In contrast, coaching heavy occurs when coaches ask thought-provoking questions and have fierce and difficult conversations. According to Killian, “Coaching heavy causes [teachers] to feel on edge, questioning their actions and decisions” [6].

Theme 1: How Do Project Coaches’ Views about Relationships Compare to Those Expressed by Coaching Experts and the Coaching Literature? — We do not claim to have completely captured participants’ views of coaching relationships. However, it is interesting that some participants made positive comments about the coach-teacher relationships in the video, while others made negative comments. Such a diverse set of opinions suggests that a common vision for what constitutes positive and effective coaching relationships is not held among practicing coaches, and even coaching experts. The diverse ways in which the topic is discussed in coaching texts support such an observation.

Our viewpoint is that a response such as that given by Coaching Expert 105 expresses a sophisticated view of coaching relationships because it captures the tension between maintaining positive working relationships with a teacher and promoting teacher growth, which is also expressed in leading texts about coaching. No other participants expressed that level of sophistication with regard to relationships. Further research that asks participants to specifically comment on whether or not the coach-teacher relationships are likely to produce teacher growth and change might reveal whether coaches view relationships in this light. We believe the ability to discuss the tensions around maintaining relationships and promoting teacher change requires a sophisticated view of coaching.

Theme 2: Praise — During the analysis, praise emerged as a theme, as participants addressed the novice coach's use of phrases, such as "I like" in the lesson debriefing. Fifteen of the Project coaches and five of the coaching experts offered statements that were coded as praise. Coded statements from both groups represented favorable, unfavorable, or neutral views of the coach's use of praise.

The five Project coaches who viewed the novice coach's use of praise as favorable felt that it was appropriate to provide the teachers with positive feedback. Project Coach 15 stated, "She used positive feedback successfully as she complimented them on several items (such as their movement throughout the room during the lesson)." Similarly, Project Coach 8 stated, "I appreciated her positive approach in validating the teaching that had been done."

In contrast, the five Project coaches who viewed the novice coach's use of praise as unfavorable indicated that her use of praise placed her in the role of evaluator. Project Coach 2 stated, "One thing that struck me was how many times the coach used the word 'I like the way' This seemed like a little more of a judgment stance than I am comfortable with in coaching." Similarly, Project Coach 13 stated, "I noticed that she kept telling the two teachers how much she 'loved' or 'liked' what they did during the lesson. This to me is too evaluative."

The remaining five Project coaches noted the evaluative or positive nature of the novice coach's praise, but without indicating the individual's stance as favorable or unfavorable. For example, Project Coach 19 focused on the positive nature of the novice coach's feedback, stating, "During the post-conference, she had a lot of positive feedback that was specific." Alternatively, Project Coach 6 focused on the evaluative nature of the comments: "She came across as an

evaluator during the post-conference when she constantly said, ‘I liked when’” These participants have highlighted a feature of the novice coach’s practice without indicating whether they find the practice favorable or unfavorable.

Unlike the Project coaches, the coaching experts who mentioned praise noted its limitations for improving instruction, regardless of whether they offered a favorable, unfavorable, or neutral view of the novice coach’s use of praise. For example, Coaching Expert 101 stated, “During the debriefing, the coach was very complimentary. She began with opportunities for praising the teachers (good), but never advanced to supporting their growth.” Here, a favorable view of praise was offered along with an acknowledgement of its failure to support the teachers’ professional growth. Similarly, Coaching Expert 105, who offered a neutral view, stated, “Lots of praise was given, with little challenge.” In summary, the coaching experts differed in opinions regarding the appropriate use of praise in the debriefing session. Regardless of their individual stances, however, collectively the coaching experts reacted to the use of praise in a critical way, acknowledging the need for a coach to move beyond praise in an effort to challenge and support teachers in their professional growth.

Theme 2: What Do Leading Coaching Texts Say about Praise? — Establishing the relationship between the coach and the teacher is acknowledged as a key consideration in the coaching process. A coach’s practice of offering praise impacts the development of the relationship, as it can define the coach as an evaluator or a mentor [16]. According to Knight, the coach should begin the relationship by listening to and respecting the teacher. In general, the models that address praise agree that coaches should push beyond praise and challenge teachers in order to support instructional change and improve student achievement [14, 16].

Theme 2: How Do Project Coaches’ Views about Praise Compare to Those Expressed by Coaching Experts and the Coaching Literature? — There was considerable variation in the views about praise expressed by the Project coaches. Project coaches who viewed the use of praise as appropriate believed in the importance of validating the teachers’ practices. In contrast, Project coaches who viewed the use of praise as inappropriate felt that this resulted in the coach serving in the role of evaluator. Coaching experts noted that the use of praise holds limited potential for impacting instruction and/or student achievement, a view that is expressed to some extent in the coaching literature. To what extent praise benefits or detracts from the practice of a coach is an open question, and there is considerable variation in the views expressed by practicing coaches about the use of praise and its purposes.

Theme 3: Attending to Student Learning — All six coaching experts and five Project coaches mentioned some aspect of attending to student learning in the coaching session. Coaching experts included the following observations : a focus on classroom management; a failure to explore how students learned; and, little evidence presented of student understanding. For example, Coaching Expert 105 asked, “Where was the student work at post-conference? In my view, there was a missed opportunity to look deeply on what students did or didn’t do to consider next steps. At no point did they think aloud about evidence of student learning.” Further, Coaching Expert 106 noted, “I saw no evidence of curriculum documents that would help clarify what students should learn.”

Some Project coaches noticed the lack of attention given to student learning as well. Project Coach 9 noted, “I would like to see more probing into the reasoning behind student outcomes.” Similarly, Project Coach 17 commented, “I didn’t see deep reflection on the part of the teachers about the mathematics and their students’ success or struggles.” In these instances, Project coaches’ responses were similar to those of the coaching experts. Not all Project coaches who mentioned student learning, however, focused on this lack of evidence. For example, Project Coach 14 said, “Their lesson was carefully crafted through joint discussion on what the main objective was, how it would be taught, expected student learning.” This response addressed expected student learning, but offered no commentary on how that was handled in the post-conference.

Theme 3: What Do Leading Coaching Texts Say about Student Learning? — Instructional Coaching encourages the coach to address four items with teachers: student behavior, content, instruction, and formative assessment. Student learning is attended to in Instructional Coaching’s expectations for what coaches should address with teachers in instruction—specifically, that teachers use practices that ensure all students master content. With the emphasis on formative assessment, Instructional Coaching asks coaches to notice if the teacher uses formative assessment effectively to gauge how well students are learning [16].

Instructional Coaching focuses much of its attention on how a coach can address the teacher’s use of assessment—particularly formative assessment. Little attention is given to how a coach assesses student learning. However, the aspects of formative assessment that a coach is expected to understand require an Instructional Coach to know a great deal about how to assess student learning and need [16].

In contrast, Cognitive Coaching focuses attention on building reflective capacity in teachers. Regarding student learning, Cognitive Coaching asserts, “knowledge about students and how they learned comes to life through the application of and reflection about teaching experiences” [14].

Content-Focused Coaching makes students’ mathematical learning the central focus of coaching sessions. Whenever possible, the coach brings evidence of student learning, such as student comments, examples of student thinking, student assessment data, and samples of student work to the coaching session. Thus, a Content-Focused Coach assesses student thinking and learning for the purpose of focusing coaching conversations and planning sessions on specific student needs and outcomes [17].

Theme 3: How Do Project Coaches’ Views about Student Learning Compare to Those Expressed by Coaching Experts and the Coaching Literature? — It is interesting to note that all six coaching experts identified the lack of attention to student learning, and only a small number of Project coaches did so. Because of the word limit identified in the prompt, we cannot argue that Project coaches did not note the lack of attention to student learning. Yet, among the topics the practicing coaches addressed in their assessment, the absence of attention to student learning seems odd, since it is discussed so richly in the coaching literature and by all of the coaching experts. Project coaches noticed praise in the coaching conversation readily, but neglected the fact that the praise was not focused on student learning. The coaching experts seemed to discuss student learning in coaching sessions in a more sophisticated way than the Project coaches.

Theme 4: Responding to Teachers’ Questions — Seven of the 21 Project coaches and one of the six coaching experts noted that the novice coach did not answer some of the teachers’ questions. Words and phrases used to describe this aspect of the novice coach’s practice included “resisted,” “avoided,” “was not willing,” and “did not answer the teachers’ questions.” The following quote is representative of the comments coded under this theme:

Project Coach 14: The coach would not give suggestions and only answered with low-level questions. The teacher seemed to want some ideas.

It is difficult to determine whether participants felt that not answering the teachers’ questions was a favorable or unfavorable coaching move. Project Coach 12 wrote, “[The novice coach] avoided answering the question ‘How would you teach this lesson?’ but rather continued

with guiding questions so that the teacher could reflect ...,” which suggests the participant found favor in this practice. In contrast, Project Coach 9 wrote, “One teacher asked, ‘How should I do this?’ without getting an answer,” which suggests this participant had concerns about the practice. A third coach qualified these concerns:

Project Coach 1: I was surprised that she didn’t seem to answer the teacher’s questions when they asked her what she would do during the pre-conference. If this is a planned part of her coaching, then I understand it; I just couldn’t tell.

Only one participant made comments that we coded as unfavorable:

Coaching Expert 105: I also don’t think the coach is specific enough or willing to give straight-out suggestions when teachers request them.

Theme 4: What Do Leading Coaching Texts Say about Responding to Teachers’ Questions? —

We found it difficult to summarize recommendations for responding to teachers’ questions. The challenge is that the four models on which we focused all rely heavily on reflective questioning. While none of the models strictly forbids the coach from answering teachers’ questions, concern over the coach’s role, the coach-teacher relationship, the teacher’s learning and self-monitoring, and the teacher’s autonomy influences how various coaching authors approach the issue. At one extreme is a coach who gives too much advice and dominates the coaching conversation. Mathematics Coaching illustrates potential consequences of such practice: “Lessons planned by coaches are not likely to be implemented and, in fact, undermine true collaboration” [15]. Cognitive Coaching advocates that “rather than give advice to or solve problems for another person, a mediator helps the colleague to analyze problems and develop her own problem solving strategies” [14].

An overarching issue is that a coach’s role is unique from that of a mentor because it is not assumed that the coach is the only expert in the room. Instructional Coaching emphasizes that the teachers and coaches are equals and that coaches are learning as much from the experience as the teachers. According to Knight, when coaches give the impression that they are the expert and offer too much advice, they run the risk of taking on the role of supervisor. Instructional Coaches “don’t tell teachers what to believe; respecting partners’ professionalism, they provide them with enough information to make their own decisions” [16]. While the last

part of this statement suggests that Instructional Coaches do impart information, earlier passages emphasize that coaches sometimes “find that they have to help teachers find their voice[s]” and that “coaches who temporarily set aside their own opinions for the sole purpose of really hearing what their colleagues have to say are powerfully demonstrating that they truly value their colleagues’ perspective” [16].

Cognitive Coaching gives similar cautions about roles and relationships, making clear distinctions between coaches and mentors. Since a coach has a leadership role in improving teacher practice, there are obvious challenges in avoiding direct, expert advice and eliciting teacher change. Cognitive Coaches navigate this issue by eliciting teacher talk through reflective conversations using conversation tools, such as pausing, paraphrasing, probing, and listening. These coaching moves underscore a basic premise of Cognitive Coaching: Teacher change comes from teacher reflection, and teacher talk is an avenue for teachers to redefine their cognitive structures [14].

In contrast, Content-Focused Coaching features a coach directly addressing a teacher’s question and offering straightforward advice [17]. Yet, despite Content-Focused Coaching’s advocacy of giving receptive teachers direct feedback and assistance, West and Staub are concerned about relationship and role aspects as well. In the reflection on an exchange with a teacher in a different case study, West notes that she is doing most of the talking and worries that she might be acting as a “sage on the stage” [17]. The distinction between the more direct practice of Content-Focused Coaching and the practice recommended by other authors may come from the assumption about the coach’s role and relationship with the teacher. While Content-Focused Coaching promotes a collegial relationship between teacher and coach, it also advances the perspective that Content-Focused Coaches are expected to have more teaching experience than the teachers they coach and that the interaction “will not be symmetrical” [17].

Theme 4: How Do Project Coaches’ Views about Answering Teachers’ Questions Compare to Those Expressed by Coaching Experts and the Coaching Literature? — The analysis of participant responses and the review of a selection of coaching texts indicated that the topic of responding to teacher questions invokes a variety of responses. Tension between concerns over the coach-teacher relationships, teacher self-directed learning, and the coach’s responsibility for improving teacher practice makes responding to teachers’ questions difficult terrain to navigate. While we found an example in the literature of a coach who answers teachers’ questions directly, much of the literature emphasizes a more reflective approach. A propensity toward helping

teachers develop their own solutions to instructional issues can be at odds with a coach's asserting his or her own viewpoint.

Within our data, a relatively small number of coaches mentioned the issue of responding to teacher questions. We do not know what the lack of comment on this issue means, but within the responses that note the issue, there is considerable variation in how responding to teacher questions is discussed among the participants. Only one coaching expert (Coaching Expert 105) explicitly asserted that the lack of direct assistance is ineffective practice. Among the Project coaches, two simply noted it, two seemed slightly uncomfortable with the coach's approach, and one seemed to find favor in the approach. Another Project coach qualified her comments by wondering if it was a planned move. This variation and lack of specificity makes us wonder: If this type of question were asked directly of participants, would views about the tension between reflective questioning and direct assistance be revealed? We hypothesize that those who have read a variety of coaching authors will take a stance on the issue or discuss the tensions among approaches, as the one coaching expert in our sample did.

Theme 5: Reflection — Through the coding process, the theme of reflection emerged as seven participants mentioned the novice coach's skill in either supporting or not supporting the teachers in the reflection process. The majority of the twenty participants did not mention reflection in their responses, despite the novice coach's opening question of "How do you think it went?"

Two of the Project coaches indicated that the novice coach successfully engaged the teachers in reflection. Project Coach 12 wrote, "This coach was skillful in getting these teachers to be reflective on their practice." Similarly, Project Coach 8 stated, "During the post-conference, she ... guided the teachers into evaluating their own teaching. ... She offered suggestions where necessary, but like the teachers she was watching, she guided the teachers to reflect." Both participants offered statements regarding the occurrence of reflection without offering a critique.

In contrast, three Project coaches and two coaching experts suggested that the novice coach failed to engage the teachers in reflection. Project Coach 20 said, "I was wondering about the post-conference a bit. I did not really hear the coach question anything that happened during the lesson; lots of praise, but not a lot of reflective 'what could you have improved' conversation." Similarly, Coaching Expert 102 wrote, "Instead of responding so quickly each time that the teachers said something, she maybe could have led them through more of a reflecting conversation that focused on student performance." Based on their responses, it appears that

participants expected the novice coach to support teachers in reflecting on areas of improvement. Specifically, the participants emphasized reflecting on either improving practice or student achievement.

Theme 5: What Do Leading Coaching Texts Say about Reflection? — Across the different coaching models, reflection is recognized as a key component of the coaching process. Although there is agreement that the coach is expected to engage the teacher in reflection, the purpose of that reflection differs across models, including gaining skill in self-directed learning, making decisions regarding effective teaching actions, yielding appropriate interventions, and focusing on students' content-specific learning [14-17]. These different foci of reflection align with the models' perspectives. In some instances, the focus is on improving practice (Cognitive Coaching and Instructional Coaching), while in other instances the focus is on student achievement (Mathematics Coaching and Content-Focused Coaching).

Theme 5: How Do Project Coaches' Views about Reflection Compare to Those Expressed by Coaching Experts and the Coaching Literature? — In the majority of responses, Project coaches did not speak to the role of reflection in the coaching process when assessing the practice of the novice coach. Without follow-up interviews, it is impossible to infer why these participants opted not to address the role of reflection in the novice coach's practice. For those who chose to write about reflection, however, there was variation regarding the effectiveness of the novice coach. While only two expert coaches mentioned reflection, those who did expressed views that aligned with coaching literature. It would appear that acknowledging the level of reflection and its purpose is key toward gauging its effectiveness, yet not all participants saw this.

Theme 6: Teacher Knowledge and Learning — Two of the 21 Project coaches and two of six coaching experts made comments related to teacher knowledge and teacher learning. The two Project coaches' comments were directed toward the coach and teachers' discussion of the task, and the fact that the coach did not seize this learning opportunity. The following is representative:

Project Coach 7: It didn't seem like the teachers were that clear about their own understanding of the problem, but the coach didn't dwell on this—she just kept going back to her questions. The teachers seemed to debate, but the coach didn't address their misconceptions in my opinion.

Coaching Expert 101 noted, “The coach did not draw out or advance the mathematical or pedagogical understandings of the teachers.” This comment’s tone seems to express an unfavorable view of the coach’s actions; however, the expert’s comments fell short of judgment.

Coaching Expert 105 was more explicit:

It seems like [the coach] is going through a process she doesn’t fully understand and isn’t clear about the specific goals For example, though the teachers did the problem prior to the lesson, they didn’t discuss it in any depth or challenge each other’s answers or analyze each other’s thinking. So they didn’t seem to learn much from having done the problem I also don’t think the coach is specific enough or willing to give straight-out suggestions even when teachers request them. This level of coaching may get “relationships” developed between and among teachers, but it doesn’t dive deep enough into content and doesn’t challenge practice specifically enough to really improve it in substantive ways. ... I wonder: Is this coach willing to ask hard questions that might stretch a teacher’s thinking? ... The coach made an attempt at “challenging” students in the pre-conference, but it went nowhere. It seems to me these teachers were not particularly knowledgeable about the math they teach, and the coach did not add much to their knowledge base or even expose the fact that their knowledge was not as robust as it may need to be.

This response was the most thorough of any of the responses that addressed teacher knowledge and learning, and it contained several key points: that teachers and coach can learn mathematics during the session, that there is a tension between maintaining relationships and stretching teachers’ thinking, and that coaches can expose teacher misconceptions and add to teachers’ knowledge bases.

Theme 6: What Do Leading Coaching Texts Say about Teacher Knowledge and Learning? —

The issue of teacher knowledge and learning is addressed in the leading coaching models, but the texts and models are not consistent in the way they suggest addressing it. Cognitive Coaching relies heavily on reflective questions to encourage teachers to refine knowledge bases. Instructional Coaching suggests structured co-planning intended to help the teacher make connections among concepts. Content-Focused Coaching features a coach who takes a more direct approach, pointing out important pedagogical and content knowledge to the teacher. Mathematics Coaching discusses a scenario in which a teacher who had not acquired an adequate background was coached on effective use of manipulatives with a focus that “not only improved

the teacher's knowledge of instructional strategies, but also increased her content knowledge" [15].

Some of the differences in how coaching texts recommend addressing teachers' understandings of content result from assumptions about the knowledge base of the coach. The distinct models of Instructional Coaching and Cognitive Coaching make no assumptions that the coach is more knowledgeable about the subject matter content than the teacher being coached. In contrast, the Content-Focused Coaching model and the Mathematics Coaching model assume that the coach has a high level of content knowledge and is more experienced than the teacher being coached.

In terms of pedagogical knowledge, Instructional Coaching is more direct. This is partly due to the fact that the Instructional Coaching program is not content-specific. It is also due, in part, to the fact that Instructional Coaching has roots in programs that build on professional development sessions focusing on strategies for teaching reading. Coaches who work in conjunction with professional development are likely to be more transparent about teacher learning concerns because professional development programs tend to possess explicit learning outcomes.

How a coach approaches teachers' understandings of content is also influenced by the various models' assumptions about relationships. The distinctions among the models described there can be repeated here: Instructional Coaching and Cognitive Coaching are particularly sensitive to avoiding perceptions that the coach's job is evaluation or supervision, while Content-Focused Coaching does not shy away from the coach's role as an expert. Mathematics Coaching also assumes that the coach is an individual with expertise in both mathematics content and pedagogy.

Theme 6: How Do Project Coaches' Views about Teacher Knowledge and Learning Compare to Those Expressed by Coaching Experts and the Coaching Literature? — We did not find a great deal of variation in the Project coaches' discussion of teacher knowledge and learning, possibly because so few of the participants mentioned the theme. We include the theme, however, because it could be important to future studies. The issue of whether or not certain types of coaching improve teacher knowledge is at the heart of Killion's comparison of a "coaching light" and a "coaching heavy" approach. Killion describes coaching light as focusing on relationships to the point of not challenging the teacher's thinking, and argues that coaching light is unlikely to improve teacher knowledge and practice [6].

This point of view is expressed in Coaching Expert 105's comments. This expert expresses a concern about the level of coaching and the lack of challenge, and discerns a difference between superficial coaching discussions and those likely to challenge a teacher's knowledge and practice.

Theme 7: Lesson Content — Beyond student learning of content and teacher knowledge of content, participants offered additional commentary regarding the mathematics content contained within the lesson. One Project coach indicated that the novice coach supported the teacher reflection on the mathematics content of the lesson:

Project Coach 8: She prompted the teachers to think about what and why they were teaching the lesson, as well as the prior knowledge.

In contrast, four Project coaches alluded to the novice coach's lack of attention to the lesson's mathematics content. The following quote is representative:

Project Coach 13: During the pre- and post-conference, not a lot was mentioned about math content and connections.

Two coaching experts provided comments related to the lesson's content. The following statement is representative:

Coaching Expert 105: She does not hone in on the ideas that are embedded in the lesson. She allows the teachers to name the activity as ideas—in other words, they say the goal is for students to recognize and use stem-and-leaf plots or something like that, which is not really a Mathematical Big Idea. A Mathematical Big Idea might be something along the lines of, understanding that stem-and-leaf plots are one way of representing data. No matter how the data is represented, the mean, median, and mode—central tendencies—of the data can be determined and do not change. What are the possible answers to this question? What strategies could be used for finding the 20 data points that would ensure the given median and mode? The math is embedded in those strategies. In other words, why does the problem offer the constraints it does?

Both coaching experts who commented on the lesson's mathematical content provided insight regarding the lack of attention given to the mathematics during the pre-conference. This attention to the role of mathematics content during the planning process distinguished the responses of the coaching experts from those of the Project coaches, who focused more on the failure of the novice coach to mention the mathematics within the post-conference.

Theme 7: What Do Leading Coaching Texts Say about Content? — Of the leading coaching models, Content-Focused Coaching and Mathematics Coaching are the two models that are content-specific. Both give explicit guidance about how coaches should approach the lesson's mathematics content in their coaching sessions. Content-Focused Coaching provides three case studies to illustrate a coach working very precisely through mathematics content in the planning phase of the coaching cycle. Mathematics Coaching asserts that during co-planning, coaches should spend time listening to teachers in order to ascertain what they know about mathematics.

Theme 7: How Do Project Coaches' Views about Content and Coaching Compare to Those Expressed by Coaching Experts and the Coaching Literature? — Among Project coaches, we found variation in their views about whether or not the lesson content conversation was present. Also, the manner in which Project coaches discussed content differed from the way the coaching experts discussed content. The experts who mentioned content gave detailed descriptions of content's role in the planning conversation. Project coaches who mentioned content tended to simply note its absence, or in one case comment favorably on the coach's way of prompting the teachers to think about the lesson content.

We acknowledge that a deep understanding of the mathematics content that is discussed in lessons is likely necessary for a participant to comment on the mathematics content. If a participant watches the videotaped coaching session and is unfamiliar with or uncomfortable with the topic of stem-and-leaf plots as a tool to understand data, that participant may not be able to make meaningful comments about the content discussions. Yet even without a deep knowledge of a specific mathematical topic, a coach who views content as central to the coaching discourse could comment on the presence or absence of mathematics content discussions within coaching sessions.

Theme 8: Facilitation — Four coaching experts and eighteen Project coaches noticed aspects of the novice coach's ability to facilitate the coaching session. We define facilitation broadly as

how the coach manages, leads, guides, and directs the coaching conversation. Concepts categorized in this theme included references to the coach's role in the design and management of the session, and references to the coach's role in encouraging teacher growth. The following key words and phrases were used to describe this theme: "leading," "engaging," "pushing," "pressuring," and "influencing" the teachers; "creating the right atmosphere"; and, the "management of the discourse" (e.g., moving through a list of questions and sticking to a script). The following comments are representative:

Project Coach 13: The coach really tried to lead the discussion without dominating. ... she had specific questions and [an] outline that guided the pre-conference.

Coaching Expert 101: The coach did not draw out or advance the mathematical or pedagogical understandings of the teachers. ... the coach did not seem focused on intent the coach did not engage the teacher in a discussion of the mathematical potential in this problem and whether/how to engage the students in that mathematics.

Some Project coaches expressed a favorable view of the coach's facilitations of the discussion. For example, Project Coach 5 wrote, "The coach did a good job of facilitating the discussion," and asserted that the coach "pressed" the teachers to address goals. Project Coach 2 did not share this view: "I am not sure that the coach pushed their thinking enough. ... The coach was pretty passive once they veered away from her specific questions."

Some Project coaches expressed an unfavorable view of the coach's efforts to draw both teachers into the conversation. Project Coach 11 wrote, "Two teachers were present, yet only one teacher seemed to be vested in the lesson. ... I would've expected the coach to direct questions to this teacher to foster more engagement." Similarly, Project Coach 12 wrote, "She could have drawn the teacher in the middle into the conversation more during the pre-conference."

While the Project coaches' responses varied from favorable to unfavorable to neutral views of the coach's facilitation of the session, the coaching experts who mentioned facilitation tended to lean toward an unfavorable view. Coaching Expert 106 wrote that "the coach was not a facilitator, but [a] director." Coaching Expert 102 wrote that the coach placed herself in an "expert role," and felt that the coach could have led the teachers through "a more reflecting conversation."

Not all of the coaching experts' comments were unfavorable. Coaching Expert 102 felt that the "coach did a nice job of staying on track." Similar observations were also expressed by Project coaches, several of whom noted that the coach followed a list of questions. Project Coach 20 noted, "[She] followed the sequence of questions and a script."

Theme 8: What Do Leading Coaching Texts Say about Facilitation? — Mathematics Coaching does not address specific aspects of facilitating coaching sessions. Instead, it provides overall guidelines about the types of reflection in which coaches should engage teachers and the types of tasks on which coaches should focus, such as curriculum, implementation, and planning.

Cognitive Coaching emphasizes a mediation role of the coach. According to Costa and Garmston, a mediator "facilitates mental processes for others as they solve their own problems, make their own decisions, and generate their own creative capacities" [14]. This is not to say, however, that Cognitive Coaches are not responsible for structuring the coaching environment. Costa and Garmston provide specific structures for coaches to use in their interaction with teachers, which they call mental maps. Highlighted are structures for the planning conversation, the reflecting conversation, and the problem resolving conversation. Costa and Garmston also provide structure for coach questioning, emphasizing pausing, paraphrasing, and probing with the intent of supporting a coach's facilitation of the session [14].

Content-Focused Coaching provides its view of the coach directing the flow of the pre- and post-conferences through its three case studies. Instructional Coaching emphasizes a partnership role, where the coach facilitates sessions by helping teachers identify their needs and developing co-constructed checklists for improvement. Instructional Coaching uses the word "guide" frequently when describing the work of a coach. A coach guides teachers to make sense of observation data collected by the coach, and guides teachers to reflect on classroom behavior, types of instruction, and ways of formatively assessing learning.

Theme 8: How Do Project Coaches' Views about Facilitation Compare to Those Expressed by Coaching Experts and the Coaching Literature? — We find a great deal of variation in how Project coaches discussed facilitation and, in general, it is hard to know whether they have a favorable or unfavorable view of this novice coach's facilitation of the session. Nevertheless, facilitation is indeed an aspect of the coaching session that participants first noticed and then made comments. We find variation in how participants discussed the novice coach's actions and

the novice coach's role as facilitator. Comparison of the Project coaches' views to those expressed in the literature and by experts was difficult, since these views vary as well.

Discussion

From this data analysis, eight themes emerged: 1) coaching relationships; 2) the use of praise by the coach; 3) discussions of student learning; 4) how coaches respond to teachers' questions; 5) how coaches prompt reflection; 6) how coaches address teacher knowledge and learning; 7) discussions of mathematics content; and, 8) facilitation of the coaching session. Many of these themes are not distinct. For example, a participant who pays close attention to the nature and purpose of the coaching relationship will likely notice the use of praise in a coaching session. If that participant is focused on coaching models that highlight that the purpose of coaching relationships is to improve student learning, then that observer is likely to note the presence or absence of discussions about student learning within the coaching session.

Likewise, the issues of responding to teachers' questions and prompting reflection overlap. What observers believe about the way to promote reflection will likely influence their characterizations of a coach's technique for responding to teacher questions. Coaches' views on reflection are also tied to how they view the means to address a teacher's knowledge base, or lack thereof, and whether to view a coaching session as an opportunity to actively give instruction to a teacher or to encourage a teacher's learning by promoting reflective practice.

Our identification of the variation in how our sample of school-based, practicing coaches discuss these eight themes is a first step in understanding what types of views of coaching practice exist among practicing coaches. Knowing the variation in views expressed among practicing coaches gives researchers and professional development providers insight when developing measurement tools and interventions. Views and beliefs about coaching can influence coaching practice. Because several of our practicing coaches were trained in more than one model, simply noting the model in which a coach is trained, or to which the coach claims to adhere, might not provide a true indication of the coach's view of coaching practice in the field. We suggest that further research is needed to establish to what extent practicing coaches' beliefs in these eight themes is related to coaching effectiveness, as measured by improvements in teacher knowledge, teacher practice, or teacher beliefs.

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