Refining the Art of Coaching: Organizational Learning on a District Data Inquiry Team

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Refining the Art of Coaching: Organizational Learning on a District Data Inquiry Team

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Abstract

Recent research on data-based decision making (DBDM) shows that while DBDM has been widely embraced, its use in practice is more complicated than simple models of data use would suggest. The question of how districts can effectively use DBDM is particularly critical if DBDM is going to be a major part of instructional improvement.

This dissertation extends DBDM research through a case study of a district-level team of Data Inquiry Facilitators in a large city in the northeastern United States. The Inquiry Facilitators coached teams of teachers as they integrated the Data Wise Improvement Process into their practice.

The first paper turns a critical lens to a key element of Data Wise and other DBDM processes: discussion protocols. I find that discussion protocols offer helpful structure for conversations but can restrict creativity, and that aspects of individuals’ personal and professional identities may intersect with their attitudes towards protocols.

The second paper describes how the Inquiry Facilitators changed their theory of action about their work with school teams. They realized that data coaching alone was not sufficient and needed to be paired with content and pedagogical content knowledge coaching in order to improve instruction. The need for instructional support was particularly acute as teachers implemented the Common Core State Standards for the first time.

The third paper focuses on the Inquiry Facilitators’ own use of data as a central office team. I find that in contrast to prior literature on district teams’ data use that has found it to be unsystematic, superficial, and subject to political pressure, this team was able to achieve double-loop learning through their data use process. I explore the habits of mind and
structures that supported their organizational learning. Implications for supporting DBDM at the system level, the field of professional development, and DBDM research are discussed.
Introduction

In order to improve learning opportunities for students, learning opportunities for teachers must improve. Teachers in the United States have historically taught in isolation (Lortie, 2002), lacking collaborative norms, standards of high-quality practice, and a shared knowledge base (Mehta, 2013). Traditional professional development (PD) for teachers has been incoherent (McLaughlin & Talbert, 2006) and frequently unsatisfying for teachers (Little, 1999). If PD is to make a meaningful impact on teacher learning and student outcomes, it must involve sustained teacher collaboration within a school context (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009), and give teachers opportunities to understand student learning and the role of instructional practice in shaping student learning (Borko, 2004).

One result of accountability-based federal education policy in the past fifteen years has been the large amount of student data it has generated (ESSA, 2015, Race to the Top, 2009; West, 2003), which, in theory, has the potential to improve instruction through data-based decision making (DBDM). Practitioner guides for DBDM extol its promise, with the assumption that if teachers collaborate to understand better what is causing students’ misunderstandings, they will find ways to improve their teaching and student outcomes (Bambrick-Santoyo, 2010; Boudett, City, & Murnane, 2013; Goldring & Berends, 2008; E. B. Mandinach & Jackson, 2012).

Despite the enthusiasm of policy-makers and the authors of practitioner guides about the concept of DBDM, causal studies of data inquiry cycles using interim assessment systems have not found a widespread, statistically significant impact on student achievement
(Quint, Sepanik, & Smith, 2008; Ronfeldt, Farmer, McQueen, & Grissom, 2015; West, Morton, & Herlihy, 2016). Many studies show that teachers can learn how to analyze data, and learn from the process, but not do anything to change their teaching practice (Datnow & Hubbard, 2015; Farrell & Marsh, 2016a; Jimerson & Wayman, 2015; Marsh, Bertrand, & Huguet, 2015; Poortman, Schildkamp, & Lai, 2016; Van Gasse, Vanlommel, Vanhoof, & Van Petegem, 2016), and without a change to teaching practice, student learning cannot be expected to improve. It is also important to note that in some cases high-stakes accountability policies have led to unintended negative consequences such as teachers trying so hard to raise certain students’ test scores that they neglect other students (Booher-Jennings, 2005) and narrowing the curriculum (Berliner, 2011).

Nevertheless, there are ways for schools to use data from their high-stakes assessment not only to raise test scores but also to improve teaching and learning (Hargreaves & Braun, 2013). Researchers have found numerous examples of teacher teams using data in collaborative inquiry cycles that do improve instruction and student outcomes (Carlson, Borman, & Robinson, 2011; DeLuca et al., 2015; Ebbeler, Poortman, Schildkamp, & Pieters, 2016; Ermeling, 2010; Gallimore, Ermeling, Saunders, & Goldenberg, 2009; Geel, Keuning, Visscher, & Fox, 2016; M. K. Lai & McNaughton, 2016; McNaughton, Lai, & Hsiao, 2012; Poortman & Schildkamp, 2016; Timperley, 2009).

The fact that some teacher teams are able to improve student outcomes using DBDM, while others are not, raises the question of what kind of training and support it would require to make more teacher teams successful with DBDM. Given the complexity of DBDM, it is not surprising that research shows that teacher teams learning DBDM benefit from the support of a coach rather than trying to go through the process on their
This dissertation explores the complexity of supporting DBDM with three papers about the work of a district-level team of Data Inquiry Facilitators (Inquiry Facilitators) in a large urban district in the northeastern United States. This team supports educators as they integrate a DBDM process, the Data Wise Improvement Process (DWIP) (Boudett et al., 2013), into their work. Over the course of the eight steps of DWIP, teams of educators use a wide range of data to identify a priority question, then a learner-centered problem and problem of practice, which they attempt to solve by executing an action plan they create (Boudett et al., 2013). As a foundation for the process and throughout, DWIP emphasizes building collaborative relationships and investing time in setting up efficient meeting structures (Boudett & City, 2014a; Boudett et al., 2013).

During the 2014-15 academic year, these six Inquiry Facilitators (including their director) supported 23 schools in their district with DWIP (Boudett et al., 2013). Inquiry Facilitators visited each of the schools they supported twice per month. In each school, they worked directly with three teacher teams, the Instructional Leadership Team (ILT), and the principal. Every teacher team was expected to use DWIP (Boudett et al., 2013), and although only three teams received direct coaching from an Inquiry Facilitator, each team had a representative on the ILT, so each team received at least indirect exposure to an Inquiry Facilitator’s support.

The Inquiry Facilitator used a gradual release of responsibility model (Pearson & Gallagher, 1983) with school teams. They supported teams through three DWIP cycles over

own (Bransford, National Research Council (U.S.), & National Research Council (U.S.), 2000; Ermeling, 2010; Farrell & Marsh, 2016a; Gallimore et al., 2009; Marsh et al., 2015; Schildkamp & Poortman, 2015; Talbert, Cor, Chen, Kless, & McLaughlin, 2012).
the course of the school year. The first cycle was led by the Inquiry Facilitator (“I do”), the second was co-facilitated by the Inquiry Facilitator and a designated teacher Team Facilitator (“We do”), and the third was led by the Team Facilitator and supported by the Inquiry Facilitator (“You do”). After every team meeting, the Inquiry Facilitator would meet one-on-one with the Team Facilitator to debrief the meeting that had just occurred and plan the next meeting.

Part of the challenge of the Inquiry Facilitators’ work during the year of data collection was that this was the district’s first year implementing the Common Core State Standards (CCSS) (Common Core State Standards Initiative, 2016). CCSS presents an opportunity for US students to achieve rigorous learning objectives that will prepare them for college and career (Common Core State Standards Initiative, 2016), but the promise of CCSS may only be achieved if teachers are supported in learning to teach the new standards (Cohen, Peurach, Glazer, Gates, & Goldin, 2014).

Though the Inquiry Team spent four out of five weekdays working on their own in schools, they did function as a team rather than a co-acting group, according to Hackman’s (2011) definition of a team. They had a defined membership, a compelling task, and were interdependent in that they worked together to design their model, plan network-wide professional development, and improve their practice by peer observations and collaborative work in meetings. They met as a district-level team every Friday for two hours in the district central office, and one of their norms for working together was “take collective responsibility and celebrate collective success.” As one of the team members said in an interview, “If one of us fails, we all fail.” Despite the fact that they were often spread out
through a large district while they did their work, they deliberately worked together as a team.

Research has found that mid-level district staff members can have a strong impact on schools’ implementation of instructional policy (Burch & Spillane, 2004), so this team’s work was particularly interesting to study in the advent of CCSS. Burch and Spillane (2004) found that mid-level central office staff played five brokering roles: they could serve as tool designers, data managers, trainers and support providers, and network builders. The Inquiry Facilitators’ jobs spanned all of these brokering roles, situating them in the organization in a place that could make them particularly influential with CCSS implementation, despite the fact that supporting schools with CCSS was not part of their job description.

These three qualitative papers explore different aspects of the Inquiry Facilitators’ work. The first considers benefits and drawbacks of the team’s use of discussion protocols, a common feature of collaborative DBDM processes. It finds that while discussion protocols can help team meetings be efficient and focused, and encourage broad participation, there are also limitations to using protocols that leaders should heed. The findings also suggest that elements of team members’ personal and professional identities intersect with their attitudes towards protocols, which is an additional layer of complexity leaders should consider when using them.

The second paper looks at the coaching the Inquiry Facilitators did in schools and the evolution of their understanding of what kinds of supports they needed to provide to teams. The Inquiry Facilitators initially expected their role to involve coaching teams with respect to data, collaboration skills, and DWIP (Boudett et al., 2013). While they did do those types of coaching, they were surprised to find themselves supporting teachers more
and more with instruction over and above the data and collaboration coaching they expected to do. The Inquiry Facilitators found that when they did not support teachers with instruction, teachers tended to use what they learned from their data in DWIP (Boudett et al., 2013) to re-teach skills in the same way they had originally taught them, rather than using new instructional strategies. In order to use data to make substantive changes to instruction, rather than to-reteach, teachers required intensive scaffolding from the Inquiry Facilitators. The Inquiry Facilitators realized they needed to adjust their practice to provide more scaffolding for instructional change.

While the second paper shows what the Inquiry Team changed about their work, the third shows how they were able to make those changes. The third paper analyzes the Inquiry Team’s learning structures and processes as a case study of data use on a district-level team. I find that the team uses DWIP (Boudett et al., 2013) to achieve double-loop learning (Argyris & Schön, 1998), which prior research suggests is unusual for a central office team. I argue that the team was able to achieve double-loop learning because the team’s expertise with DWIP (Boudett et al., 2013), their director’s leadership, the autonomy their team had from the district’s central office, and by the amount of time at their disposal to spend on the process.

I was introduced to members of this Inquiry Facilitator team in 2013, and since that time, I have interacted professionally with them through the Data Wise Project at Harvard Graduate School of Education. As the team and I established our research relationship, we discussed how we would strive to keep this research project separate from other aspects of our relationship so that I could maintain as objective a stance as possible. I minimized participant reactivity in direct observations by being as unobtrusive as possible (Miles &
Huberman, 1994) and being clear about my intentions (Miles & Huberman, 1994).

Nevertheless, it would be unlikely for my views in this dissertation not to have been influenced by my role as a team member in the Data Wise Project and my prior relationships with members of the team, which is why I mention it here. Because of my prior relationship with three members of the team, I felt compelled to be very explicit and diligent about maintaining the boundaries of my role, yet I also see these relationships, and my knowledge of DWIP as an asset to this project. This type of research would not be possible without trusting relationships, and I am grateful to this team for welcoming me and sharing their work.

It is important for the field to understand how district-level staff such as Inquiry Facilitators could foster professional learning in schools, and how they themselves learn how to do and continually improve at their jobs supporting schools. In addition to contributing to research on DBDM on school-level and district-level teams, I hope it will inform district leaders interested in establishing and supporting DBDM in schools and central offices.
School districts invest an enormous amount of time in educators’ meetings, with the hope that these meetings will lead to improved practice for teachers and learning for students (Boudett & City, 2014a). In order to make their meetings as productive and meaningful as possible, many teams of educators turn to protocols, series of structured steps to guide discussions, such as the consultancy protocol or the tuning protocol (McDonald, Mohr, Dichter, & McDonald, 2013). The literature is divided about the effectiveness of protocols. A body of practitioner literature extols the promise of structured discussion protocols for evidence-based decision-making on teams of educators (Blythe, Allen, & Powell, 2015; Boudett & City, 2014a; Boudett et al., 2013; McDonald et al., 2013). Research has also found that protocols can break down long-standing norms of autonomy and privacy and create structures for sharing practice (Curry, 2008; Levine & Marcus, 2010). However, several studies have also identified traps that can befall protocol-driven conversations. Teams using protocols can inadvertently privilege form over substance (Lasky, Schaffer, & Hopkins, 2009; Little & Curry, 2009; Little, Gearhart, Curry, & Kafka, 2003) and constrain discussion about important topics that do not fall within the structure of a protocol (Curry, 2008). Another concern is that protocols can also create the false impression that they are “ready-to-use” (Little et al., 2003), yet skilled facilitation is crucial to success.

Missing from this literature is an understanding of how people’s prior experiences and identities shape how they respond to protocols. It is likely that different people respond to protocols in different ways, with some educators’ backgrounds and personalities making them more receptive to protocol-driven meetings than others. Understanding how prior
experiences and identities shape responses to protocols is critical for those who plan meetings and professional learning opportunities for educators.

This study of a district-level team of data inquiry facilitators will contribute to the literature on professional learning and data-based decision making by identifying tensions that emerged in the use of protocols on a district-level team, who met weekly to work together to improve their practice. It will explore how aspects of personal and professional identity can intersect with educators’ attitudes towards protocol-driven meetings. In particular, it will examine how educators’ a) relationship to the founding conditions of their team, b), prior work experiences c) gender, and d) work style preferences relate to their attitudes towards protocol-driven meetings on a district-level team in a large, northeastern district. Since a large proportion of collaborative learning experiences happen in protocol-driven meetings, it is important to understand how educators experience these meetings and how they could be improved to better meet the needs of diverse groups.

**Theoretical Framework**

There are a variety of ways that educators’ identities and prior experiences could affect how they respond to protocol-driven meetings. This section will review literature on four of these factors. The first factor is whether an educator was a founding member of the team, and therefore able to influence the blueprint of the team’s norms and structures. The second is imprinting from prior work experiences (M. C. Higgins, 2005). In particular, I consider literature on Teach for America (TFA), since five of the six members of this team were TFA alumni. Third, I review literature on gender in the workplace, particularly how gender relates to participation in meetings. Finally, I introduce the Maker vs. Manager
framework (Graham, 2009) and consider how work-style preferences could shape responses to meetings.

**Drafting a Blueprint: The Role of a Team’s Founders**

During data collection for this study, the team profiled in this study was in its second year of existence. Though the team was not a start-up—it was embedded in an established district—it was a new team with significant license to determine what it would do and how. Given that, this work environment was in many ways an entrepreneurial context. Literature about the founding of organizations, therefore, is helpful in thinking about how the early days of this organization might have influenced its trajectory.

The founding conditions of an organization have lasting implications on its culture and structures (Baron, Hannan, & Burton, 1999; Stinchcombe, 1965). The way an organization is founded embeds certain assumptions about how the organization is structured and how decisions get made (Hannan & Freeman, 1977). Since most founders of new organizations come from existing organizations, many new organizations are highly influenced by the prior work history of their founders (Burton, Sørensen, & Beckman, 2002). Baron and colleagues (1999) found that an organization’s gender mix at its founding, along with the founders’ assumptions about how an organization should be structured, influenced organizations for many years after their inception. Employees who came later and did not create an organization’s “blueprint” (Hannan & Freeman, 1977), might not necessarily feel as personally invested in procedures established by the founders, such as protocol-driven meeting structures.

**Imprinting from Prior Work Experiences**
A team is influenced not only by its founding conditions but also by the backgrounds of the individuals who make up the team at any point. Team members’ ways of working and attitudes towards the structures and processes in their work environment are likely influenced by a number of factors, including their prior work experiences.

Higgins (2005) found that certain employers, at certain times, leave an “imprint” on employees that they carry throughout their careers. “Career imprints” are "the shared set of capabilities, connections, confidence, and cognition that are cultivated at a particular employer at a particular point in time" (p. xvii). “Capabilities” refers to “the taken-for-granted assumptions, beliefs, and worldviews regarding work and getting work done” (Higgins, p. 10). “Connections” are “the kinds of social capital, including both intraorganizational and extraorganizational relations related to work and getting work done, including the strength and structure of such connections” (Higgins, 2005, pp. 9-10). “Confidence” refers to “the types of individual-level efficacy associated with work and getting work done” (Higgins, 2005, p. 10). Higgins (2005) identified groupthink (Janis, 1982) as a potential drawback to career imprinting. Too strong an imprint can leave people closed to new ways of thinking that could benefit an organization; therefore, it is important for people to be aware of their imprints (Higgins, 2005).

Teach for America. Many leaders in education started their careers with Teach for America (TFA) (Higgins, Robison, Weiner, & Hess, 2011; Teach for America, n.d.). Through the training they received during their two years as corps members, they were exposed to certain beliefs and assumptions, generally early on in their professional lives.

In a sense, a major part of TFA’s mission is to imprint its corps members. TFA’s mission statement, “to enlist, develop, and mobilize as many as possible of our nation’s most
promising future leaders to grow and strengthen the movement for educational equity and excellence” (TFA, 2016), implies that corps members will one day be leaders, continuing to fight to improve education after their two-year commitment has ended. In her memoir, TFA founder Wendy Kopp (2011) describes her original goals for the organization as two-fold: “that corps members’ teaching experience would not only have a positive impact on students but also influence the priorities and long-term decision-making of corps members themselves and ultimately create a leadership force for long-term change” (Kopp, 2011, p. 2, emphasis added). In other words, despite the fact that TFA does not use the term imprinting (Higgins, 2005) in its materials, the extent to which TFA alumni have been imprinted by their experience is an indication that the organization is meeting its goals.

While there is evidence of the presence of all four “C’s” of a career imprint from TFA on this team, and it is the interaction between all four that create the imprint, this paper will focus on capabilities and cognition because they are most apparent in the data and most relevant to interpreting the team members’ responses to protocols. Kopp’s (2011) reference to influencing “priorities” and “long-term decision-making” suggests that she is interested in affecting the “cognition” of corps members. In the early years of the organization, Kopp visited many classrooms and saw overwhelmed corps members not having their desired impact on students. She asked teachers what they were working on and heard a variety of answers, such as building relationships and trying to “reach” children. The teachers who were making an impact had ambitious goals, did not make excuses for poor performance, had a sense of urgency, and maximized every minute of instructional time (Kopp, 2011). Kopp took away from these visits the lesson that the role of the teacher needed to be re-defined “to mean more than providing access to learning experiences” (30). TFA teachers needed to
think less in terms of input, or what they were doing and saying in the classroom, but in terms of output, or how their students would be able to demonstrate their learning (Foote, 2008). In other words, it became part of Kopp’s project to influence the cognition (Higgins, 2005) of TFA corps members, which contributes to the imprint they will carry with them to future jobs. TFA’s materials also suggest that the organization contributes to corps members’ “capabilities,” TFA works to develop corps members’ capabilities by the training and professional development it provides them, and it is a certain type of capabilities it teaches. TFA corps members are trained to create tight lesson plans with clear objectives, and to constantly collect and use student performance data to adjust instruction (Kopp 2011).

If TFA does create a career imprint among its corps members, it is important to understand because many TFA alumni assume leadership roles in education (Higgins et al., 2011; Teach for America, n.d.) Research suggests that TFA alumni do have beliefs and assumptions in common. In 2005, Teach for America surveyed nearly 2,000 teachers finishing their second year of teaching and found that they believed strongly in the power of individual educators with high expectations to close achievement gaps (Smith, 2005). TFA alumni also tended to believe that the general public in the U.S. did not fully grasp educational issues like the achievement gap and that while funding was part of the solution to closing the achievement gap, it was not the answer in itself (Smith, 2005). To my knowledge, no research has been done about TFA alumni’s perceptions about education in the past ten years, though Rice, Volkoff, and Dulfer (2015) surveyed 76 Teach for Australia teachers, who were recruited and trained in a manner similar to their American counterparts, and found similar results. Teach for Australia teachers believed that the most important
levers to close the achievement gap were the caliber of people entering and staying in the teaching profession and were less concerned with structural and systemic causes of low academic achievement (Rice et al., 2015).

One prominent aspect of TFA’s culture that may become part of a career imprint (Higgins, 2005) is the use of protocol-driven meeting processes. Given that, we might find TFA alumni to be accustomed to using protocol-driven meetings in subsequent jobs and for them to expect meetings to be structured using protocols. That said, Higgins (2005) argues that people do not all respond to their imprint in the same way; it is up to the individual what of the imprint to take or leave to future jobs. Therefore, being accustomed to protocol-driven meetings is not the same as enjoying them or being a proponent of them.

**Gender**

Protocols can encourage broad participation (Little & Curry, 2009) and provide a structure for traditionally under-represented voices to be heard. Women often tend to refrain from talking in meetings so as not to be perceived as pushy; unfortunately, evidence suggests that their fears are not unfounded. For example, Brescoll (2011) found in experimental conditions that women who spoke more than their peers were given lower ratings of competence, while the opposite was true for men who spoke more than their peers. Similarly, Butler and Geis (1990) studied non-verbal responses to women’s leadership moves as opposed to men’s and found that female leaders received a higher proportion of negative responses. Women tend to be socialized to be warmer than men, and perceived as less competent when they display warmth (Cuddy, Glick, & Beninger, 2011).
From a young age, women and men are socialized to speak in ways that benefit men and detract from women’s success in the workplace (Tannen, 1995). To counteract this fact, workplaces have adopted explicit structures to help make meetings more equitable (Tannen, 1995). We would expect, therefore, that women would respond more favorably to protocol-driven meetings than men, since men’s voices have historically been privileged in less structured settings.

**Work style: Maker vs. Manager**

Another factor that would likely influence people’s reactions to protocol-driven meetings is preferred working style. People who like a highly-structured work environment in general would probably prefer more structured meetings, and vice versa. Venture capitalist Paul Graham (2009) uses the terms “Maker” and “Manager” to describe these different types of workers. Graham (2009) argues that Makers need less structure in their daily schedules than Managers, because Makers need space to be creative. While managers envision their ideal schedule in hour-long calendar appointments; Makers think in whole or half-day blocks. Meetings are frustrating to Makers because they feel they need long, uninterrupted spans of time in order to do their best work. Since Managers prefer more structure in their workday, it seems likely that they would prefer more structured and protocol-driven meetings. Makers, on the other hand, might be frustrated by the constraints of protocols.

**Research Questions**

This first paper is guided by the following research questions:

1. How do different team members experience protocol-driven processes?

What are the tensions inherent in using protocol-driven processes?
2. How are these experiences shaped by the places where they were imprinted, their status as founding or new team members, their gender, their approach to their work, or by other factors?

**Study Context**

This paper is part of a larger study of a team of six district-level Data Inquiry Facilitators (Inquiry Facilitators) and their work in schools in a large, northeastern district, where they support school teams with the Data Wise Improvement Process (DWIP) (Boudett et al., Eds., 2013). DWIP guides teams of educators to take a wide range of data and collaboratively discern a learner-centered problem and problem of practice that they can address by a targeted instructional strategy to improve student learning. The Inquiry Facilitators’ job was to work with three teacher teams and the instructional leadership team (ILT) in each of the 23 schools in the district that had applied and been chosen to receive their support. They coached school-based teams to establish effective collaborative practices and to use DWIP as a systematic, continuous improvement process. The Inquiry Team itself met for two hours every Friday morning, using many of the same collaborative structures and processes it taught school teams to use.

**Methods and Data Sources**

During the 2014-15 school year, I observed 19 of this team’s two-hour meetings and took detailed field notes. I collected meeting agendas and all notes, handouts, and artifacts from every meeting the team held that year. I audio-recorded 13 of the 19 meetings I attended, and team members recorded four meetings I was not able to attend.

To gain a perspective on how the inquiry facilitators made sense of the experience on their team, I conducted two, semi-structured, open-ended interviews of 60-90 minutes in
length with each of the six inquiry facilitators, for a total of 12 interviews. The first interview protocol included questions about the inquiry facilitators’ backgrounds and expectations for their roles, and the effects of the team on their learning. The second interview focused on processes, roles, and norms, and factors that enable or constrain the collaborative learning of this team (See Appendix A for the interview protocol). In several instances during interviews, participants used examples from meetings, many of which I attended. I will draw on my observation notes and the team’s agendas and meeting minutes to provide an additional perspective on the points the participants brought up in the interviews.

I analyzed these data with two rounds of coding, emic and then etic. During the first round, I allowed themes to emerge emically (Miles & Huberman, 1994) and noted trends in ways participants talked about protocols. For the second round of coding, I used an etic approach. In an effort to maximize external validity, I based my etic codes on existing research and theory that formed the conceptual framework of this study (please see the Appendix for a list of etic codes) (Yin, 2014). A second coder coded 10% of my data to increase reliability. The generalizability of these findings is limited by its small sample size of six participants.

Each mention of a protocol or meeting structure was coded for whether it occurred in the district office or in a school, and whether the respondent was expressing a positive, neutral or ambivalent, or negative attitude toward the protocol or meeting structure. The code “protocol” was used for references to a series of steps to structure a conversation or activity, whether or not the word “protocol” was used in the response. A reference to an open discussion in a meeting without any structure, or a casual conversation with a colleague, would not have been coded “protocol.” “Meeting structure” was a more general
code, referring to a structure or structures other than protocols, such as having a running task list or using the Meeting Wise agenda template (Boudett & City, 2014b) and assigning roles such as timekeeper and note-taker.

In the twelve interviews, two per team member, I coded 86 references to protocols and 192 references to meeting structures. Fifty percent of respondents’ references to protocols were coded positive, 12% neutral or ambivalent, and 38% negative. Participants’ responses were more positive toward the more general term “meeting structures,” with 65% of references coded positive, 19% as neutral or ambivalent, and 16% as negative. See Table 1 for a summary of these findings. Table 2 provides an overview of how these attitudes varied by participants, which will be discussed in more detail below.
Table 1
*Coding Summary: Protocols and Meeting Structures*

<table>
<thead>
<tr>
<th>Code Family</th>
<th>Code</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protocol</td>
<td>Central Office</td>
<td>30</td>
<td>73%</td>
</tr>
<tr>
<td></td>
<td>School</td>
<td>9</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>Both</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>41</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Positive</td>
<td>21</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>Neutral or Ambivalent</td>
<td>5</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>16</td>
<td>38%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>42</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code Family</th>
<th>Code</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting Structure</td>
<td>Central Office</td>
<td>39</td>
<td>49%</td>
</tr>
<tr>
<td></td>
<td>School</td>
<td>37</td>
<td>46%</td>
</tr>
<tr>
<td></td>
<td>Both</td>
<td>4</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>80</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Positive</td>
<td>52</td>
<td>65%</td>
</tr>
<tr>
<td></td>
<td>Neutral or Ambivalent</td>
<td>15</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>13</td>
<td>16%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>80</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2
*Team Member Profiles*

<table>
<thead>
<tr>
<th>Name</th>
<th>Gender</th>
<th>Teaching experience (years)</th>
<th>Role on team</th>
<th>TFA alum</th>
<th>Attitude toward TFA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liz</td>
<td>F</td>
<td>4</td>
<td>Director</td>
<td>Yes</td>
<td>Positive</td>
</tr>
</tbody>
</table>

Liz oversaw the collaborative development of the structures by the first year team. She saw structures, roles, and protocols as an unquestioned good.

| Phil | M      | 10                           | First year inquiry facilitator | No | Ambivalent  |


Phil believed protocols helped school and district teams get things done, but he did not feel he learned effectively from them. In particular, he thought the feedback structures on his team were cumbersome and inefficient.

<table>
<thead>
<tr>
<th>Selena</th>
<th>F</th>
<th>3</th>
<th>First year inquiry facilitator</th>
<th>Yes</th>
<th>Ambivalent</th>
</tr>
</thead>
</table>

Selena thought meeting structures helped teams get things done and see how professional learning experiences connected to one another. She thought that there was a high opportunity cost to focusing on structures.

<table>
<thead>
<tr>
<th>Jess</th>
<th>F</th>
<th>4</th>
<th>Second year inquiry facilitator</th>
<th>Yes</th>
<th>Positive</th>
</tr>
</thead>
</table>

As a member of the team the first year, Jess participated in setting up the team’s norms and collaborative structures. Collaborative structures were not natural to her as a teacher, but once she learned TFA’s structures, she appreciated how they helped productivity.

<table>
<thead>
<tr>
<th>Rosie</th>
<th>F</th>
<th>2</th>
<th>Second year inquiry facilitator</th>
<th>Yes</th>
<th>Positive. TFA was her only full-time job before this job.</th>
</tr>
</thead>
</table>

Rosie appreciated protocols for ensuring all voices are heard for creating a safe way to give and receive feedback. She struggled with having to make her voice heard when she felt unsure of herself. She also saw a high opportunity cost to setting up meeting structures, but believed they made meetings more productive once teams internalized them.

<table>
<thead>
<tr>
<th>Zachary</th>
<th>M</th>
<th>5</th>
<th>First year inquiry facilitator</th>
<th>Yes</th>
<th>Ambivalent at best. Appreciated the professional opportunities it gave him; disliked the work culture.</th>
</tr>
</thead>
</table>

Zachary found protocols, structures, and roles frustrating because he thought they got in the way of trust, relationships, and joy. He did not feel his working style meshed with the team’s, and he noticed a divide between the new and returning members.
I then coded interview transcripts for references to elements of respondents’ personal and professional identities that both my literature review and preliminary analysis suggested might intersect with respondents’ attitudes toward protocol-driven meetings. The codebook in the Appendix provides definitions and examples of these codes. The “work history” code family included whether or not a respondent had been a member of TFA. It also included statements that suggested the respondent’s attitude toward TFA, and evidence of “*capabilities, connections, confidence, and cognition*” (Higgins, p. 9) on the respondent or on a team member to whom he or she was referring. I coded “capabilities” when a respondent mentioned a skill learned during Teach for America, and “connections” when a respondent mentioned a professional connection forged through the TFA network. “Confidence” was used when respondents talked about their high expectations for the academic gains that students could make over the course of the year, which is an attitude TFA inculcates. “Cognition” referred to a way of thinking, such as believing that teachers should always gather and display data to show student progress. I also coded references to non-TFA prior work experiences that respondents cited as having helped them prepare for their current job. The “gender” code family included the respondent’s gender and references to gender dynamics on the team. “Work style preference” included statements that reflected a preference for operating as a “maker,” with open space for creative pursuits, or a “manager,” with more structure to one’s schedule (Graham, 2009).

**Analysis**
Before I discuss how participants responded to protocols, it is important to briefly describe the nature of their protocol driven-meetings.

The team’s meetings took place every Friday morning and were highly structured with formal norms\(^1\), protocols, and a meeting role for each participant. These meeting structures were based on *Meeting wise: Making the most of collaborative time for educators* (Boudett & City, 2014). The team intentionally used the same structures for their internal meetings in the central office that they coached school teams to use in their district, not only because the director and founding members found the structures effective, but also because part of the purpose of their meetings was to model and practice protocols that they would then bring to school teams.

Meetings lasted for two hours and typically had three to five objectives, identified by a given week’s facilitator in consultation with the team’s director, Liz (all names are pseudonyms). The first five minutes of a meeting were reserved for the meeting launch, during which the facilitator introduced the objectives, reminded the team of their norms, and confirmed the role each team member would play, such as timekeeper or note-taker. Also during the launch, the facilitator explained how he or she had taken into account feedback on strengths and weaknesses of the prior meeting to plan this meeting. The last ten minutes of a meeting were allocated toward reviewing next steps that had been captured during the meeting, and reflecting and giving feedback on the meeting. Depending on time and the facilitator’s preference, the agenda sometimes included a five or ten minute “activator” or “team builder,” which ranged from reflective to purely fun. The remaining 95 to 105 minutes

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\(^1\) The team norms printed on every meeting agenda included: 1) *Take an inquiry stance*, 2) *Ground statements in evidence*, 3) *Assume positive intentions*, 4) *Stick to the protocol*, 5) *Take collective responsibility and celebrate collective success*, and 6) *Be Present*. Norms 1-4 and 6 were slightly adapted from the suggested list of norms in *Meeting Wise* (Boudett & City, 2014b, p. 74). The team wrote Norm 5 during its first year to emphasize the importance of its shared work.
were divided into segments for each objective, with segments ranging in duration from five minutes to one hour.

The team worked on a variety of objectives during their meetings, from addressing specific problems that had arisen in their work with school teams, to preparing materials for quarterly professional development sessions for their schools, to coordinating the hiring process for new members of their team. The single largest component of their meeting time over the course of the year was engaging in their own Data Wise Improvement Process (Boudett et al., Eds., 2013), the process they coached in schools, as a central office team.

In advance of a meeting, the facilitator chose protocols that the team would use to meet their objectives for the day. Many of protocols were drawn or adapted from Data wise: A step-by-step guide to using assessment results to improve teaching and learning (Boudett et al., Eds., 2013), as well as the National School Reform Faculty website (NSRF, n.d.). For instance, an objective at the beginning of the school year was to solve problems that team members were encountering in schools. Selena, who was facilitating, chose a modified consultancy protocol for this objective. She allocated 20 minutes for the protocol, breaking up the time into 10 segments: two minutes for the presenter to describe a challenge she or he was encountering, two minutes for the team to ask clarifying questions, four minutes for the team to discuss actionable steps to resolve the challenges while the presenter remained silent, and one minute for the presenter to respond to the strategies suggested and detail next steps. At that point, there were two minutes for another team member to volunteer a related challenge, one minute for clarifying questions, four minutes for the team to discuss how to solve the challenge while the volunteer remained silent, two minutes for the volunteer to
respond and articulate next steps, and two minutes for the team to share take-aways from the protocol.

The team also used protocols to structure discussions about policy and strategy on their team. For example, during a meeting in January, 20 minutes were allocated to discuss Zachary’s idea that the team start an electronic newsletter. Phil, the facilitator, allocated three minutes for Zachary to share his vision, two minutes for the team to ask him questions, one minute for team members to reflect silently, and five minutes for a “whip around,” during which team members would “share new ideas (not affirmations or disagreements)” if they had them, but they were also allowed to pass. The segment ended with six minutes of open discussion and the agreement that a small working group would look more deeply at the issues that had been raised and make recommendations to the team. These two examples are representative of the highly structured, protocol-driven meetings the team had over the course of the year of data collection and that team members reacted to in interviews.

**Three Tensions in Using Protocols and Meeting Structures**

Participants’ responses revealed three main tensions inherent in protocol-driven meeting processes: equality of voice vs. organic participation; collaboration as building trust vs. collaboration as signaling distrust; and productivity vs. spontaneity.

**Equality of voice vs. organic participation.** One prominent tension that arose the team’s reliance on protocols in meetings was that while protocols helpfully ensured that all voices were heard, they sometimes constrained the conversation from flowing organically in ways that could have been generative and productive. One of the problems protocols aim to solve is uneven contribution to meetings. This team’s use of protocols ensured that more
vocal team members did not dominate the conversation. Rosie articulated this problem in an anecdote about a member of her former teacher team who talked almost constantly: “…it was okay for one person to be the voice of the team, and that even if you were really angry about something, it was okay to sit and stew, I think.” On this, her current team, that inequality of participation was far from the case, and everyone’s voice was heard in every meeting. The team would often use a “whip-around” protocol in which every team member quickly shared current thinking about the question at hand. One of the team’s norms was to “take collective ownership and celebrate collective success,” and their reliance on protocols helped ensure that they were all contributing to the success of the team. It is noteworthy that Rosie and Selena were the only team members who said in an interview that they appreciated protocols for ensuring equality of voice. Perhaps other team members did not say so explicitly because they thought it was too obvious to mention, or possibly they resented the equality of voice in team meetings.

On the other hand, Rosie and Zachary expressed some frustration with protocols because they did not always want to speak in every discussion. Rosie, while appreciating how protocols prevented one person from overshadowing the rest of the group, felt uncomfortable with how much she was expected to speak, because she did not always have a strong opinion or feel confident about articulating her reasoning for her opinion. The prior year, when the team was in its first year and Rosie was the member with the least professional experience, she would struggle when a protocol dictated that everyone needed to ask a question because she did not even know where to start. She said, “…It’s hard if you feel so kind of just at sea with something to know even what question to ask, and then you
have to ask questions.” The fact that protocols expect everyone to participate could cause stress for a less confident team member.

Zachary also did not appreciate the forced participation aspect of protocols, but for a different reason; he believed it was not worth the time to stop and collect everyone’s opinion before proceeding. In his words, “Having to thumbs up everything, I don’t need to have a thumbs up right now, I’m good.” Zachary was referring to a facilitation technique that was often used in meetings to ensure that all team members consented to a decision. For example, on March 6th, 2015, when Phil was facilitating, and Liz had just summarized her understanding of what the team had agreed to do to move forward with their own inquiry cycle, Phil held up a thumb, and all of the other team members held up their thumbs as well. Phil said, “I approve. We all approve? Good,” and moved to the next agenda item. This is the kind of consensus-seeking move that Zachary found frustrating. Zachary, like Rosie, would have preferred to participate only when he felt he had something important to contribute.

**Collaboration as building trust vs. collaboration as signaling distrust.** A second tension was that while protocols helped the team calibrate their work and share ownership over the quality of the services they were providing, at times they made some team members feel that their teammates did not trust them to do good work independently. Even though team members spent Mondays through Thursdays working independently in schools and only Fridays together in central office, the reputation and success of the inquiry team and Data Wise in the district depended on each of their work, which was a major reason that they protected time to meet and collaborate. The team’s desire to share ownership of the work was apparent in the language they used in both meetings and interviews. When asked
about the purpose of the team’s shared work in interviews, each of the six team members mentioned “calibrating,” “norming,” or “being on the same page.” As mentioned earlier, one of the team’s norms that appeared at the top of every meeting agenda was to “take collective responsibility and celebrate collective success,” and they invested time in ensuring that quality practices were shared across the team.

The team used meeting structures and protocols to build shared ownership of their work in many ways. In particular, any materials they created for large-scale professional development went through multiple rounds of review via structured feedback protocols. The team held quarterly events for the network of schools they supported and spent hours of meeting time leading up to each event, planning the overall structure and objectives for the events and then workshopping plans that they had developed in small groups.

For example, for the third of these professional development events, they began planning on February 13\textsuperscript{th} for a March 12\textsuperscript{th} event and spent over two and a half hours of meeting time preparing for the event over four weeks. This project took up over 35\% of their discretionary meeting time (i.e., not opening and closing time) in those four weeks. As pre-work for the first meeting, they had brainstormed objectives in a Google doc, and during the meeting they spent 60 minutes reflecting on feedback from the prior session and deciding on objectives for the upcoming session.

On February 20, 50 minutes were allocated using structured protocols to give feedback on draft plans. During the week between the first and second meeting, team members had worked in pairs to outline sessions and received an initial round of feedback from Liz, the team’s director. During this second meeting, fifteen minutes were allocated for each of the three draft agendas: five minutes for team members to read and provide
individual feedback on a Google doc form, seven minutes for the team to discuss the most important feedback, two minutes for one presenter to synthesize what he or she had heard and name anything needed from the team in order to move forward, and one minute for transition.

On February 27, 2015, the team used a protocol to share the latest versions of their teaching materials with one another and fill the team in about how they had incorporated feedback from the previous meeting. Zachary was facilitating and had allocated 45 minutes for this activity. For each session, the team took three minutes to read the latest iteration of the lesson plan and materials for each session, three minutes for the team members in charge of that session to highlight major revisions they had made, three minutes to answer clarifying questions from the team, and one minute for the presenters to share how the rest of the team could support them in preparing and delivering their session. They followed this protocol for each session and then had three minutes at the end for final clarifying questions about logistics. Please see Table 3 for an overview of this feedback protocol. Finally, on March 6th, 40 minutes were reserved on the agenda for facilitation pairs to practice their sessions and receive feedback from team members. No one signed up to rehearse, so the time was allocated otherwise.
Table 3  
*Feedback Protocol: February 27, 2015*

<table>
<thead>
<tr>
<th>Time Allotted</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Team reads latest version of lesson plan</td>
</tr>
<tr>
<td>3</td>
<td>Team members in charge of session highlight major revisions they have made since the last version</td>
</tr>
<tr>
<td>3</td>
<td>Clarifying questions</td>
</tr>
<tr>
<td>1</td>
<td>Presenters share how the rest of the team could support them</td>
</tr>
</tbody>
</table>

This protocol was repeated for each session, then the activity closed with three minutes for final clarifying questions about logistics.

Team members had mixed reactions to the time spent and structures used to prepare for these events. Liz and Rosie mentioned preparing for network-wide professional development events as an especially valuable opportunity to use protocols to share ownership of the work. Liz, acknowledging that the team planned for these events “in great detail,” said that the structures they used helped the team, “to get specific and small, and think in that very pointed way about our practice.” She said, “I think that’s been really useful in terms of building trust and calibrating expectations and also understanding what exemplary work looks like together.” Liz implied that the time spent using feedback protocols was an investment not only in a specific, upcoming professional development session, but also in building the team’s shared understanding of best practice for their work.

Rosie also made the point that the time-intensive protocols they used were worth it to her because:

It took me a long time to realize this, but that it’s just the nature of working together is not about me taking personal ownership of the fact that I made this agenda, and so that’s why I personally am invested in it. It’s that if one agenda is bad, then we all fail in a way. And so I think we work together to make sure that we get the best possible product in the light of everything that we do.
In many ways, meeting structures and protocols helped ensure that the team shared responsibility for all of the work they did in the district.

On the other hand, Zachary and Phil felt that the team’s reliance on feedback protocols implied a lack of trust in their ability to do good work. They thought that the process for preparing for quarterly network events was belabored and that multiple rounds of feedback were not necessary. Reflecting on the process of preparing for one of these events, Zachary said, “We spent like three weeks getting feedback, sharing the process of how we get feedback, talking about what feedback we took, talking about talking about talking about things. I don’t see that as a way of trusting each other.” Zachary’s opinion is the opposite of Liz’s, above, who said that she thought preparing for these events together helped the team build trust. Phil found the process frustrating because he would spend hours preparing a session plan and then,

You go to the team for feedback and they offer you like advice about a protocol that would be completely different. It’s like, you don’t know how much thought I’ve put into this and you’re just shooting something off the cuff? Do I have to include that? Do I not have to include that now? Just because they said it?”

While along with their team members, Zachary and Phil thought that it was important for the team to calibrate their work, they felt that feedback protocols bore a counterproductive degree of scrutiny.

Zachary and Phil did not like to cede their latitude to exercise discretion with their school teams. During one January meeting, Rosie mentioned that she had noticed in peer observations that while every member of the team met regularly with their teacher team facilitators, to debrief the most recent meeting and plan for the next, the meetings were all structured differently. She asked if every meeting could follow the same structure, or at least start with everyone filling out “The Pulse” tracker together so that they could collect
consistent data about how teacher team meetings were going. “The Pulse” was an online survey to compile data on school teams’ meetings, and Rosie was concerned that it was not being used to its full potential because team members were entering data inconsistently. For each school team meeting an inquiry facilitator attended, he or she was supposed to enter information about who drafted the agenda, whether an administrator attended, whether the objectives were met, and whether the meeting followed each of the Meeting Wise (Boudett & City, 2014) structures. Zachary immediately expressed concern about this idea, saying, “To respect diversity of styles, I would be against that.” He said that he would be, “hesitant of having to get data on every part of the process,” and that “standardizing might have unintended consequences.” Phil agreed with Zachary and said that he did not find the Pulse data as helpful as other data they collected on their practice. Much like Zachary and Phil chafed at spending their own team meeting time on in-depth feedback protocols, they resisted adding protocols to meetings in schools.

**Productivity vs. spontaneity.** A third tension that team members found inherent in the use of protocol-driven meetings was between productivity and spontaneity. Facilitators would prepare in advance for team meetings and consider explicitly what objectives they would aim to meet, how much time to allot to each objective, and what protocol would best help them reach that objective. Phil said that he learned in his first few months on the team how much the team valued, “filling things up with protocols, making sure that everything has a purpose, connecting everything to an objective.” The team rotated preparing for and facilitating their Friday meetings, and the week’s facilitator would circulate the agenda in advance and often assign pre-work so the team could dive into the scheduled protocols as soon as the meeting started.
While in interviews, every team member said or implied that protocols helped them get things done in meetings, Selena and Phil felt that protocols precluded just-in-time problem solving. Selena said that she had been disappointed that, “the Friday meetings have been so structured and so preplanned that there hasn’t been that time to be like here’s…something I’m struggling with. What would you do?” While she acknowledged that the team did use consultancy protocols at the beginning of the year to problem-solve in their meetings, she thought those opportunities would be more frequent and informal, and that she felt as though she was “operating a little bit more in a silo.” Phil said that he “never really got a lot out of those consultancy protocols,” because what he wanted was a less formal structure for spontaneous troubleshooting with his colleagues.

A related issue was that while protocols helped keep the team on track to meet their objectives, the protocols that facilitators designed for the team to use did not always offer sufficient opportunity for team members to air, explain, and resolve concerns related to the activity at hand. An episode from a meeting in December helps illustrate this tension. Phil was leading his teammates through several activities related to Evidence-Based Argumentation (EBA), a program in the district that aimed to teach students argumentation skills. Phil used to teach EBA, and he was sharing his knowledge with his teammates because many of the schools in the district received EBA training and were hoping to integrate it into their inquiry cycles. The facilitator for the day, Rosie, had allocated 60 minutes for two objectives:

1. Learn about Evidence Based Argumentation (EBA): how it is used in the classroom and how it is implemented school-wide
2. Reflect on connections between EBA our work with inquiry teams
As was typical for this team’s meetings, the hour was sub-divided into several sections. Phil gave a brief overview of EBA and its history in the district. He led the team in three EBA activities that students would use, punctuated by two, ten-minute pauses for reflection.

During the first reflection time, the framing questions were, “How can this information inform our work with inquiry teams? What specific teams might this be helpful for? (consider EBA and non-EBA schools).” The ten minutes for the first reflection were broken into one minute of independent reflection and nine minutes to discuss with a partner. At the end of the hour, the second, ten-minute reflection time was divided into one minute for independent reflection and nine minutes for a discussion with the framing questions: How can this information inform our work with inquiry schools and/or the Inquiry network? How should we approach EBA with EBA schools and non-EBA schools?

Over the course of the hour on EBA, Selena indicated at several points that she had major reservations about the assumptions behind the program. In deference to the protocols on the agenda, she did not raise her concerns more than in passing. During the first reflection time, she was paired with Jess as a partner, and said that she thought that the distinction between evidence and reasoning was not relevant, and that she was concerned that the teachers she worked with were confusing their students by not being able to explain clearly what the difference was. Teachers were asking students to identify evidence and reasoning as separate occurrences, when in a given argumentative text there might not actually be a difference between the two.

After the reflection time, Phil led the team in another activity, called a Counterargument Challenge, during which Selena again showed concern about EBA. The directions for the team were to read a text about chemistry, walk to a poster where there was
a claim written based on the text, write evidence and reasoning from the text that would support the claim, then go to the next article and write a counterargument, and finally return to the original poster and respond to the counterargument. During the first part of activity, Selena was fanning her face and looking distressed. Phil went over to her, and she said, “I have to tell you, I have big issues with this. I’ll talk to you later.”

In the closing reflection for the EBA segment of the meeting, the following interchange took place between Selena and Phil:

Selena: I think that it’s important for me to understand these resources, because I think a lot of these resources can have a negative impact on students. I think that some of these structures constrain the way students think and speak when they’re on the verge of being able to articulate claim, evidence, reasoning, and what they say doesn’t exactly meet the format, that can be very frustrating. I’ve seen teachers implementing this, and I think it can have a lot of negative implications. I would like to know more about the training.

Phil: Is part of what you’re saying that if claim, evidence, reasoning, is not done well, it can be a dangerous tool?

Selena: I think a lot of this can be dangerous.

At the end of the meeting, Selena typed the following feedback into the Google document: “I feel uncomfortable with some of the EBA resources and would love to understand them more with Phil’s help! Also, I didn’t get to talk about this, but sometimes it feels like EBA is competing for limited time with teachers and it’s ambiguous and stressful.” In total, Selena had indicated discomfort with EBA four times over the course of the meeting.

This episode helps illuminate the tension on the team between productivity and organic discussion. After the EBA activity, several team members commented in their feedback how helpful it was to experience the types of activities that many teachers were being trained to do with students. The tightly-planned protocol made it possible for them to learn about the background of the program from Phil, engage in three learning activities, and have two,
ten-minute reflection discussions. While this segment of the meeting was certainly productive, it was so regimented that Selena, who questioned the entire premise of the “Claim, Evidence, Reasoning” scheme, was not able to express her concerns fully to the group. Selena was signaling through much of the hour that she felt uncomfortable, and given the constraints of the protocols the facilitator had designed, she had time to raise her concerns but not to discuss them fully with her teammates.

**How Professional and Personal Identities Shaped Reactions to Protocols**

The three tensions discussed in the last section were not equally salient to every member of the team. For example, Zachary chafed at the use of protocols more than any other team member, while Liz and Jess had nothing negative to say about protocols. As hypothesized in the theoretical framework above, this range of reactions to protocol-driven meetings likely has to do with team members’ gender, prior work history, and work-style preferences. Since individuals’ perceptions of protocols interacted with a number of identity factors, for the balance of this section, I will profile Jess, Selena, and Zachary, three team members who represent positive (Jess), ambivalent (Selena), and negative (Zachary) attitudes about protocol-driven meeting structures to explore how these individuals’ attitudes towards protocols intersected with their personal and professional identities.

**Jess:** The power of imprinting on a founding member of the team. Jess is a female team member who was a member of the founding team. Jess became a TFA corps member immediately after graduating from college. She stayed in her placement school for an additional year after completing her two-year commitment to TFA, then took the job as an inquiry facilitator in the same metropolitan area.
Jess’s interview responses indicated that she carried a TFA imprint (Higgins, 2005). Her entire teacher training came through TFA. TFA taught her to backwards-plan lessons and track student data to guide her instruction, and she said her thinking about expectations for student learning was also influenced by her TFA experience. Reflecting on the fact that some educators think that collecting and using student performance data is tantamount to treating students as numbers, Jess said, “When I say that [student performance matters], it doesn't mean that other things don't matter. It just means that student performance actually matters to me and is really important.” She believed that educators could—and should—make a major, measurable impact on student learning.

Since Jess cared deeply about accountability, she appreciated how protocol-driven meetings helped get things done and create a culture of collective ownership of work. Despite her TFA background, Jess had not participated in such rigorous meetings as a teacher. She said that at the school where she taught, she participated in Professional Learning Communities (PLCs), but the agendas were not rigorous and next steps were generally not completed. After she left her teaching position to become a founding member of the team of inquiry facilitators, she appreciated the “really high level of professionalism” that the inquiry team brought to their meetings and all of their work. As mentioned above, Jess had nothing negative to say about protocols in her interviews, but in written feedback at the end of a meeting, several times she suggested modifications for protocols or said that a meeting agenda felt overly-ambitious, without enough time allocated to each topic. These suggestions imply that while she valued protocol-driven meetings in principle, she thought that the team should work to improve continuously how they structured their meetings.
Selena: Ambivalence about TFA and about protocols as a new team member.

Selena is a female team member who was new to the team the year of the study. She was a TFA corps member after college and also stayed for a year beyond her two-year commitment, then left to earn a master’s degree in public policy. Following her graduation, she worked with an external service provider to a large, urban school district and took this job to be closer to friends and family.

Selena’s interviews suggested that she, too, carried a TFA imprint, though she was perhaps more aware of the downside of the imprint than Jess. Selena was more ambivalent about her TFA experience than Jess, describing it as a “super-frustrating, very eye-opening time” during which she did not feel well-supported by her school administrators and changed schools between her first and second year teaching. She called the experience a “ridiculous, and wonderful, and infuriating three years.” She also received all of her teacher training through TFA, which may have directly impacted how she did her job as an inquiry facilitator. She said that it was during TFA that the “education equity bug bit [her],” and that “TFA just gives you such disdain for people who display the soft bigotry with [low] expectations.” While Selena felt pressure from TFA to avoid teachers who did not have high expectations for students, her new job as an inquiry facilitator made her aware of the limitations of that type of attitude, because, as she says, “a lot of this work is collaborating with people like that,” building relationships and finding common ground with them so that they could work together to improve schools and the system.

Much like Jess, Selena’s confidence in her and other educators’ ability to increase student achievement was influenced by TFA. She reflected in an interview:

Coming from the TFA background, it’s really weird when people are, ‘On average let’s have them grow one point by the end of the year.’ I’m like, ‘Wait a minute.
That’s not good enough. That’s not real movement. And if your average does, what does that mean about the individual students? Are some going up? Are some going down?

She directly attributes her attitude about student achievement to TFA; this is an example of the cognition aspect of a career imprint (Higgins, 2005). Selena takes for granted that all students should be expected to achieve substantive, measurable gains in test scores every year.

While observing the team, it seemed clear that the female team members felt more positively about protocols than male team members, but Selena was the only team member to mention gender explicitly in an interview response. She said that she appreciated protocol-driven meetings because, “being female, I need think time, wait time to best participate.” She acknowledged that not everyone cared for protocols as much as she did, saying,

I think Zachary in particular has a very different orientation. He just goes crazy when he needs to follow a protocol. He hates it, and so I think when he runs things he’s very quick to be like, “We’re going to do things differently. We’re going to—this is going to be different.” And it ends up actually really frustrating me because it’s like no, the way that you have planned this agenda I can’t get a word in edgewise.

Selena thought that the constraints of protocols were generally worth the benefits of giving everyone the time and opportunity to participate.

As mentioned above, Selena was also ambivalent about protocol-driven meetings because as a new team member, she would have appreciated more open-space in meeting agendas for just-in-time support and troubleshooting that would have helped her to acclimate to her role. She said that perhaps her needs could have been met with a separate standing meeting for the new inquiry facilitators to get their questions answered, but she thought that Liz might not have wanted to schedule such a meeting lest it create a divide
between new and veteran team members and imply that the veteran team members did not have as much to contribute to the team.

**Zachary: TFA skepticism fueling skepticism of protocols as a new team member and a Maker.** Zachary was a male, new team member, and a TFA alum who was largely negative about TFA. He had had other work experiences both abroad and in the U.S. before becoming a TFA corps member, so when he started TFA, he had already developed views and attitudes about teaching that were not as malleable as they might have been if he were a fresh college graduate.

Zachary’s interview responses indicated that it was important to his identity not to carry a TFA imprint, and he expressed disdain for the elements of his team that he attributed to TFA. He downplayed what he learned in TFA since he came to TFA with prior teaching experience. The following statement shows his opinion about the type of thinking his teammates brought from TFA:

> It was a little too much group thought (*sic*). I don’t know. And there are definitely people on my team that I know that they went to TFA but I could have easily guessed they worked at TFA. It is sometimes the rigidity of...there is not a lot of flexibility around processing and stuff or it is just one way of thinking or processing that works for some people, but I think doesn’t fit every style.

In contrast to Jess, who thought that the team’s highly-structured processes were a sign of professionalism, Zachary thought they were tantamount to groupthink.

While Selena and Jess seemed to fit, or at least acquiesce to, a “Manager” schedule, Zachary embodied the “Maker” persona. He liked to be creative, liked meetings to be fun, and he thought that his team’s meetings were exhausting, overly structured, and inhibited his creativity. He did find several ways to infuse creativity into the structure of team meetings. For example, at a meeting in January, each team member was asked to bring an artifact from
the inquiry cycle they had completed in the fall. Unlike his colleagues, who brought graphic organizers or tables they had used to record school teams’ progress, Zachary brought a video of students presenting their work at one of the schools he supported. When he explained to his team what he had brought, he said, “This video brings us back to the work we’re doing, as former educators, seeing the joy…I’m just very happy for these kids and teachers for doing this.” Zachary also liked to include opportunities for creativity and fun in the meetings he facilitated. In one winter meeting, the team began the process of creating an action plan for their own inquiry cycle by drawing or writing on chart paper what their goal would look like. After he explained the task, he said, “Now the fun begins! Be creative. Reach for the stars. In a perfect world, what does it look and sound like? What is the opposite of our LCP [learner-centered problem] and POP [problem of practice]?” At another meeting, Zachary led the team in a yoga pose during a 30-second stretch break in the agenda. Though aware that his work style preference did not match the prevailing norms on his team, Zachary took opportunities to bring his “Maker” sensibility to team meetings.

As a new team member, Zachary often felt frustrated that he did not have as much support as he felt he could have used, or the kinds of support he would have found most helpful. He did not like the model that the founding team members had created of spending two days per month at each school, because he thought the schools could have benefited from more inquiry facilitator time. Zachary left the team for another job after one year.

**Discussion and Implications**

This paper investigated team members’ attitudes towards protocol-driven meetings and found that three major tensions arose in using protocols. The first was hearing all
voices versus organic participation. While protocols helped ensure that everyone participated in conversations, at times some team members felt frustrated being compelled to participate when they did not feel they had anything to add to the discussion. The second was collaboration as a way of building trust vs. collaboration as signaling distrust. Some team members thought that the team’s use of protocols to look at data about their work together and to give one another feedback on materials they were planning for professional development events was one of the best ways for them to share ownership over their work and to develop a common understanding of best practice. Others were skeptical that giving the professional development materials so much attention was a good use of time, and they felt that the extensive feedback protocols over the course of several weeks implied a lack of trust in their ability to do good work. The third tension was between productivity and spontaneity. Protocols with strict time allocations helped the team accomplish quite a bit in their meetings. At times, though, they prevented team members from addressing important topics that did not fit into the protocols the facilitator had planned for a given day’s agenda.

These findings also show elements of their personal and professional identities were related to team members’ attitudes towards protocol-driven meetings and the extent to which they felt that protocols were worth using despite the tensions some team members identified. The three founding members of the team who stayed on the team for its second year—Liz, Jess, and Rosie—were all TFA alums who were positive about TFA. These three team members, who spent the summer between the team’s first and second year institutionalizing the team’s collaborative structures, were also less cognizant of how much TFA affected the team’s structures and processes than their new team members, suggesting that they carried an imprint (Higgins, 2005) of which they were not fully aware, particularly
in terms of cognition and capabilities. Since they created the founding “blueprint” (Hannan & Freeman, 1977) for the team, the team’s processes and structures may have been highly influenced by the TFA imprint. TFA gave the founding team members, all loyal TFA alumni, a way of talking about high expectations and belief in the power of data-driven instruction to impact student outcomes that impacted not only their attitudes but also their team’s structures and processes. The three new team members—Selena, Phil, and Zachary—carried no or less of a TFA imprint and were less positive about the structures and processes that the team founders had created.

The work style preference concept of Maker and Manager provides helpful vocabulary to explain why Zachary, in particular, was frustrated with the team’s meetings. As a Maker, he felt that protocol-driven meetings constrained him, and his working style did not match the dominant culture on the team. He left the team after one year. While he had always said that he did not see himself in the role of an inquiry facilitator for the long term, perhaps he would have stayed for longer if he had felt more comfortable with the team’s Managerial style.

Gender was also a prominent element in how team members reacted to protocol-driven meetings. Since research shows that women’s voices are traditionally undervalued in meetings (Brescoll, 2011; Butler & Geis, 1990; Cuddy, Glick, & Beninger, 2011; Tannen, 1995), I expected women to be more positive than men about protocol-driven meetings. While women did indeed have more positive opinions about protocol-driven meetings, Rosie brought up the important point that protocols made her uncomfortable because she did not always want to express an opinion. Selena was ambivalent about protocols both because she wanted more time to receive informal, unscripted help and also because she felt
a lot of pressure when she was facilitating. It is interesting to note that women are not traditionally under-represented in education settings (Ingersoll, Merrill, Owens, & Zukerberg, 2017), though they are under-represented in educational leadership positions (Davis, Gooden, & Bowers, 2017), so this research differs from research on gender roles in meetings in traditionally male-dominated fields.

There are several limitations to consider. This is a small, exploratory study, of one team of six people, so the findings may not be generalizable beyond this context. Also, this study took place in the team’s second year of existence, so part of what was observed could have been the organization’s early learning about the best way to use protocols. Since the time data was collected, the team has updated its meeting processes in response to feedback from members. For example, in an interview the year after bulk of the data for this study was collected, Liz, the team’s director, said that the team had reflected on their decision-making processes and decided that they could save time and energy by not structuring all of their decision-making protocols to result in consensus. For all but the most impactful decisions, they now often delegate decisions to one or two team members. Through growing awareness of all of these tensions, the team is addressing them, and that evolution and learning is not captured in this study.

The implications of these findings for those who would run such processes are to be aware of the benefits of protocols and also the drawbacks. Protocols can help teams benefit from the insights of all of their team members rather than a vocal few, to get work done efficiently during meetings, and to calibrate their understanding of best practice for their work. That said, protocols are not a silver bullet, and unless they are facilitated skillfully, meetings driven by protocols can be overly formal or constrained and not lead to the kinds
of deep learning they are intended to foster. A facilitator could mitigate these tensions by directly addressing them when framing a protocol. For example, a facilitator could say that she has chosen a feedback protocol because she wants the team to learn from one another’s work and ensure that each session in a professional development day aligns coherently with the arc of the day, but that this protocol is not meant to imply a lack of trust in any team member’s ability to do excellent work independently. In other words, leaders could seek out ways to use protocols while ensuring team members that their intelligence and competence are respected. Facilitators could also build time into meetings for troubleshooting challenges that team members have encountered since the last time; doing so likely would have addressed the frustrations that the new members on the Inquiry Team mentioned about they wished they could have time to get quick questions answered in meetings. Protocols themselves, therefore, are not necessary to blame for all of the downsides that team members brought up, but being aware of possible concerns in using protocols could help leaders plan and facilitate meetings to maximize the benefit and minimize the drawbacks of using protocols.

Leaders should recognize that people in a group may experience meetings differently depending on their prior work history and other identity factors. Team members who were founding members of the team likely had a major influence on the founding conditions of the team, and it is important to seek feedback from newer team members about how the structures of a team are working for them. If there is a high proportion of Teach for America corps members or alumni on a team, or alumni of another organization with a similarly strong imprint, leaders should be aware that that imprint exists and create time and opportunities for everyone to reflect on how the meetings are working for them and how
that could be improved. Leaders should also be cognizant that gender and Maker/Manager preference might impact team members’ experience with protocols. A five-minute feedback protocol at the end of every meeting is a helpful way to start gathering data to improve meetings, but since not every team member will likely be inclined to give feedback in that way, there need to be other opportunities to hear from team members. Alternate forms of feedback could include anonymous surveys or one-on-one conversations with supervisors without a constrictive agenda.

Nevertheless, these findings suggest that certain people may always be frustrated by protocol-driven meetings. Leaders of teams of educators should take care to surface the sources of any opposition to protocols on their teams and consider reallocating some of their time away from protocols to best meet the needs of the group. Perhaps leaders could ensure that one meeting per month had an open agenda for team members to bring up and problem-solve about their most immediate and pressing concerns. Alternatively, there could be time set aside in every meeting agenda for a protocol-free discussion of what is on team members’ minds.

The salience of these educators’ personal and professional identities to their attitudes about working on this team suggest that future research on adult learning in protocol-driven meetings could benefit from adopting a sensemaking perspective (Coburn, 2005; Spillane, 2012). Sensemaking research has contributed helpful insights about how teachers adopt reforms in their classrooms by integrating them with what they already believe about teaching (Cohen, 1990; Diamond, 2007). This study’s findings suggest that a sensemaking perspective could contribute to literature on professional learning as well by exploring how educators’ participation in collaborative learning environments such as protocol-driven
meetings are mediated by their identities and past experiences. Future research should also explore how educators in different contexts and from diverse cultural backgrounds and SES status react to protocols. Better understanding, on a larger scale, how educators’ identities and prior work experience help them make sense of protocol-driven meetings will enable education leaders to design effective professional learning.
Practitioner guides for data-based decision making (DBDM) extol its promise to improve instruction and student outcomes (Bambrick-Santoyo, 2010; Boudett, City, & Murnane, 2013; Goldring & Berends, 2008; Mandinach & Jackson, 2012). These approaches assume that if teachers have student data available to them, and a process with which to analyze it, they will better understand what is causing students’ misunderstandings and learn from colleagues about how to respond to data and improve instruction.

Over time, however, the field has learned that DBDM processes on their own are not sufficient to improve student outcomes, and large-scale causal studies of data inquiry cycles have not found a widespread, statistically significant impact on student achievement (Quint et al., 2008; Ronfeldt et al., 2015; West et al., 2016). These disappointing results may be because teachers often respond to data by re-grouping students, or by re-teaching in the same way they taught originally (Farrell & Marsh, 2016a), and without changing instruction, student outcomes are unlikely to improve.

This article studies a group of practitioners deeply engaged in supporting DBDM work, a team of Data Inquiry Facilitators (Inquiry Facilitators) who support teacher teams with a DBDM process. In this paper, I investigate what this team’s initial theory of action was for supporting teachers with DBDM, how the theory of action changed, and what kinds of coaching they ultimately found most important for their work. I find that while the Inquiry Facilitators originally expected to support teams with collaboration and data use, they discovered that teams needed much more support in changing instruction than they had anticipated, which has implications for DBDM research and practice.
Literature Review

Large-scale research has not found DBDM to have a widespread, positive impact on student learning (Quint et al., 2008; Ronfeldt et al., 2015; West et al., 2016), but researchers have found numerous examples of individual teachers and teachers teams using data in collaborative inquiry cycles that do improve instruction and student outcomes (Carlson, Borman, & Robinson, 2011; DeLuca et al., 2015; Ebbeler, Poortman, Schildkamp, & Pieters, 2016; Ermeling, 2010; Gallimore, Ermeling, Saunders, & Goldenberg, 2009; Geel, Keuning, Visscher, & Fox, 2016; Keuning, Van Geel, & Visscher, 2017; Lai & McNaughton, 2016; McNaughton, Lai, & Hsiao, 2012; Poortman & Schildkamp, 2016; Timperley, 2009). The fact that some teacher teams are able to improve student outcomes using DBDM, while others are not, raises the question of what kind of training and support it would require to make more teacher teams successful with DBDM.

Recent studies have suggested that part of the reason that DBDM has not led to improved student outcomes on a large scale is that DBDM does not always lead to changes in teacher practice. While the logic behind DBDM is that if teachers have access to data, they will a) better understand their students’ misunderstandings, and then b) teach in a way that will address those misunderstandings, which will c) create opportunities for more student learning (Farrell & Marsh, 2016b; Marsh et al., 2015), it is common for teachers to engage in DBDM without actually changing their instruction (Datnow & Hubbard, 2015; Farrell & Marsh, 2016a; Jimerson & Wayman, 2015; Keuning et al., 2017; Marsh et al., 2015; Poortman et al., 2016; Van Gasse et al., 2016). Teachers often respond to standardized test data by re-grouping students or re-teaching content in the same way (Datnow & Hubbard, 2015; Farrell & Marsh, 2016a; Jimerson & Wayman, 2015; Marsh et al., 2015; Poortman et
al., 2016; Van Gasse et al., 2016), but without changing instruction, these responses are not likely to lead to major changes in student outcomes.

To interpret why DBDM processes have not led consistently to teachers’ improving instruction, I draw on sociocultural learning theory, in particular Vygotsky’s (1978) theory of the Zone of Proximal Development and scaffolding. The Zone of Proximal Development (ZPD) is the space between what a learner can do independently and what a learner can do with guidance from a mentor (Vygotsky, 1978). As a learner becomes able to do more and more independently, the ZPD shifts and the outer boundary of what the learner is able to do expands (Vygotsky, 1978). While learners are capable of building on their own prior knowledge and skills to learn independently, they learn more if they have a mentor who is able to guide them (Vygotsky, 1978). A mentor can gauge where a learner is with her learning and strategically structure a task or provide the information the learner needs to move to the next level; this process is called scaffolding (Vygotsky, 1978).

Recent research findings suggest not only that teachers need more scaffolding (Vygotsky, 1978) as they learn DBDM processes than the field had originally assumed, but also that teachers will need different kinds of scaffolding to use DBDM to make significant improvements in teaching practice. Over the past several years, practitioners have begun integrating different types of coaching into DBDM processes, and researchers have begun studying different kinds of supports for teachers that might make DBDM lead to improved instruction. Several studies have suggested that teachers would benefit from supports that are more varied than simply teaching teachers how to read score reports or follow the steps of a DBDM process (Gerzon, 2015; Jimerson & Wayman, 2015; M. K. Lai & McNaughton,
The field needs a better understanding of what types of support and scaffolding (Vygotsky, 1978) teachers need to use DBDM processes to improve instruction, and why. This study helps fill that gap by drawing on a case study of a district-level team of Inquiry Facilitators that is at the forefront of practice in supporting teachers in DBDM. The Inquiry Team was originally set up to be a data coaching team, exclusively. Over the course of their first two years working with schools, the types of support they provided shifted as they realized that they needed to integrate instructional coaching with data coaching in order for teams to use data to change instruction. Understanding how and why this team’s coaching evolved may help inform DBDM practice and research in the future.

**Research Questions**

This study aims to fill a gap in knowledge about how district data coaches support school-based educators. It is guided by the following research questions:

1) How did coaches initially conceptualize their role as facilitators of a DBDM process?

2) How did this role evolve over time? What prompted the changes? How did they reconceive their role?

The answer to these questions will provide insight into the day-to-day work of the data coach and the affordances and limitations of DBDM processes in general and the Data Wise Improvement Process (Boudett et al., 2013) in particular.

**Data and Methods**
This study examines the work of a team of Data Inquiry Facilitators (Inquiry Facilitators) in the Office of Data Inquiry in a large, urban district in the northeastern United States. The Office of Data Inquiry was created in 2013 to help schools use the wide range of data they were required to collect for state and local assessments as part of a coherent improvement process. Once the office was created, the team members decided to use the Data Wise Improvement Process (DWIP) (Boudett et al., 2013) to guide this work with teacher teams.

During the year of intensive data collection for this paper, the 2014-2015 academic year, the Inquiry Team was comprised of the Director of Data Inquiry and five Inquiry Facilitators. Every member of the office was a former teacher. For more demographic information on the Inquiry Team, please see Table 1. All names are pseudonyms. The office, which was in its second year of existence, supported 23 schools in the district. The two veteran Inquiry Facilitators on the team each worked with five schools, the three new team members supported four schools each, and the Director supported one school. Within each school, an Inquiry Facilitator worked directly with three teacher teams and the Instructional Leadership Team (ILT). The Inquiry Facilitator came to the school twice per month to attend team meetings, meet with each teacher team facilitator (TF) for a debriefing and planning meeting, and to meet with each principal or ILT leader to support planning for ILT meetings.

<table>
<thead>
<tr>
<th>Name</th>
<th>Gender</th>
<th>Teaching experience (years)</th>
<th>Role on team</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liz</td>
<td>F</td>
<td>4</td>
<td>Director</td>
</tr>
<tr>
<td>Phil</td>
<td>M</td>
<td>10</td>
<td>First year inquiry facilitator</td>
</tr>
</tbody>
</table>
Selena  F  3  First year inquiry facilitator
Jess    F  4  Second year inquiry facilitator
Rosie   F  2  Second year inquiry facilitator
Zachary M  5  First year inquiry facilitator

This article is part of a larger study, for which I spent the 2014-2015 academic year with this team of five Inquiry Facilitators and the Director of Data Inquiry, attending their meetings in central office and accompanying them on visits to schools. I conducted two semi-structured interviews (Seidman, 2013) with each team member, for a total of 12 interviews. In the interviews, I asked about Inquiry Facilitators’ work with teacher teams, with principals, and with one another as a district-level team, and the challenges and successes they had encountered in each aspect of their role. Over the course of nine months, I attended 19 of their two-hour Inquiry Team meetings, 24 school team meetings in schools, and six large-scale trainings for leaders of the Inquiry Network: team facilitators (TFs) and principals from all of the schools the Inquiry Facilitators served. For each meeting I attended, I took ethnographic field notes (Charmaz, 2006) and collected agendas, documents, and other artifacts from meetings, including photos of posters participants created. I also collected agendas from all of the Inquiry Team meetings over the course of the year, including those I did not attend.

To answer the first research question, “How did coaches initially conceptualize their role as facilitators of a DBDM process?” I first analyzed the description of the Inquiry Team in the Application for Data Inquiry Support they circulated to the district and compared it to what team members said in interviews. I then coded transcripts from the first round of interviews for instances where the Inquiry Facilitators defined or described their roles.
The second set of questions, “How did this role evolve over time? What prompted the changes? How did they reconceive their role?” arose because I realized during my data collection that the team members were providing extensive instructional support to schools, which was not in their job description, and I wanted to understand how and why their role evolved. In order to answer this set of questions, I categorized the types of coaching they were doing and coded interviews and observations of district team meetings and school team meetings with four types of coaching: 1) data coaching, 2) instructional coaching, 3) collaboration coaching, and 4) facilitation coaching. I coded interview transcripts and field notes from observations in school team meetings, Inquiry Team meetings, and network-wide professional development for instances where an Inquiry Facilitator either provided a type of coaching or talked about that type of coaching. A second coder coded 10% of my data with me to increase the reliability of the results.

After the second round of coding, I read through each code to summarize it and look for patterns. I tallied the frequency of each code and the frequency of each code over the course of the year. This step did not prove useful because I had a small sample of school visits and they only started halfway through the year, so I did not find a change in frequency of codes over time.

I then looked more closely at the Instructional Coaching code to try to understand why team members were providing instructional support to schools, and what made their mindset shift to see that as part of their role. I coded the data within the Instructional Coaching node using the code “mindset shift.” I defined a mindset shift as a time that a participant talked about how she used to think one way and now thinks another way.
Throughout this process, I wrote analytic memos (Miles & Huberman, 1994) to explore patterns and themes I saw emerging and to monitor my own subjectivity. I see my analysis of these data as an interpretive process much in the way that educators’ and district administrators’ use of data has been described as a sensemaking process (Coburn, 2005; Coburn & Turner, 2011; Honig & Coburn, 2008), and I recognize that my conclusions are informed by my experiences as a teacher and a member of the Data Wise Project team.

There are several limitations to consider. First, this is a small case study of only six Inquiry Facilitators, in a specific context, so results may not be generalizable to other contexts. Second, this study only takes the perspective of the Inquiry Team. While the team collected and analyzed evidence about the impact of its work on teaching practice, this study cannot claim to evaluate the efficacy of the teams’ interventions. Since teachers’ and students’ perspectives are not included, this study cannot argue that the instructional support that the Inquiry Team provided helped teachers teach better and students learn more. Data collection for this study took place mainly in the 2014-15 school year, though data about the team’s 2016 DWIP cycle (Boudett et al., 2013) are also included. Finally, since data were not collected during the first year of the Inquiry Team’s existence, much of the data about how the team originally conceived their role were reconstructed from memory in interviews during their second year.

Findings

Context: The Data Wise Improvement Process

The Inquiry Team coached teachers in the Data Wise Improvement Process (DWIP) (Boudett et al., 2013) (see Figure 1 for a visual), a step-by-step process organized into three
phases: Prepare, Inquire, and Act. In the Prepare phase, teacher teams organize for collaborative work by establishing effective meeting structures and establishing norms for their work. They then work together to build assessment literacy by studying the assessments used and skills tested in their contexts, as well as learning about the concepts of validity and reliability in making inferences from data. In the Inquire phase, teacher teams first look at a broad overview of data, then generate a priority question to guide future inquiry. Next, they dig into a variety of student-level data sources, from students’ essays, to test responses, to homework assignments and more, to come to a common understanding of a learner-centered problem, something that students are struggling with across all of the teachers’ classes. Teachers examine their own team’s teaching practice to better understand why students are struggling with the learner-centered problem, and then in the Act phase they develop an action plan to address the problem of practice. Teams choose a new instructional approach that they will implement, then create a plan to assess their progress, and finally act and assess.
Initial Understanding of Role: Data Use and Collaboration Coaches

In interviews during the winter of 2014-15, Inquiry Facilitators described their work as comprised of four main roles: 1) helping teams establish and maintain collaborative structures, 2) supporting teams with data use, 3) teaching teams the Data Wise Improvement Process (Boudett et al., 2013), and 4) preparing teacher Team Facilitators (TFs) to lead
collaborative inquiry independently. Their responses in interviews were consistent with how they described their role in the application for schools interested in receiving their support:

Each school will be assigned to work with a particular Inquiry Facilitator, who will provide the school with facilitation support, timely and useable data, and practical tools for identifying and addressing student learning challenges. Inquiry Facilitators are pivotal to the development of high-functioning inquiry teams that model and lead evidence-based school improvement. Inquiry Facilitators set clear expectations for collaboration, create structures for actionable feedback and honest reflection, provide intensive data support, and function as objective process observers who consolidate team thinking and synthesize adult learning. (Application for Inquiry Support, 2014)

In this section, I will summarize and provide examples of the four types of coaching the team initially expected to provide.

**Helping teams establish and maintain collaborative structures.** The Inquiry Facilitators’ goal was to teach their teacher teams to have meetings that met the standards of *Meeting Wise* (Boudett & City, 2014), a book by two of the *Data Wise* (Boudett et al., 2013) authors about how to make the most of collaborative time. The Inquiry Team invested a substantial amount of training time in teaching teams how to collaborate effectively. During the Team Facilitator Boot Camp at the beginning of the 2014-2015 academic year, 120 out of the 285 minutes allocated for content (not including opening, closing, and reflection activities), or 42% of the time, were devoted to teaching the TFs how to set norms with their team, establish work style preferences, and adopt *Meeting Wise* (Boudett & City, 2014b) processes. Members of the Inquiry Team explained to the TFs that they expected each team meeting to have an agenda, circulated in advance of the meeting, with clear, published objectives, notes taken by a team member, a designated time keeper, and time spent during the meeting identifying and committing to next steps and assessing what worked well and what did not during the meeting (Boudett & City, 2014b). Inquiry Facilitators worked with
TFs in individual meetings to improve the structures and processes on teacher teams throughout the year.

**Supporting teams with data use.** The Inquiry Facilitators’ job description, hiring process, and interview responses all affirmed that data coaching—helping teams organize, display, and use data responsibly—was an important part of the Inquiry Facilitator role. Inquiry Facilitators provided technical support to teams in how to display their data and how to use data responsibly. As an example of teaching teachers how to display their data, in a high school math team meeting on June 2, 2015, the teachers were talking before Phil arrived about how they would like to present their progress for the year to the rest of the inquiry network. When Phil arrived, he created a bar graph for the team and showed them how he did it, and one of the teachers, presumably surprised about how easy it was to do, said, “Oh my gosh! This will change everything!” Since the Inquiry Facilitators all brought data literacy and analysis skills to their roles, they were able to support teacher teams who were beginning to learn these concepts and skills. Selena described the importance of teaching responsible data use in an interview on February 17, 2015, when she said she saw part of her job as being a:

…data guru, like what is a valid inference you can make looking at this? What are good sources to look at given the questions we’re asking? Actually, you can’t say that about this data, and here’s why, and teaching people to stay low on ladders of inference before jumping to conclusions, so the data becomes a valuable tool, rather than an overwhelming, or misused source of just stuff.

Selena saw data coaching as a major part of her role, through which she could help teachers identify sources of data and make valid claims based on it.

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2 The ladder of inference is a concept created by organizational theorist Chris Argyris and popularized by Peter Senge (2012). The *Data Wise* authors encourage teams to look at data by starting low on the ladder of inference, with low-inference observations, and deliberately adding interpretation and drawing conclusions before jumping to action (Boudett, City, & Murnane, 2013).
Teaching teams the Data Wise Improvement Process. At the beginning of the year the Inquiry Facilitators taught teacher team members each step of DWIP (Boudett et al., 2013) and guided them through the process. The Inquiry Facilitators continued coaching teams in the process throughout the year, even as the TFs took on more and more responsibility for planning and facilitating meetings.

Another way the Inquiry Facilitators taught teams DWIP (Boudett et al., 2013) was through the large-scale professional development trainings they offered for all of the TFs and principals in the network. For example, during a professional development session on December 9, 2014, the Inquiry team led a training to address a challenge teams were having with Step 5, Examining Instruction: collecting the kinds of observational data that would lead to a high-quality problem of practice. By participating in this activity, TFs experienced a high-quality Step 5 meeting as learners, and then reflected on how they would lead others in a similar process.

Preparing teacher Team Facilitators (TFs) to lead collaborative inquiry independently. A major part of the Inquiry Facilitators’ role was to prepare TFs to lead the process without Inquiry Facilitator support. Through a gradual release of responsibility model (Pearson & Gallagher, 1983), Inquiry Facilitators scaffolded (Vygotsky, 1978) support for each team through three cycles in the year. During the first cycle, “I do,” the Inquiry Facilitator facilitated meetings and the TF participated and observed. In the second cycle, “We do,” the Inquiry Facilitator and TF co-facilitated. By the third cycle, “You do,” the TF took the lead on planning and facilitating meetings, and the Inquiry Facilitator observed, supported, planned, and reflected with the TF. Twice per month over the course of the year, the Inquiry Facilitator and TF would have a one-on-one meeting to debrief the
previous team meeting and plan the next meeting. They saw these individual meetings as a key element of preparing the TFs to assume independent leadership of their teams.

The Inquiry Team’s scaffolded model (Vygotsky, 1978) was designed for TFs to assume more and more ownership of their teams’ work and learning over the course of the year as the Inquiry Facilitators gradually released responsibility (Pearson & Gallagher, 1983). Inquiry Facilitators often referred to themselves as being the “balcony” vision holders, a reference to Heifetz and Laurie’s (1997) advice for leaders of adaptive work, that leaders need to be up on the balcony seeing broad trends and guiding large-scale, strategic change rather than down on the dance floor being batted around by day-to-day action. Their goal was for TFs to start sharing that balcony view so that they could be the ones on the balcony leading change when their time with their Inquiry Facilitator ended.

Selena shared in an interview the experience she had with one TF, Margot, as she worked to get her to assume ownership over her leadership role. At the beginning of the year, Selena said, Margot would not plan ahead for team meetings, and “People would show up, and their time would be wasted.” Selena worked with Margot to teach her the process of drafting an agenda and then transferred as much responsibility to Margot as she reasonably could. In Selena’s words:

I made it clear that moving forward, “Now, it’s your turn start drafting the agendas, and we’re going to then talk about them.” And she’s like “Okay. Got it.” And we have now a running agenda in Google Drive that everyone knows to log into automatically, and Margot is the one who starts drafting the agenda, a few days in advance, and we talk on the phone about it…And she is like, ‘Let’s keep this list of dates up here, so everyone has like an overview of where we’re going, and knows where we are,’ and she’s just thinking a lot more about the teams, and group learning, and taking actions to make sure that everyone has access to what they need to understand the big picture, and I am only the timekeeper in the meetings, since I don’t say anything anymore.
Over the course of the year, Margot learned not only how to create *Meeting Wise* (Boudett & City, 2014b) agendas, but also how to take ownership over her team’s learning. As the amount Margot was able to do increased, Selena adjusted her scaffolding in an attempt to keep Margot learning at her Zone of Proximal Development (Vygotsky, 1978).

During the third and final inquiry cycle of the year, when Inquiry Facilitators were expected to be “thought-partners” for TFs outside of meetings and attend, but not facilitate, two team meetings per month, they found subtle ways to help TFs. For example, in a meeting on February 4, 2015, a TF was facilitating and sitting next to her Inquiry Facilitator, Rosie. The meeting was supposed to start at 1:35, and at 1:37, the teachers were still chatting, and Rosie whispered to the TF, “You can interject whenever you want,” which prompted the TF to launch the meeting. Over the course of that meeting, Rosie and the TF whispered back and forth several times about how to adjust the time when one agenda item needed more time than anticipated.

A final way that Inquiry Facilitators provided leadership coaching for TFs was in the context of network-wide professional development. For example, during the Facilitator Boot Camp on September 15, 2014, there was a 20-minute session on Providing Effective Feedback and a 45-minute workshop on Practicing Facilitator Moves. These sessions gave the Inquiry Facilitators a chance to disseminate knowledge, advice, and expectations to all of the TFs at once.

The Inquiry Team’s original job description expected them to provide collaboration coaching, data coaching, process coaching, and leadership coaching as a teacher leader prepared to lead the work independently. The Inquiry Facilitators saw each of these types of support as necessary to teachers’ success with DBDM, but they realized that they were
not sufficient. The next section describes how and why they began providing instructional coaching in addition to the types of coaching they expected to provide.

**Evolving into Instructional Coaches**

Over the course of the team’s first two years in existence, the Inquiry Facilitators’ mindset about their role shifted. They began with the assumption that if they helped teams establish collaborative structures and learn DWIP (Boudett et al., 2013), then the teams would be able to use DWIP to improve their instruction. They realized over time that teams needed more support improving instruction than they had anticipated, partly because teachers were adopting the new Common Core State Standards (CCSS), and partly because the DWIP model required significant instructional support to lead to improvements in teaching practice.

As part of their original vision for their work, Inquiry Facilitators hoped to facilitate opportunities for teachers to improve their practice by learning from one another’s expertise. Selena articulated their vision for empowering teachers during a meeting on November 7, 2014:

> We’re sort of selling to teachers a different vision of themselves and their role. In the past, you’ve been focused on compliance, and control, maybe a culture of fear…now, in addition to what you do in the classroom, you’re also an expert among your peers, and you have expertise you can share with your colleagues, and that’s a different vision of yourself.

While Selena wanted teachers to feel that they and their colleagues would use the inquiry process not as an exercise in compliance but as an opportunity to learn from one another’s expertise, Phil said in the following meeting, on November 14, 2014, that he felt “a tension between empowering and pushing them forward.” He wanted teachers to feel ownership over the process, but he worried that they would not succeed in improving teaching and
learning without assertive leadership on his part. Liz acknowledged that there was a tension inherent in their role between being a “process coach” and a “content coach.” She said, “Our role tends to be more in the facilitating camp…but there are elements when someone needs to see it, and have that direct instruction, and modeling piece.” In other words, while the team’s goal should remain to facilitate ways for teachers to learn from one another, at times they needed to be more directive about what teachers needed to do to improve their teaching.

While the team’s vision of empowering teachers to learn from one another did not disappear, experience quickly taught them that it was more difficult to realize than they had expected. The Inquiry Team’s original assumption was that the skills and knowledge on a teacher team would be greater than the sum of its parts, and that teachers would share their strengths and bolster one another’s weaknesses as they identified the need for an adopted new instructional approaches. They realized, however, that if they did not help teams choose new instructional approaches to address the problems they found in their data, teams tended to default to re-teaching content or skills in the same way they had originally. If members of a teacher team did not have significant content knowledge or pedagogical content knowledge (Shulman, 1986) that was different from and complementary to their teammates’, they could not offer new instructional strategies to one another. As Zachary explained during an interview on March 13th, 2015:

If you have a team of three low performing teachers and they don’t know what they’re looking for, they’re looking at each other and they’re like – “I don’t know, everything seems great.” So you give them like a great protocol, still – “Really, everything was great.”

Zachary pointed out that even the best collaborative structures cannot help teachers improve their practice if everyone on a team is at the same, low level, because there is no new
knowledge to be gained in that closed system. A team like this needs some outside source of knowledge, someone who sees where their next level of practice is and can ask the right questions and provide the right information that will scaffold (Vygotsky, 1978) their discovery of new knowledge about practice.

During a critical conversation during a team meeting on November 7, 2015, the team members realized that the default of re-teaching was a common problem that they had been addressing it in different ways. Selena had worked with a team that wanted to solve their learner-centered problem by giving students 15-minute math exercises, which was a way for students to practice a skill and for teachers to assess their progress, but not a new instructional approach. Selena had intervened by asking the team to list the approaches they were currently using to teach the target skill and asking them what they would do differently to teach it. Rosie shared that she addressed the challenge of teachers not choosing a new instructional approach by sharing research articles with teacher teams that could help them address their problems of practice. Rosie said that if teachers did not have instructional resources at their disposal and were about to default to re-teaching, she would look for a research article on her own, or ask a district administrator who focused on instructional support. Zachary asked her why she did not offer an instructional strategy from her own experience rather than connecting teams to an outside resource, and she said, “I don’t personally feel qualified.” This was a revelation to Zachary, and during the reflection time at the end of the meeting, he wrote: “Rosie’s comment about the research blew my mind. I did everything opposite that she said. Her suggestion about giving research and not my own expertise. I appreciated that.” In other words, Zachary acknowledged that he had been handing teams instructional strategies from his own teaching experience but saw the wisdom
in Rosie’s practice of drawing in outside expertise from research or an instructional specialist. Liz, the team’s director, supported Rosie’s rationale and encouraged team members to connect teachers with instructional resources in the district rather than providing this type of instructional support on their own.

It was not in the Inquiry Facilitators’ job description to provide instructional coaching; in fact, it was not even a requirement for their job to have classroom teaching experience, though it was a preferred qualification and everyone who was hired for the position did have teaching experience. It is understandable, therefore, that Liz asked the Inquiry Facilitators to draw on district instructional resources as needed rather than relying on their personal knowledge and experience.

Despite these conversations about how it was preferable to connect teams with content area experts and research rather than providing content coaching themselves, out of perceived necessity, the Inquiry Facilitators did provide quite a bit of direct instructional coaching. This is partly because they were asked to provide this support and wanted to help as they could; for example, in September a principal asked Selena to give advice about a school-wide writing rubric. Another reason the Inquiry Facilitators provided instructional support is that the district was implementing the CCSS for the first time, and the Inquiry Facilitators felt that inquiry could not be effective if the teachers did not understand the standards they were supposed to be teaching. They provided professional development related to the CCSS at two of their four network-wide professional development sessions.

On September 30, 2014, the Inquiry Facilitators led a concurrent session on “Decomposing Standards,” during which participants could choose to attend a session on secondary math, elementary reading, or middle school writing standards. During the March 12, 2015
professional development session, Jess and a member of the district’s Office of Instructional Research and Design offered a workshop for secondary math teachers with the objective: “Understand PARCC\(^3\) Math Task Types in order to create rigorous and standard-aligned plans to assess progress.” Phil commented during a planning meeting that that session sounded so good that all of the participants might want to go to that instead of the other breakouts (February 13, 2015 Inquiry Facilitator Meeting). Selena added that teachers really needed this training because teachers “got scared when talking about PARCC.” In the February 20\(^{th}\) meeting, Liz gave feedback that Jess and her co-presenter should make sure to tie this session back to inquiry, and to frame the session about how the TFs could use this knowledge for leading inquiry rather than treating it as professional development for their teaching.

Considering that these network-wide sessions were ostensibly to build capacity for TFs and school leaders to lead DWIP (Boudett et al., 2013), it is noteworthy how much time the Inquiry Facilitators spent teaching CCSS. The Inquiry Facilitators did frame each of the sessions that dealt with CCSS in the context of DWIP (Boudett et al., 2013), and they asked participants to reflect on how they could use their new knowledge with their teams as they led DWIP. Nevertheless, the fact that they invested time in having TFs and principals discuss what individual standards required is strong evidence of the Inquiry Facilitators’ belief that teachers needed to be more literate in the standards engage in DWIP (Boudett et al., 2013) effectively.

In two cases, Inquiry Facilitators stepped even further outside of their job descriptions and offered direct math professional development to teachers. Jess, a former

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\(^3\) Partnership for Assessment of Readiness for College and Career (PARCC) is an assignment aligned with the Common Core State Standards.
middle school math teacher, provided math coaching for several teachers in schools she supported. Jess was careful to delineate this coaching as separate from her role as an Inquiry Facilitator, but she did it because she felt compelled to meet a need and help the teachers better serve their students. In the other case, Selena led professional development for a middle school math team twice per month instead of supporting them in DWIP (Boudett et al., 2013). This was because the school’s administrators were so concerned about the middle school math scores that they thought that emergency professional development had to take precedence over DWIP (Boudett et al., 2013).

Up to this point, the examples of the Inquiry Team providing instructional support to schools were individual cases of their trying to meet a perceived need; however, in the spring semester of 2015 and again in the spring semester of 2016, the team formally changed their practice to provide more direct instructional support to schools. These changes were the results of the two DWIP cycles (Boudett et al., 2013) they completed as an Inquiry Team.4

As a result of the Inquiry Team’s 2015 cycle on Instructional Leadership Teams (ILTs), the Inquiry Team became much more directive to ILTs in an attempt to influence instructional change in school buildings. The Inquiry Team worked together to compose a list of five core actions that ILTs could take to impact instruction in their schools. They asked principals and ILT facilitators to assess how often they were taking each action, and how effectively. They then worked with principals and ILT facilitators to prioritize one of the core actions for the rest of the year. The following year, they used the core actions as part of their training for ILTs so they could be clearer about their expectations for ILTs and

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4 For more information on the team’s own use of DWIP (Boudett et al., 2013) as a central office team, please see the third paper in this dissertation: Data Wise and Double-loop Learning: Using Data to Revise a Theory of Action on a District Team.
more targeted in their support. This DWIP cycle (Boudett et al., 2013) resulted in the first time the Inquiry Team officially changed their team policy to become more directly involved in supporting schools with instruction.

The Inquiry Team’s 2016 DWIP cycle (Boudett et al., 2013) was another major step toward the Inquiry Team’s directly supporting instruction in schools, this time by providing explicit guidance to teacher teams about how to change their instruction in the Act phase of DWIP. The Inquiry Team noticed in data they collected that teacher teams tended to focus on choosing an instructional strategy, but not on learning and using the strategy they had chosen. To address this problem, the Inquiry Team created step-by-step guidelines for teams to 1) learn about the new approach they had chosen, drawing on district resources; 2) build a shared understanding of the new approach by practicing and giving feedback to one another in a team meeting; 3) use the new approach in classrooms; and 4) assess the impact of the new approach. Realizing that these tasks would take more time than currently allotted to the Act phase of the process, they extended the timeline for completing a cycle for a group of pilot teams they thought could most benefit from additional time. Though the pacing calendar had been fixed for all teams up until this point, they decided to continue extending the Act phase for teams that needed it, which was a major change to their model. This DWIP cycle (Boudett et al., 2013) brought about a significant shift in the Inquiry Team’s practice, making them more involved in instructional change than ever before.

**Discussion, Implications, and Conclusion**

This district-level Inquiry Team reconceived their role as data and collaboration coaches as they became increasingly involved with instructional support, meeting a need they perceived on the teacher teams they were coaching. The team originally conceived their role
as supporting teams with collaborative structures, data, and the steps of the Data Wise Improvement Process (DWIP) (Boudett et al., 2013). They were hired for the roles based on their prior experience with data and work in urban systems, and neither teaching nor instructional coaching experience was a prerequisite for the job.

Over the course of their work in the district, the Inquiry Team realized that they needed to provide teams more instructional support than they had anticipated. While they were able to gradually release responsibility to teachers to facilitate the steps of DWIP (Boudett et al., 2013), they increased their own responsibility for providing instructional support for teachers. They observed that without instructional support, teacher teams were more likely to use DWIP to re-teach rather than teach differently and better than they had before. The Inquiry Team offered instructional support in several ways, from facilitating workshops on the CCSS during large-group professional development sessions, to directly coaching teachers in math, to coaching ILTs to lead instructional change in schools, to guiding teachers through the process of finding a new instructional approach to address their learner-centered problem, practicing that approach, and giving one another feedback on it.

The findings are consistent with recent findings in the literature about the potential for integrating instructional coaching with data coaching. Several studies have found that professional development in data use is more effective if it is tied closely to subject-matter professional development than if it stands alone (Gerzon, 2015; Jimerson & Wayman, 2015; Lai & McNaughton, 2016; Marsh et al., 2015, 2010). There is an emerging understanding in the field that a data use intervention can only go so far to improve student achievement in the absence of high-quality content professional development (Lai, Wilson, McNaughton, & Hsiao, 2014). For example, Marsh and colleagues (2015) found that in schools with data
coaches but not instructional coaches, teachers spent more time looking for trends in testing reports and less time talking about instruction. While some teachers at the schools with only data coaches did respond to their data by changing instruction (10%), at schools that had instructional coaches, more teachers (18%) responded to the data by teaching differently. It is important to note that even though teachers who had instructional coaching changed instruction more frequently than those who did not, 82% of teachers still did not change instruction even with coaching, which underscores how difficult it is for teachers to change instruction. The findings in the current study extend prior research suggesting that integrating data coaching with instructional coaching could be a key factor in whether or not a DBDM process leads to instructional change.

The existing literature has identified the need to integrate instructional support with data coaching (Gerzon, 2015; Jimerson & Wayman, 2015; Lai & McNaughton, 2016; Marsh et al., 2015, 2010); this study extends prior research by providing the first in-depth case study of a district-based team trying to do just that. Embedded in the district context, the Inquiry Team adapted and adjusted its work to meet teachers’ needs as teachers grappled with a new curriculum and balanced their improvement work with the ongoing demands of their job. This study shows how much support it could take for teachers to use a DBDM process to make meaningful changes to instruction, and how responsive, flexible, and intensive that support needs to be.

This study has implications for districts supporting DBDM, for the field of professional development in education, and for research. For districts currently using a DBDM process or considering adopting one, these findings suggest that teachers will need substantial support in order to change their instruction in the context of a DBDM process.
This is not surprising, given that educational research has consistently found that it is unusual for professional development to lead to substantial changes to teachers’ practice (e.g., Cohen, 1990). While teams who have learned a DBDM process should be prepared to facilitate the steps of the process on their own after doing so with support, with each new inquiry cycle they will likely benefit from continuing to consult with a content expert to help them identify and adopt new instructional approaches to address the issues they uncover in their data. Though some teacher teams may include content and pedagogy experts, who could teach their colleagues such new approaches, many teams may have teachers with similar knowledge and skills and need an outside perspective to show them what they do not know. Similarly, while some teachers may be prepared to review educational research to identify and integrate high-leverage and targeted new instructional approaches, and all teachers could be taught to do so, until all teachers are fluent in translating educational research to practice, many teachers would benefit from scaffolding from a coach who is familiar with the latest research and could help identify an approach at teachers’ Zone of Proximal Development (Vygotsky, 1978). Therefore, districts should be prepared to provide integrate instructional coaching with data coaching to support teachers in DBDM processes. The support teachers need will depend on the level of pedagogical and content knowledge of the teachers, so coaches need to be prepared to scaffold (Vygotsky, 1978) not only their support for teachers learning the steps of the process, but also their pedagogical and content support for teachers depending on their level of skill and knowledge.

For the field, this study raises questions about how best to integrate DBDM into in-service professional development in general. If a DBDM process can encourage teachers to see for themselves how filling gaps in their own content knowledge and pedagogical content
knowledge could help student learning, coaches trained in both instruction and DBDM could help them find and implement instructional strategies to help fill those gaps. Perhaps, as Marsh and colleagues (2015) have suggested, an instructional coach, rather than a data coach, is in a better position to support DBDM processes on teacher teams. Training instructional coaches in DBDM could be an efficient way for districts to build on their existing human capital, because it requires less additional training to prepare instructional coaches to coach DBDM than vice versa. Recent literature on instructional coaching has highlighted the importance of coaches’ expertise in the content area of the teachers they are coaching (Desimone & Pak, 2017; Huguet, Marsh, & Farrell, 2014), so hiring and training high-quality instructional coaches could be a key part in a district’s strategy to support DBDM.

For research, this paper helps explain the mixed results of DBDM that researchers have found, and why data use processes may result in regrouping or re-teaching rather than changes in instruction (Datnow & Hubbard, 2015; Farrell & Marsh, 2016b; Jimerson & Wayman, 2015; Marsh et al., 2015). DWIP (Boudett et al., 2013) and other DBDM processes are not silver bullet solutions for education reform. Part of the promise of DBDM processes is that they create structures for teachers to learn on their own from their data and to learn from one another, but that potential for self-directed learning is likely not to be realized without scaffolded (Vygotsky, 1978) support both in a DBDM process and in the content the teachers are teaching.

Future researchers may wish to consider if there exists a minimum threshold of knowledge about standards and curriculum that must be present on a teacher team in order for DBDM to be effective, even with instructional support. It may be the case that DBDM
is not an effective intervention in a situation where doing DBDM precludes inexperienced teachers from receiving the basic training they need to teach their students.

Future researchers could also explore whether teachers will always need coaching for a DBDM process to be as effective as possible to improve instruction. The Inquiry Team’s experience in their district suggests that through a scaffolded (Vygotsky, 1978) gradual release of responsibility model (Pearson & Gallagher, 1983), teachers can learn a DBDM process well enough in order not to need additional coaching on the process itself. However, improving instruction is a much less straightforward endeavor, one that is never finished. Even though teachers can certainly learn from one another and through professional resources such as books and articles, they may learn more with the support of a highly-qualified instructional coach. While it would certainly be expensive for districts to train and support enough instructional coaches to work intensively and consistently with every teacher team, it is wasteful to spend money on professional development for DBDM processes if they are not going to be effective in changing instruction.

The theory that educators can use student data to improve their practice is intuitively appealing, and successful examples of DBDM are encouraging. This paper adds to recent research suggesting that teachers may need much more support with DBDM than originally expected and offers the example of a district-based team adapting their model to support the needs of the educators they are serving. If data coaching and instructional coaching can be integrated successfully to support teachers in using DBDM to improve their practice, students might benefit from districts’ investing even more in coaching.
Paper Three: Data Wise and Double-loop Learning: Using Data to Revise a Theory of Action on a District Team

While there is a sizeable and growing literature on data-based decision making (DBDM) at the school level (e.g., Datnow & Hubbard, 2015; Ebbeler, Poortman, Schilkamp, & Pieters, 2016; Farrell & Marsh, 2016a, 2016b; Hoogland et al., 2016; Horn, Kane, & Wilson, 2015; Jennings, 2012), less attention has been paid to data use at the district level (exceptions include Anderson, Leithwood, & Strauss, 2010; Coburn, Touré, & Yamashita, 2009; Honig, 2008; Honig & Coburn, 2008; Honig & Venkateswaran, 2012). It is crucial for the field to understand data use at the district level for two reasons. First, districts are required to use data to make major decisions that impact teachers and students, such as creating evidence-based improvement plans for low-performing schools (ESSA, 2015). Research has shown that decisions made with data at the central office level can impact student learning at the classroom level (Farrell, 2014; Seager et al., 2015), so it is important to understand how these decisions are made and how they can be most beneficial to teachers and students. Second, districts play a central role in shaping how data are used in schools by setting expectations and supporting schools in using data (Anderson et al., 2010; Coburn et al., 2009; Park, Daly, & Guerra, 2013), and recent research has shown that schools can use support in this area (Marsh et al., 2010).

Existing literature on DBDM at the district level has found that despite the intuitive appeal, potential, and prevalence of using data to inform decisions in the central office, district-level DBDM is often unsystematic or highly influenced by political forces, and that it therefore does not tend to lead to major improvements in practice (Coburn et al., 2009; Honig, Venkateswaran, McNeil, & Twitchell, 2014). In contrast to those findings, I present a study of a central office team that uses a DBDM process to engage in double-loop learning.
(Argyris & Schön, 1998) and make a substantial change in its theory of action (Argyris & Schön, 1992). I argue that these team members were able to do so because they embraced the Data Wise habits of mind—shared commitment to action, assessment and adjustment; intentional collaboration; and a relentless focus on evidence (Boudett et al., 2013). Their double-loop learning (Argyris & Schön, 1998) was also enabled by their expertise with the Data Wise Improvement Process (Boudett et al., 2013), the leadership on their team, their position as a largely autonomous team within the district, and the amount of time that they spent on the process.

**Literature Review**

Compared to the robust literature on DBDM in schools (e.g., Datnow & Hubbard, 2015; Ebbeler et al., 2016; Farrell & Marsh, 2016b, 2016a; Hoogland et al., 2016; Horn et al., 2015; Jennnings, 2012), the literature on DBDM in central offices is less developed. The literature most relevant to DBDM in districts can be categorized into three strands: 1) theory about data use in general, 2) research on how districts impact schools’ data use, and to a lesser extent, how schools’ data use impacts districts, and 3) research on district administrators’ own use of data. Theories about data use in general, in particular theories of sensemaking (Coburn et al., 2009; Coburn & Turner, 2011; Honig & Coburn, 2008) and organizational routines (Feldman & Pentland, 2003; Levitt & March, 1988; Spillane, 2012), provide lenses through which to interpret data use on this district team. Research on districts’ impact on schools’ data use shows that districts have the potential to influence data use in schools, which is what this team was trying to do, but that it is difficult to do so (Honig & Venkateswaran, 2012; Park et al., 2013). Similarly, research on district administrators’ own use of data shows that much like data use in schools, district data use is
a complicated sensemaking process that depends on the organizational routines in which it is embedded (Farrell, 2014; Honig & Venkateswaran, 2012; Seager et al., 2015). Taken together, these three strands suggest that the team that is the focus of this study had a difficult task in front of them to try to influence data use in schools to improve instruction in their district. While their own data use as a central office team had the potential to help them learn to do their jobs better, it was not a foregone conclusion that their own data use would help them improve.

**Theory of Data Use**

**Sensemaking.** Starting with theory on data use in general, prior research has found that data use is not straightforward; in contrast, it is a complex, interpretive process that can be understood as sensemaking (Coburn et al., 2009; Coburn & Turner, 2011; Honig & Coburn, 2008). Individuals’ worldviews often play a role in how they make sense of data, as do the social relationships within a group (Coburn et al., 2009). Sensemaking theory and research teach us not to expect data use to be an objective process; rather, we should assume that during DBDM processes, many factors other than the data themselves will influence discussions and decisions.

**Organizational routines.** Scholars have also theorized data use as something that occurs within, and sometimes forms the basis of, new organizational routines (Feldman & Pentland, 2003). Since organizational routines contain encoded lessons from an organization’s history (Levitt & March, 1988), organizational routines have the potential to enable sustained, organizational change (Spillane, 2012). Studying data use within organizational routines, therefore, could help the field better understand how data use could help organizational learning occur.
Part of the literature on data use and organizational routines deals with the discussion protocols that often structure conversations about data. A small body of literature has shown that protocols can help focus conversations but sometimes impede the creativity that can come about in more freeform discussions (Lasky, Schaffer, & Hopkins, 2009; Little & Curry, 2009; Little, Gearhart, Curry, & Kafka, 2003; see also the first paper in this dissertation, Protocols and People: The Role of Personal and Professional Identities in Protocol-Driven Processes).

When analyzing an organizational routine such as meetings about data, it is important to understand both the ostentive and performative aspects (Spillane, 2012) of the routine. The ostentive aspect is the stated purpose of the routine; the performative is what actually happens while the routine takes place (Spillane, 2012). For example, the Every Student Succeeds Act (ESSA, 2015) requires districts to examine resource distribution between their schools and correct inequities. A monthly district meeting could have the ostentive purpose to determine where inequities lie and decide how to correct them. The performative aspect would include how discussion protocols are used to structure a discussion, how participants define “inequity,” and how they operationalize a plan to remediate the inequity. Better understanding the interaction between the performative and ostentive aspects of data use organizational routines may help the field better understand how data use may foster organizational learning.

**The impact of districts’ data use on schools**

A second strand of literature looks at how districts impact schools’ data use (Honig & Venkateswaran, 2012). Prior research has shown that data use is a system-wide phenomenon, taking place at all levels of the organization and depending on the interaction
of different levels of the organizations (Honig & Venkateswaran, 2012). District administrators can be instrumental in creating a culture where data use is seen as safe and non-threatening (Park et al., 2013). Central office administrators’ own use of data, and the conditions they set for data use in schools, can impact student outcomes in a district (Farrell, 2014; Seager et al., 2015), though even with district support, data use interventions do not necessarily have a measurable impact on student learning (Anderson et al., 2010). This may be because district staff members are not yet realizing their potential to make a positive impact on teaching and learning in the district (Cho & Wayman, 2014). More research is needed, therefore, on how district central offices could build their capacity to foster data-based improvement in schools.

**Data use in the central office**

The body of literature on how districts themselves use data is small and less than encouraging. Honig and colleagues (2010) found that district administrators’ evidence use can be part of a district transformation to better support for teaching and learning, but for district staff to engage with evidence in a meaningful way that leads to improvement requires time and support that districts are not generally set up to provide (Honig et al., 2014). Absent such time and support, data-based decisions at the district level are often driven by political pressures, or based on existing beliefs, then backed up by selective use of data, retroactively (Coburn et al., 2009; Honig et al., 2014). Much as teachers’ use of data is influenced by teachers’ prior experiences and interpersonal dynamics on their teams, district leaders’ sensemaking about data is a complex, interpretive process (Coburn et al., 2009; Honig & Coburn, 2008). For example, Coburn and colleagues (2009) studied decisions related to instruction over three years in an urban, midsized school district. They analyzed
23 decisions, inquiring how district staff members invoked diagnostic and prognostic frames to advocate for decisions, how evidence related to the decisions, and what other factors influenced decision-making processes. They found that decisions were influenced by a myriad of factors, from the organizational structure of the district, to decision-makers’ instructional knowledge or lack thereof, to political forces in the district.

Rarely found in the literature is an in-depth, holistic account of what it looks like when a district team is able to use evidence to improve its practice in a meaningful way, and a theory of what it takes for that to be possible. This paper will draw on a case study of a district team of Data Inquiry Facilitators (Inquiry Facilitators) that coach school-based teams in the Data Wise Improvement Process (DWIP) (Boudett et al., 2013) and used DWIP themselves to interrogate and revise a major part of their team’s theory of action. I will draw on theories of double-loop learning (Argyris & Schön, 1992a) and the subject-object transition (Kegan & Lahey, 2010) to interpret this team’s learning.

Conceptual Framework

Although there is little literature on district teams using data successfully, the theory of single- and double-loop learning from organizational learning literature (Argyris & Schön, 1992a, 1998) offers a helpful perspective on what productive data use at the district level could look like. Most organizations engage in single-loop learning, which occurs when actors in an organization make changes to impact outcomes using tools that they have available and within the organization’s prevailing theory of action (Argyris & Schön, 1992a). For example, if a manager notices that sales have declined in her department, then uses data to try to understand the shortfall and tell employees how to address it, single-loop learning has occurred (Argyris & Schön, 1998). Single-loop learning can help organizations adjust
course and improve performance. Single-loop learning, however, does not question major assumptions about how the organization operates, and in single-loop learning, changes made as a result of learning protect managers’ egos (Argyris & Schön, 1992a).

In contrast, double-loop learning occurs when organizations question their assumptions about how they work and leave themselves open to making real structural changes in the parameters of their work (Argyris & Schön, 1992a). Unlike single-loop learning, where leaders take over-responsibility for actions and followers under-responsibility, in double-loop learning, people at all levels of the organization contribute meaningfully (Argyris, 2004).

In order to change within a complex system, learners must participate in a second cycle of learning that engages with the first cycle and challenges its underlying assumptions (Senge, 2012). An element of surprise is critical to double-loop learning, and double-loop learning is enabled by an open culture where people show vulnerability and one person’s win is not another person’s loss (Argyris & Schön, 1998). Single-loop learning is reflection; double-loop learning is meta-reflection (Senge, 2012), resulting in a change of an organization’s values and norms (Argyris & Schön, 1998). While single-loop learning is valuable for individual learning, large-scale organizational learning within a complex system requires double-loop learning (Senge, 2012).

Part of what enables double-loop learning is being able to identify the structures and values that guide an organization’s work in order to be able to question and change them. Psychologists Kegan and Lahey (2010)’s concept of the subject-object shift offers a helpful framework to consider the type of thinking that could enable double-loop learning. The subject-object shift occurs when one is able to hold as object assumptions to which one has
previously been subject (Kegan & Lahey, 2010). This is not an easy process because assumptions, by definition, are what people believe to be true (Kegan & Lahey, 2009). In order to engage in double-loop learning, members of an organization have to be able to identify their current theory of action (Argyris & Schön, 1992) and hold it as object in order to test the assumptions underpinning it. A theory of action is a theory of how an organization’s actions will lead to the results they are hoping to achieve (Argyris & Schön, 1992).

The theories of double-loop learning (Argyris & Schön, 1998) and the subject-object shift (Kegan & Lahey, 2010) have been applied to educational scholarship in the past (Drago-Severson, 2012; Helsing & Howell, 2014; Helsing, Howell, Kegan, & Lahey, 2008; Markus, 2016; Senge, 2012; Spanneut, 2011), but to my knowledge, they have not yet been applied to DBDM or DBDM at the district level. In this paper, I use these concepts as lenses to analyze a district team’s work in hopes of providing a useful example and emergent theory of district-level DBDM for practitioners and researchers alike.

**Research questions**

The following questions guide this study:

1) How, if at all, did this team engage in organizational learning, particularly double-loop learning?

2) What factors supported the team’s organizational learning?

**Data and Methods**

This article is part of a larger case study (Yin, 2014) of a district-level team of Data Inquiry Facilitators (Inquiry Facilitators) in a large, northeastern district. Housed within the district’s Office of Data and Accountability, the Inquiry Facilitators and their director
support school teams in integrating the Data Wise Improvement Process (Boudett et al., 2013). The Data Wise Improvement Process (DWIP) is a step-by-step process to guide educators as they use a wide range of data to identify and target a problem of practice and improve student learning (Boudett et al., 2013). See Figure 1 for an overview of DWIP (Boudett et al., 2013).

During the primary data collection period, September 2014 through July 2015\(^5\), the Inquiry Team was comprised of six members, all former teachers: two veteran Inquiry Facilitators, three new Inquiry Facilitators, and the director. The team was in its second year of existence and supporting 23 schools in the district. The two returning Inquiry Facilitators each supported five schools, the novices four, and the director one. The principal of each school chose three teacher teams to receive coaching from the school’s designated Inquiry Facilitator during the Inquiry Facilitator’s twice-monthly visits to the school. As part of the application to receive Inquiry Facilitator support, each principal agreed to meet with his or her school’s Inquiry Facilitator every visit.

Inquiry Facilitators worked with principals and Instructional Leadership Team (ILT) facilitators, who were sometimes the same person, to support schools’ ILTs. Even though Inquiry Facilitators only coached three teacher teams per school, they worked with all of team facilitators (TFs) in the school building, including those who led teams they did not coach, because the TF of every team in the school was a member of the ILT. Inquiry Facilitator hoped that by working with ILTs, they would help spread DWIP (Boudett et al., 2013) throughout the school.

The Inquiry Facilitator team spent Monday through Thursday supporting schools, and Friday in the district office together, when they started the day with a two-hour team meeting. The Inquiry Team engaged in its own Data Wise Improvement Process (DWIP) (Boudett et al., 2013) cycles in 2015 and in 2016. The Inquiry Team decided to complete its own DWIP (Boudett et al., 2013) cycles for two reasons: Inquiry Team members wanted to use data to improve their own practice, and they thought it would be helpful for them to

\(^5\) Data was also included from the 2015-2016 school year, though I did not observe or interview members of the team that year.
participate in the process that they coached to understand DWIP from a participant’s perspective.

Data collection for the larger study spanned the 11 months between September 2014 and July 2015. Over the course of the 2014-15 academic year, I interviewed every member of the Inquiry Facilitator team twice, for a total of 12 interviews. The semi-structured interviews (Seidman, 2013) focused on the Inquiry Facilitators’ challenges and successes in working with schools and their experiences as members of a district level team. I attended 17, two-hour team meetings and took detailed field notes on each meeting. I was able to audio-record 10 of the meetings I attended and had access to the meeting agendas, notes, and other documents related to the meeting for every meeting the team had during the 2014-15 academic year, including those I did not attend. I also shadowed three of the Inquiry Facilitators as they worked in schools and observed a total of 21 teacher team meetings in schools. Though the school observations are not included in the subset of data I analyze in this paper, the experience of observing the Inquiry Facilitators’ work in schools provided invaluable context to this study of their work in the central office.

I used a grounded theory approach to analyze the data (Charmaz, 2006). To first get a sense of the data set, I read and recorded the objectives of the 23 meetings that took place during my data collection period, including those I had to miss. For each meeting, I transcribed the objectives and re-read the meeting agenda, meeting notes, and in the case of the 17 meetings I attended, my field observation notes. I transcribed a sample of meetings and used line-by-line coding to study the data closely (Charmaz, 2006). My initial data analysis benefited from the input of other researchers at two junctures: I shared an initial sample of 10 meetings’ objectives and activities with a research group to get the group’s
impression of what was most interesting and surprising about the data. With one other researcher, I shared the complete set of 23 meetings and got feedback about additional questions to ask of the data.

I next looked for and recorded patterns across the meetings as I began to identify themes and develop my theory about what the data were showing (Charmaz, 2006). I used agendas, meeting materials, and interviews relevant to their DWIP to look for examples of how they used the process to revise their theory of action. I listened to audio and selectively transcribed episodes where major decisions were made.

To explore what enabled the team to use DWIP (Boudett et al., 2013) to revise its theory of action, I relied on my interview data, in particular answers to questions about what enabled and constrained the team’s learning. I also analyzed the episodes I identified for the first research question and considered what factors seemed to play a large role in their learning. This is a small data set about the work of one team, so generalizability is necessarily limited. Also, I am not able to evaluate the causal impact of their learning, and I cannot claim to present a definitive list of factors that enabled their organizational learning. I am choosing to explore factors that appeared most pertinent to me in this data set, in hopes of contributing exploratory findings that may help guide future research.

Findings

In this section, I will briefly describe the team’s original theory of action (Argyris & Schön, 1974) and then explain how they used their Data Wise Improvement Process (DWIP) cycles in 2015 and 2016 to change their theory of action. I argue that these DWIP cycles (Boudett et al., 2013) resulted in double-loop learning for the team, and I discuss the factors that my data suggest contributed to their ability to engage in double-loop learning. It
is important to note that while DWIP (Boudett et al., 2013) as a process is designed to lead to double-loop learning, teams often do not achieve double-loop learning through the process. The second paper in this dissertation serves as an example of how difficult it is for many teams to use DWIP (Boudett et al., 2013) to make meaningful changes to practice.

The Inquiry Team’s theory of action (Argyris & Schön, 1974) was, “If inquiry facilitators maintain a focus on results; model principles of responsible data use; create conditions for team learning; provide effective feedback; and facilitate with purpose, so that school teams can plan from standards and foster effective collaboration; inquire and use evidence to adjust practice, and take action and build a culture of achievement, then students will be able to achieve the targeted student learning goals set by school teams.”

Before considering the inquiry cycles the Inquiry Team completed in 2015 and 2016, it is important to note that the language of the Data Wise improvement Process (Boudett et al., 2013) assumes that teams using the process will be directly supporting students and therefore looking at student data. This team, however, did not directly teach students, so they used DWIP (Boudett et al., 2013) to improve their support for teachers and administrators. Therefore, for the purpose of the Inquiry Team’s DWIP cycles (Boudett et al., 2013), their “learners” were not students, but rather teachers and administrators. In the 2015 cycle, the team’s “learners” were Instructional Leadership Teams (ILTs), and in the 2016 cycle, they chose “teacher teams” as their learners.

**2015 DWIP Cycle**

In 2015, the team’s director, Liz (all names are pseudonyms), chose Instructional Leadership Teams (ILTs) as the focus area, as well as the “learners,” for the 2015 DWIP cycle (Boudett et al., 2013). The Inquiry Team’s original theory of action for their work in
the district assumed that even though inquiry facilitators would only directly coach three grade-level or content teams in each school, since they coached ILTs, they could impact instruction throughout schools. They believed that coaching ILTs would benefit instruction in two ways. First, they thought that if they supported ILTs, professional development opportunities would improve schoolwide, and improved instruction would follow. Second, the Inquiry Facilitators thought that since all of the team facilitators in the building were on the ILT, even those who were not receiving direct coaching would be exposed to Data Wise (Boudett et al., 2013) processes and habits. They assumed that team facilitators would use the processes and habits they learned in ILT to spread an inquiry mindset and Data Wise (Boudett et al., 2013) practices to their teams, and that instruction would improve as a result.

Over the course of the Inquire phase of their DWIP (Boudett et al., 2013) cycle, however, the Inquiry Team learned that its theory of action about ILTs was not working as expected. ILTs were talking about student data, but not using data to make instructional decisions; therefore, ILTs were not having the impact that the Inquiry Team hoped they would have on instruction in school buildings. The Inquiry Team realized that they were contributing to the problem by not giving enough guidance to ILTs to make instructional decisions. They agreed on the following problem of practice to address in the Act phase: “As an inquiry team, we do not have a clear and shared understanding of what instructional decisions the ILT could or should make.”

As the Inquiry Team moved into the Act phase of DWIP (Boudett et al., 2013), they designed and tested a framework of five “core actions” that ILTs could take to impact instruction: 1) planning professional development; 2) calibrating schoolwide implementation of Common Core State Standards; 3) observing instruction; 4) supporting Common
Planning Time teams; and 4) building a schoolwide vision of effective instruction. The Inquiry Team then worked with ILT facilitators to assess how often ILTs were engaging in these actions and to choose one core action to focus on for the rest of the year. For a list of terms and definitions, see Table 1, and for a summary of their 2015 DWIP cycle, see Table 2. When they assessed their progress at the end of the cycle, they found that ILTs were using their meeting time to make instructional decisions more often than they had before.

The DWIP cycle (Boudett et al., 2013) resulted in double-loop learning because it required the Inquiry Team to revamp its theory of action about the parameters of its work, which is one of the qualities of double-loop learning (Argyris & Schön, 1998). Second, double-loop learning involves a change of values and norms of work (Argyris & Schön, 1998). The Inquiry Team originally believed that if the team helped ILTs create collaborative structures and learn DWIP (Boudett et al., 2013), then teachers would learn from their data and from one another and teaching and learning would improve. While they did not abandon their value of educators’ learning from one another, they had to reconcile that value with their value of improving learning opportunities for students. They expanded the parameters of their own role with ILTs because they realized that if they did not, they would not make the impact they desired on student learning.6

6 In the second article in this dissertation, Why Data is Not Enough: The Need for Instructional Support on Teacher Data Teams, I look more closely at what they learned through DWIP; this article focuses on how they learned.
Table 1

<table>
<thead>
<tr>
<th>Terms and Definitions</th>
<th>Description</th>
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<tbody>
<tr>
<td>Inquiry Team</td>
<td>Housed in the district’s Office of Data and Accountability, this team of 5 Inquiry Facilitators and the Director of Data Inquiry supported 23 schools in the district with the Data Wise Improvement Process (DWIP) (Boudett et al., 2013).</td>
</tr>
<tr>
<td>Inquiry Facilitator</td>
<td>A member of the Data Inquiry Team who supported either 4 or 5 schools with DWIP.</td>
</tr>
<tr>
<td>Teacher Team</td>
<td>Every teacher was a member of a teacher team that taught the same content or grade level. In each school that the Inquiry Facilitators supported, three teacher teams received direct support from Inquiry Facilitators.</td>
</tr>
<tr>
<td>Team Facilitator</td>
<td>A teacher leader responsible for facilitating team meetings. Three team facilitators received direct coaching from an Inquiry Facilitator. Team facilitators who did not receive direct coaching worked with their building’s Inquiry Facilitator as members of the Instructional Leadership Team.</td>
</tr>
<tr>
<td>Instructional Leadership Team (ILT)</td>
<td>A team of teachers and administrators charged with leading instructional change in a school. Every team facilitator was a member of the ILT.</td>
</tr>
<tr>
<td>Step</td>
<td>Purpose of this Step</td>
</tr>
<tr>
<td>------</td>
<td>---------------------</td>
</tr>
<tr>
<td>1. Organize for collaborative work.</td>
<td>Establish structures and teams.</td>
</tr>
<tr>
<td>2. Build assessment literacy.</td>
<td>Increase comfort with data.</td>
</tr>
<tr>
<td>3. Create data overview.</td>
<td>Identify a priority question.</td>
</tr>
<tr>
<td>4. Dig into student data.</td>
<td>Identify a learner-centered problem.</td>
</tr>
<tr>
<td>5. Examine instruction.</td>
<td>Identify a problem of practice.</td>
</tr>
<tr>
<td>6. Develop action plan.</td>
<td>Create an action plan.</td>
</tr>
<tr>
<td>8. Act and assess.</td>
<td>Document improvements in practice and adjust as needed.</td>
</tr>
</tbody>
</table>
2016 DWIP Cycle

The focus area for the Inquiry Team’s 2016 journey was “new instructional strategies,” and the designated “learners” were teacher teams. During the Inquire phase of the process, as the Inquiry Facilitators gathered, displayed, and analyzed data about how teacher teams chose and integrated new instructional strategies, they noticed that teacher teams spent much more time analyzing data about the impact of their current teaching than learning about new approaches to teaching. This realization was notable to the Inquiry Team because a major part of their team’s theory of action was that if teachers used evidence to adjust practice, then teaching and student learning would improve. However, if teacher teams were not learning about new approaches to teaching, they were likely not making meaningful adjustments to practice. Inferring that their theory of action was not working as expected, the Inquiry Team decided to investigate the priority question: “How do teams learn, throughout the entire cycle, about the new [instructional] strategy they select?” As they delved further into data, they noticed that teachers tended to focus on finding new approaches, but did not allocate sufficient time and structure for learning and doing the new approaches. They also noticed that teams tended to choose new instructional approaches that were not truly beyond their current repertoire, perhaps, again, because they did not have sufficient time or support for finding and integrating new practices. The Inquiry Team agreed on the learner-centered problem: “Teams do not execute all critical components for adjusting practice: learning about the [new instructional approach], building shared understanding of the [new instructional approach], and implementing the [new instructional approach]. As the Inquiry Facilitators examined their own practice to come to a shared understanding of how they were contributing to the learner-centered problem, they noticed that they did not offer
clear guidance to teams about how to choose, learn, and integrate new instructional strategies into their practice. They agreed on the problem of practice: “As inquiry facilitators, we do not coach teams to build shared understanding of what more effective practice could look like.”

Armed with this problem of practice, they moved on to the Act phase of DWIP (Boudett et al., 2013). They decided to address their problem of practice by revising their pacing calendar for teacher teams to give them more time to effectively implement new instructional approaches. When the Inquiry Team began their work in the district, Liz believed that teams needed to move through cycles quickly in order to “fail fast,” learn from early mistakes, and improve in later cycles. Therefore, revising the pacing calendar reflects a major change in their theory of action. In order to ensure that the teachers had the support they needed to use the additional time productively, they created resources for teachers to use as they researched, studied, practiced, and implemented new instructional approaches. They decided that they would measure the effectiveness of their action plan in three phases: short-term, medium term, and long-term. In the short-term, they would analyze audio recordings and transcripts of team meetings. In the medium-term, they would track and analyze how teacher teams spend their meeting time, and in the long-term, they would survey team facilitators, looking for qualitative narratives on impact of intervention on teacher team learning. Early data suggested that their teams were spending more time on the Act phase of the process and choosing and integrating instructional approaches that were substantively different from their current practice. Please see Table 3 for a summary of their cycle.
Table 3

*Summary of the Inquiry Team’s 2016 Data Wise Improvement Process*

<table>
<thead>
<tr>
<th>Step</th>
<th>Purpose of this Step</th>
<th>Summary of This Step on the Inquiry Team</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Organize for collaborative work.</td>
<td>Establish structures and teams.</td>
<td>Teaching new members team processes and how to facilitate team meetings, embedding team-building activities into meetings</td>
</tr>
<tr>
<td>2. Build assessment literacy.</td>
<td>Increase comfort with data.</td>
<td>Shared 2015 inquiry journey with members, examined data sources that had been used to measure the team’s progress in the past</td>
</tr>
<tr>
<td>3. Create data overview.</td>
<td>Identify a priority question.</td>
<td>“How do teams learn, throughout the cycle, about the new strategy that they select?”</td>
</tr>
<tr>
<td>4. Dig into student data.</td>
<td>Identify a learner-centered problem.</td>
<td>“ILTs are analyzing student data without the explicit intention of making and adjusting instructional decisions.”</td>
</tr>
<tr>
<td>5. Examine instruction.</td>
<td>Identify a problem of practice.</td>
<td>“As inquiry facilitators, we do not coach teams to build shared understanding of what more effective practice could look like.”</td>
</tr>
<tr>
<td>6. Develop action plan.</td>
<td>Create an action plan.</td>
<td>Revising pacing guidelines for teacher teams to create more time to effectively implement new approaches, creating a menu of instructional techniques and resources to guide teacher teams through researching, planning, practicing, adopting, and evaluating new instructional approaches in their practice.</td>
</tr>
<tr>
<td>7. Plan to assess progress.</td>
<td>Create a plan to assess progress.</td>
<td>Short-term: analyzing audio recordings and transcripts of team meetings; Medium-term: Tracking how teacher teams spend their meeting time; Long-term: Surveying team facilitators, looking for qualitative narratives on impact of intervention on teacher team learning.</td>
</tr>
</tbody>
</table>
Like the 2015 cycle, the 2016 cycle was an example of double-loop learning (Argyris & Schön, 1998) because it resulted in a major re-thinking of the Inquiry Team’s work with teams. The Inquiry Facilitators’ original theory of action about their work with teacher teams assumed that if they supported teacher teams in building collaborative structures and collecting, displaying, and analyzing data, then teacher teams would be able to use the expertise on their teams and in their schools to teach differently and better, and student learning would improve. While the Inquiry Facilitators maintained their desire for DWIP (Boudett et al., 2013) to create opportunities for teachers to share expertise with one another, they realized that teachers needed more supporting in harnessing expertise outside their teams in order to make meaningful changes to practice. As a result of the 2016 DWIP (Boudett et al., 2013), the Inquiry Team became more involved in instructional support for teachers than they had ever expected to be. For a more in-depth discussion of how the Inquiry Facilitators’ perception of their role changed, see the second paper in this dissertation: Why Data is Not Enough: Integrating Instructional Support with Data and Collaboration Coaching on a District Data Inquiry Team. This major change in their way of working is evidence that the Inquiry Facilitators used DWIP (Boudett et al., 2013) to achieve double-loop learning (Argyris & Schön, 1998).

Factors Supporting Double-Loop Learning

Research on DBDM at both the school and district level has found ample evidence of DBDM leading to single-loop learning, but not double-loop learning (Argyris & Schön, 1998). In this section, I consider the factors that supported the Inquiry Team’s double-loop learning (Argyris & Schön, 1998). I find that the team’s learning was enabled by their embracing the habits of mind that the Data Wise authors (Boudett et al., 2013) identify as
critical to learning from DWIP: a shared commitment to action, assessment, and adjustment; intentional collaboration; and a relentless focus on evidence. Their learning was also supported by the team’s collective expertise with DWIP (Boudett et al., 2013), by the leadership of their director, their team’s position in the district, and the amount of time they spent on the process.

**Data Wise Habits of Mind.** In my observations of the team, they frequently enacted many key *Data Wise* (Boudett et al., 2013) practices: particularly commitment to action, intentional collaboration, and careful discussion of evidence. These commitments helped them build a culture where they could critically and systematically examine their own practice and take action to improve it.

The team prioritized their commitment to action by spending two and a half of their three-month DWIP (Boudett et al., 2013) cycle in the Act phase, the third and final phase of the process, during which they created an action plan, drafted a plan to assess progress, and finally implemented the action plan, acting and adjusting as they went. The Inquiry Team’s collaborative structures were set up in close adherence to the recommendations in *Data Wise* (Boudett et al., 2013) and *Meeting Wise* (Boudett & City, 2014b). Meeting time was planned to the minute and noted on the agenda, with the most important objectives first on the agenda. For a sample meeting agenda, see Figure 2. The team set formal norms for collaborative work: 1) Take an inquiry stance, 2) Ground statements in evidence, 3) Assume positive intentions, 4) Stick to the protocol, 5) Take collective responsibility and celebrate collective success, and 6) Be present. The team used multiple sources of evidence at every step of the process, frequently triangulating between sources and questioning the reliability

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7 Norms 1-4 and 6 were slightly adapted from the suggested list of norms in *Meeting Wise* (Boudett & City, 2014b, p. 74). Norm 5 was written by the team to emphasize the importance of their shared work.
of their data and the validity of the inferences they used data to make. These habits of mind helped them use data systematically to take productive action rather than becoming mired in politics or defensiveness, which could help explain why they achieved double-loop learning with their DWIP.

Figure 2. Sample Partial Inquiry Team Meeting Agenda, Following the Meeting Wise Agenda Template (Boudett and City, 2014). This version is slightly modified from the original to remove identifying details and add clarity by writing out abbreviations.
A conversation between Liz and Selena (all names are pseudonyms) during a team meeting offers an example of the team’s commitment to the core tenets of *Data Wise* helping the team navigate away from a potentially difficult situation and toward action that would lead to double-loop learning. During this conversation on February 6, 2015, Liz, the team’s director, explained to the team that she had chosen ILTs as the focus area for this cycle from a list of possible focus areas the team had brainstormed because she thought it was a high-leverage area to explore. Selena expressed uncertainty about the prospect of changing how they worked with ILTs, since they were already halfway through the school year. Selena was concerned that not all of her schools would want to change how they used their ILT time, especially those who had not accepted Inquiry Facilitators’ offers of support with ILT and had fallen into certain routines about how that time was used. The conversation continued:

Liz: Yeah, and I think that’s one thing we can explore. And if we named [working with ILTs] as a key part of our work, and it’s not happening, then this will be a structured way for us to sort of understand more about that. And think about what to do differently. So, I also hear that you’re framing it like, that’s some of something we should look that.

I’m also hearing you saying that, even though we share our work regularly, we’ll be opening up in an intellectual way, an inquisitive way of opening our own practice, and that’s kind of daunting, and how will we do that, how we will understand, the things that are different across each site, and we’ll have to make sure that we have space for that, and that this is about getting better and having space for that, and also about continuously improving our model, because I also think we can learn about different ways we could be looking at schools.

It’s not just testing, just like, teams have to have a new instructional approach; we’re going to have to have a new instructional approach to supporting teams. This isn’t just a way for us to get data about how what we’re doing is the best, and how we can do it like to the letter of the law more tightly, it’s about learning about what’s actually beneficial for ILTs.

Selena: That makes sense.

Liz: which should be different in some way, if we’re going to have a new approach.
Liz’s response to Selena underscores her commitment, as the team’s leader, to taking action to improve the team’s work. Since the team’s purpose in doing DWIP (Boudett et al., 2013) was to test assumptions and change their practice, they needed to expect that they would find changes that should be made and that they would make them in order for their team to be as effective as possible. Liz could have chosen for a focus area a part of the team’s work that was going well and only needed tweaking. She also could have decided she wanted to change something and used data retroactively to justify her decision. Instead, as she had said earlier in the conversation, she wanted to choose a focus area that was “high-leverage,” even and especially if it would challenge the team to re-examine how they worked with schools. She wanted to be surprised by what they found, which is an indicator of double-loop learning (Argyris & Schön, 1998). Liz’s commitment toward taking action is at the core of how the Data Wise authors describe DWIP (Boudett et al., 2013).

Liz also drew on the team’s norms of intentional collaboration in her response to Selena. She inferred that part of Selena’s hesitation had to do with the vulnerability inherent in sharing an underdeveloped part of her practice with the team, and she acknowledged that it was “daunting” to do so. She reminded Selena and the whole team that they would have to remember that each school’s ILT existed in a specific context, and though she did not explicitly reference the team’s norms, she implied that they would use their norms of assuming positive intentions and taking collective responsibility as they do this work. Their collaborative structures were strong enough for Selena to feel comfortable bringing up that anxiety, and for Liz to explain why it was important to move past that anxiety.
Reflecting on the team’s DWIP (Boudett et al., 2013) in an interview later that year, Selena said that the cycle was both difficult and worthwhile for her. She said, laughing, that she was “at times really annoyed and frustrated by our inquiry cycle.” She continued,

It certainly was additional work and it certainly felt uncomfortable and pushed the limits with principals and it made me feel at times frustrated. It wasn’t made clear to me at the start of this role, that when I started this role I was supposed to have this kind of relationship with principals and all of a sudden it’s…frigging March and I’m like, “Hi, I’m here to support your ILT,” and it’s like, “Well, what?”

Despite the difficulty and discomfort inherent in renegotiating her role with principals and ILTs, Selena said that at the end of the cycle, when she began “connecting the dots and understanding the magnitude of the work that we’ve done, it was so exciting and it made me so grateful for pushing through the discomfort for it.” She said she thought they had “improved [their] model exponentially” and that she was “really proud” of how much she and the team had learned. The team’s commitment to action and testing assumptions about their model made their inquiry cycle challenging but also fruitful. If the team had chosen something they were already good at to focus on, and not been as committed to examining their data critically and taking collaborative action based on it, they likely would have experienced single- rather than double-loop learning.

As another example of how the core tenets of Data Wise (Boudett et al., 2013) helped the team navigate a potentially difficult situation, on February 20, 2015, the team met to identify a problem of practice to correspond with the learner-centered problem they had named in their previous meeting: “ILTs are analyzing student data without the explicit intention of making and adjusting instructional decisions.” The goal of the meeting was for the team to examine its own practice to understand how they as Inquiry Facilitators were contributing to the learner-centered problem, of ILTs not analyzing data with the intent of
adjusting instruction. This type of activity could easily devolve into defensiveness and finger-pointing, but the team’s commitment to intentional collaboration, action, and evidence helped make the conversation both safe and productive.

Jess was facilitating this activity, and she set up posters around the room with artifacts from the team’s work with ILTs. Each of the three posters had a heading at the top. The first poster asked the question, “How does our [network-wide professional development] contribute to our learner-centered problem?” It included agendas from prior network-wide professional development sessions. The second asked, “How does our model contribute to our learner-centered problem?” and included the Application for Inquiry Support, which explained the Inquiry Team’s model to the district. The third was labeled with the question, “How does our feedback to ILT Facilitators contribute to our learner-centered problem?” and featured several emails team members had written to ILT facilitators about plans for ILT meetings.

Jess split the team into pairs and assigned each team a poster to start. She explained that she had drawn a T-chart on each poster. On the left side of the T, team members were instructed to capture descriptive evidence about what they noticed in the artifacts. On the right side, they were invited to write how they were interpreting the evidence. Jess said that she included the right column because she knew that her teammates would be...

..already thinking about what the meaning is behind that evidence, so I wanted to give you a space to do that and to list that and make it explicit, what you’re thinking, to your pair, and to the other groups that are coming around…the only thing here is, if you are naming some meaning, just…connect it to some of the descriptive evidence that’s on the left-hand column.

Team members completed their posters, and then did a gallery walk to see what others had written. The group came back together, had a few moments for independent think time, and
then began brainstorming possible problems of practice in pairs, typing their ideas into a
Google doc. Jess asked Zachary to read aloud the quality indicators for a problem of
practice from *Data Wise* (Boudett et al., 2013, p. 110). The team rated each possible problem
of practice on the quality indicators. After a few more minutes of discussion, they decided
that a small group would consolidate the list of potential problems of practice and send out a
survey for the team to vote.

This episode demonstrates the team’s fidelity to the three habits of mind at the core of
DWIP: a shared commitment to action, assessment, and adjustment; intentional
collaboration; and a relentless focus on evidence (Boudett et al., 2013). In this activity, they
collaborated to assess evidence from their own practice and identify a problem of practice
that would guide them to action in the next phase of the process. Looking critically at one’s
own practice can feel threatening, and team members could have responded by assigning
blame to one another, denying that a problem existed, or failing to take ownership over the
problem, but they did not. Their collaboration was strengthened by their norms of assuming
positive intentions and taking collective responsibility for their work. The underlying
assumption in Jess’s design of the activity was that if they looked critically at evidence about
their practice, they would find ways that they were contributing to the learner-centered
problem, which would put them in a position to then address that problem.

This activity contributed to the team’s double-loop learning because the entire purpose
of the activity was to question and then refute their theory of action about their work with
ILTs: that their support of ILTs would lead to instructional improvement in schools. Unlike
single-loop learning, which exists within the constraints of an organization’s theory of action
(Argyris & Schön, 1998), this learning is upending a major part of this team’s theory of
action, and the team relied on collaboration, an orientation toward action, and careful use of evidence to achieve this learning.

My observations and interviews pointed toward four major factors that enabled this team to achieve double-loop learning through DWIP (Boudett et al., 2013): 1) their expertise with the process, 2) Liz’s leadership, 3) the fact that they were in the district but not of it, and 4) the amount of time they spent on the process. In an observational study such as this, I am not able to argue conclusively that these four factors caused this team’s double-loop learning, but I will consider these four here due to their prominence in the data.

**Expertise.** This team’s expertise in DWIP (Boudett et al., 2013) was critical to their double-loop learning (Argyris & Schön, 1998). Team members were hired because of their data skills, and since they devoted nearly all of their professional energy to supporting DWIP in schools, they had deep knowledge of the process, which doubtlessly helped them facilitate their own process as a district-level team. Even so, the team waited until February of their second year to begin their own inquiry cycle, since they felt they needed to know how to do their jobs at a basic level before questioning assumptions about their theory of action in a substantial way. Jess described the inquiry cycle as “very ‘meta,’ and something that we wanted to do last year and just didn’t have the capacity quite yet for the team to do that…” In other words, the team needed to engage in substantial single-loop learning before attempting double-loop learning.

Since team members were so experienced with DWIP (Boudett et al., 2013), they were able to be flexible with the process to optimize it for their specific context while remaining faithful to the core purpose of questioning major assumptions about their theory of action. Their expertise with the process enabled them to give one another feedback to
improve the way they worked together. For example, on February 17th, 2015, Zachary suggested that their process for deciding on a learner-centered problem would have been improved if they had looked at data from higher-performing ILTs as well as lower-performing. Liz added, “We used a mix of quantitative data and qualitative, but I would suggest doing a deeper dive into the rich qualitative data we have. Some of our noticings were quantitative in nature rather than descriptive.” This type of feedback on the process itself would not be possible without a deep knowledge of the process. When teams begin DWIP (Boudett et al., 2013) as novices, participants in the Plus/Delta protocol often say that they do not have a delta (a proposed change), or offer deltas about wishing that they had more time to work together rather than constructively criticizing the process. Their reticence is understandable because they have no frame of reference about what the process could look like. In contrast, these team members’ deep experience with DWIP (Boudett et al., 2013) enabled them to hold the process as object (Kegan & Lahey, 2010) and constantly improve the way that they learned together, which was a key factor in their double-loop learning.

**Leadership.** Liz’s leadership framed the team’s inquiry cycle as a double-loop learning process from the beginning. DWIP (Boudett et al., 2013) has the potential to lead to double-loop learning, but it is easy to imagine how it could result in single-loop learning or no learning in many circumstances. Throughout the team’s inquiry cycle, Liz’s leadership pushed the team toward double-loop learning. Her framing, constructive feedback counterbalanced by specific praise, and willingness to show vulnerability all created conditions to support the team’s double-loop learning.
Liz’s remarks at key points in the cycle set the tone for the process to be a double-loop learning experience. For example, as mentioned above, during the team meeting on February 17, 2015, team members shared additional quality indicators they would like to see in their team’s learner-centered problem, over and above the quality indicators suggested by Data Wise (Boudett et al., 2013). Liz offered two additional quality indicators: “The idea of leverage is important to me—if we change this thing it will have a large effect” and “I’m intrigued by the idea of something we haven’t focused on as a team – new territory feels interesting.” These contributions emphasized her desire to move beyond single-loop learning to explore something they had not discussed before and to change a major part of the way that they worked. One of the key elements of double-loop learning is surprise (Argyris & Schön, 1998), and Liz’s comments suggests that her goal as a leader is for her team to be surprised by finding a disconnect between what they expected to occur with ILTs and what was actually occurring.

In order for double-loop learning to occur, learners need to be more concerned with improvement than with protecting egos (Senge, 2012), and the way Liz gave constructive feedback made it clear that was her intention for this team. She modeled giving substantive “deltas” during the plus/delta protocol at the end of every meeting. As one example, at the end of the March 27th meeting, she typed the following into the agenda: “Wondering if the conversation about adjustments to take based on the prioritization data could have been more actionable? I’m not sure if we came up with any concrete next steps for specific teams beyond document creation.” By setting the example of giving specific, constructive feedback publically at the end of every meeting, she signaled that team members should also
give one another constructive feedback frequently, and in a collegial and supportive manner, to push the team’s learning forward.

Liz’s constructive feedback was counterbalanced by her positive feedback, which helped build the trust needed for double-loop learning to occur. As one example, during a meeting on February 20th when team members were sharing feedback on draft agendas for an upcoming professional development session, Liz said,

The agendas brought today are great as they are, right? I think that’s what’s special about our team, that we have...really high standards for our work. And that we’re helping each other get there through our feedback and support, so, I’m excited to see what Version 2 will look like, because they’re already great. Thank you for all the hard work you guys put in...

Through comments like these, Liz signaled that when team members gave one another constructive feedback, it was to improve work that was already high quality because the team members were so skillful and hard working. Her balance of constructive and positive feedback set the tone that this was a team where people were expected to learn and improve, not because there was anything wrong with them but because they were striving to achieve even higher levels of excellence.

Liz also modeled vulnerability, which is another enabling factor for double-loop learning (Argyris & Schön, 1998). For example, during the team meeting on February 6th, 2015, the team was checking in about the inquiry cycles they were coaching in schools. They started out by going around the table and sharing how many of their teams had priority questions and learner-centered problems, which they were supposed to have at that point. Liz went first and exclaimed, “0 out of 3!” Her willingness to share openly that the teams she was coaching had not met the benchmark was a tacit invitation for other team members to also be honest about the challenges they were facing in the work.
**Status in the district.** This team’s learning was also enabled by the extensive autonomy they were allowed by the district. Liz was hired to found this team with the mission to help schools use data to improve student outcomes. She hired all of the other founding members of the team (with the exception of one who was hired before Liz officially accepted her position), and team members worked together to fill subsequent openings. The team chose DWIP (Boudett et al., 2013) as their improvement process, set their own norms, designed their schedules and protected professional learning time for themselves, created the application process for schools to receive their support, and set expectations for how schools would work with them. Their autonomy granted them flexibility with their policies and their procedures, so they had the latitude to test assumptions about their theory of action for working with ILTs and to devise a new model of service for ILTs. If the team had been subject to tighter oversight by the district central office, it might have been more difficult for them to make the changes in their practice required to test their theory of action (Argyris & Schön, 1998).

**Time.** A fourth factor that fostered this team’s double-loop learning (Argyris & Schön, 1992), was the amount of time they invested in the process. During the spring semester of 2015, the Inquiry Team devoted about an hour out of every two-hour meeting to their own inquiry cycle, for a total of about 12 hours of meeting time over three months and 12 meetings. They had already engaged in Steps 1 and 2 throughout the fall and early winter, so the 12 meetings were for Steps 3-8. They were able to extend their timeline when they needed to, and they added an extra meeting mid-week when they realized they needed more time establishing their learner-centered problem. Since they had two hours per week to meet as a team, they were able not only to engage deeply in DWIP (Boudett et al., 2013) but also
to complete other collaborative work during their meetings. They had time to reflect and hold their work as object (Kegan & Lahey, 2010), which likely would have been difficult if they had tried to compress inquiry work and day-to-day work in a shorter meeting.

In addition to time spent in team meetings, members of the Inquiry Team spent considerable time outside of meetings preparing to facilitate and participate in their own team meetings, which was a crucial supporting element to their double-loop learning (Argyris & Schön, 1992). The team rotated facilitation, so each team member had to facilitate at least one of the inquiry cycle meetings. The fact that everyone had to spend time outside of meetings preparing to lead a portion of the work meant that the inquiry cycle was not Liz’s project; it was the team’s project. Most meetings required pre-work so that some initial brainstorming or data gathering could take place outside of the meeting and time in the meeting could be maximized; the pre-work, in addition to the rotating facilitation, meant that no team member could coast through the process without being intimately involved in it, which likely contributed to the double-loop learning (Argyris & Schön, 1998) that occurred.

It is important to note that investing this much time in the process was a challenge for team members, because they were very busy with their day-to-day work in schools. Phil said in an interview that his responsibilities to the Inquiry Team over and above his work with schools felt like, “its own box of work, or its own job.” He also noted that time spent in meetings on the “big-picture thinking” was time away from troubleshooting small, but important concerns. As a new team member, Phil wished he had more support for the challenges he was encountering in his day-to-day work with schools, and he saw a high opportunity cost to time spent on the team’s own inquiry cycle.

**Discussion and Implications**
The Inquiry Team used DWIP to make major changes to their theory of action about their work with schools. This team’s use of DWIP (Boudett et al., 2013) for double-loop learning was enabled by team members’ expertise in the process, strong leadership, their position in the district, and the time each team member invested in the work. They worked collaboratively and took collective responsibility for their work. Their decisions were grounded in evidence and they used evidence wherever possible in meetings. This focus on action, collaboration, and evidence is integral to DWIP (Boudett et al., 2013) and enabled the double-loop learning they did. Through their faithful adherence to DWIP’s core habits of mind (Boudett et al., 2013), they held their own work as object (Kegan & Lahey, 2010) and tested their assumptions about it.

There are several limitations to consider in this study. This is a small, observational case study of one, six-member team, so generalizability is naturally limited. Furthermore, the factors I highlight as contributing to the team’s learning were the most prominent in my data set based on my interpretation, but because of the nature of my data, any causal inferences I make about the relationship between factors cannot be proven. Another limitation is the absence of data about the impact of their study on the team’s “learners,” which were ILTs in 2015 and teacher teams in 2016. Since school staff members were not interviewed for this study and ILTs were not observed, the impact of the Inquiry Team’s action plans is not known. The Inquiry Team did complete their own assessment of their interventions at several points during their three-month inquiry cycle and found evidence that their interventions were working, but this study does not formally measure the impact of these interventions on educator or student learning.
Despite these limitations, there are implications for central offices, schools, the field of professional development, and future research. To begin with central offices, this team serves as an example of how DBDM at the central office level could lead to organizational learning, in particular, double-loop learning (Argyris & Schön, 1998). Unlike many central office teams prior research has profiled, (Coburn et al., 2009; Honig et al., 2014), this team used data systematically and rigorously, toward collaborative improvement rather than political gain. Other central office teams interested in challenging assumptions about and improving their theories of action could consider using DWIP (Boudett et al., 2013), since this team's work suggests that it is adaptable to the district level. Perhaps, with adequate training and support, DWIP (Boudett et al., 2013) could support other district teams in the kind of collaborative action research that Argyris and Schön (1998) see as conducive to organizational learning.

In many ways, this is a case study of what DBDM could look like at the district level under nearly ideal circumstances: the team members were deeply versed in the process, their leader set high expectations that were matched with a high level of support for team members' learning, and their schedules were flexible enough to invest many hours in this learning process. Though it is not feasible for every member of every district team to achieve the level of expertise with DWIP (Boudett et al., 2013) that these team members had developed by doing their full-time jobs, it seems important for district staff members who are part of a DBDM process to be well-trained in the process itself. The objective of such training would be for team members to know the process well enough to understand what the core tenets are, to have a sense of where they can afford to be flexible, and to be comfortable enough with the process that they can use it to hold their own work as object
(Kegan & Lahey, 2010) rather than being bogged down with what each step entails. The leader of DBDM work on a district team would benefit from additional training and support in setting the tone for the work so that team members could feel challenged but not threatened by using data in this way. District leaders should also be prepared to allocate ample time for both meetings and preparation in their staff members’ schedules. It is hard to imagine DWIP (Boudett et al., 2013) leading to double-loop learning (Argyris & Schön, 1998) without a substantial investment in not only capacity-building but also time.

This team’s work also has implications for DBDM in schools, and professional development in general. Part of the reason members of the Inquiry Team became interested in doing a DWIP cycle (Boudett et al., 2013) as a district team was that they wanted to learn how the process felt as a participant. Though Inquiry Team members spent much more time on their own DWIP (Boudett et al., 2013) cycle than the teacher teams they coached were able to spend, they still said that it felt rushed and that they could have used more time. They also had the flexibility in their schedules to do significant preparation work for meetings and to add an extra meeting. They were not held to a cycle end-date the way that the teacher teams they coached were. They had meeting time allocated over and above the inquiry cycle time to attend to the other work they needed to do as a team. Inquiry Team members said that they felt that their cycle was rushed, but the conditions under which they operated were much more conducive to deep professional learning than the conditions most school teams face when they attempt professional learning. It may be the case that a DBDM process such as DWIP (Boudett et al., 2013) works better, and is more likely to lead to double-loop learning, when team members have attained a certain level of expertise in their work. Inquiry Facilitators, and others who lead professional development in schools, may
consider these lessons when they establish structures and expectations for school teams engaging in DBDM and other professional development.

This case study offers two new theoretical perspectives to help us understand DBDM: from organizational learning theory, the concept of double-loop learning (Argyris & Schön, 1998) and from developmental psychology, the subject-object shift (Kegan & Lahey, 2010). Considering DBDM at the district level, and in general, through these lenses helps explain why double-loop learning is so difficult and why it is so rare to see DBDM processes result in double-loop learning. On the other hand, this case study suggests that double-loop learning could be more prevalent at all levels if leaders supported their staff with the time and training they needed first to develop expertise with the process and then to use it expertly.

Questions remain that future research could help answer. First, it will be important to understand the impact that this type of work at the district level has at schools. Future researchers could study both a district team engaged in a DBDM process, and the school-based staff and teachers they supported, and the students in the school, to learn about the outcome of this type of work. Second, scholars may wish to consider how DBDM may work differently with practitioners who have different levels of expertise, and whether there is a minimum threshold of expertise for DBDM to be an appropriate structure for learning as opposed to other forms of professional development. Finally, though DWIP (Boudett et al., 2013) was designed for school teams and has only recently been adapted for use by district teams such as this one, future research should explore whether it could be useful to other types of system-level teams working in different contexts.
Conclusion

Through the close examination of the work of a team of Data Inquiry Facilitators (Inquiry Facilitators), these papers offer a critical lens on three angles of data-based decision making (DBDM) practices. Based in the central office of a large urban district in the northeast United States, the Inquiry Team supports school teams as they integrate the Data Wise Improvement Process (DWIP) (Boudett et al., 2013), a step-by-step structure for DBDM, into their work.

The first paper, “Protocols and People: The Role of Personal and Professional Identities in Protocol-Driven Processes,” looks closely at the Inquiry Team’s use of and attitude toward discussion protocols, a hallmark of DWIP (Boudett et al., 2013) and other DBDM processes. The Inquiry Facilitators coached school teams to use protocols to structure much of their collaborative time, and the Inquiry Team itself used protocols extensively in the two-hour meetings they had every Friday to calibrate and improve their own practice. This paper adds to a small literature on protocols by exploring, for the first time, the interaction between educators’ personal and professional identities with their attitudes towards protocols. In interviews, team members discussed tensions inherent in the use of protocols: equality of voice vs. organic participation; collaboration as building trust vs. collaboration as signaling distrust; and productivity vs. spontaneity. Identity factors including gender, work-style preferences, tenure on the team, and prior work history, especially Teach for America, were related to team members’ reactions to protocols.

The second paper, Why Data is Not Enough: The Need for Instructional Support on Teacher Data Teams, focuses on the coaching the Inquiry Facilitators did with school teams. The Inquiry Team expected to coach teacher teams intensively in collaborative structures,
the steps of the Data Wise Improvement Process (Boudett et al., 2013), and responsible data use practices, and then gradually release responsibility throughout the year to help teams prepare to sustain the work on their own. However, the Inquiry Facilitators quickly found themselves providing instructional support based on their own knowledge as former teachers and learning they did as a team. The Inquiry Facilitators realized that while teachers could use the Data Wise Improvement Process (Boudett et al., 2013) to come to a better understanding of why students were struggling with certain content or skills, teachers needed guidance about how to choose and teach a new instructional approach to address students’ misunderstandings. Otherwise, teachers defaulted to re-teaching in the same way as they had originally, which is unlikely to produce different results.

The third paper, Data Wise and Double-loop Learning: Using Data to Revise a Theory of Action on a District Team, responds to prior researchers’ findings that data use in district central offices theoretically has the potential to improve district policy and practice, but, in practice, when central office staff use data to inform decisions, they often do so in ways that are unsystematic, subject to political pressure, superficial, and not leading to substantial improvements in practice. In contrast to this work, I find that this team does use a systematic process to identify and test their assumptions about a major part of their team’s work. Their use of the Data Wise habits of mind—a commitment to action, assessment, and adjustment; intentional collaboration; and relentless focus on evidence (Boudett et al., 2013)—enabled them to test their own theory of action about their work and make a major change to their model. Their double-loop learning was also supported by the team’s collective expertise with DWIP (Boudett et al., 2013), their director’s leadership, their status in the district as a semi-autonomous team, and the amount of time they spent on the process.
These three papers’ findings echo and amplify recent research on DBDM arguing that the initial theory of action for DBDM was oversimplified. Federal policy mandating that schools and districts use data to drive decisions (ESSA, 2015; West, 2003) seemed to assume that if teachers and district leaders had access to student data, they would better understand where students were struggling and adjust their practice accordingly (Farrell & Marsh, 2016b). However, data use is not a linear, objective act, but rather an interpretive process that can be better understood as sensemaking (Coburn, 2005; Coburn et al., 2009; Honig & Coburn, 2008). As the field of research on DBDM grows, so does researchers’ understanding of how complex data use is and how difficult it is to do it in a way that makes a positive impact on student learning and does not lead to unintended, negative consequences (e.g. Booher-Jennings, 2005; Hargreaves & Braun, 2013).

These papers’ findings are consistent with research on professional development in general, which has found that in order for teacher professional development to lead to improved student outcomes, professional learning opportunities must be connected to teachers’ work in their classrooms, collaborative, and sustained over time (e.g., Darling-Hammond et al., 2009; Ronfeldt et al., 2015). The potential of a process like DWIP (Boudett et al., 2013) is that it combines all of those elements. Teachers work with their own students’ data and try to understand how to adjust their teaching to improve student learning in a visible way. The fact that they work together in teams builds coherence throughout school buildings and gives them opportunities to learn from one another.

However, the challenge remains that it is very difficult for teachers to change their teaching practice, even after having received high-quality professional development (e.g. Cohen, 1990). In order for DBDM to lead to improved practice, teachers need the time,
space, and support to persist with the process until they see improved student outcomes (Ermeling, 2010). In the absence of sufficient time and support, they will likely default to regrouping students or reteaching rather than teaching in a new way (e.g. Farrell & Marsh, 2016b, 2016a).

Coaches can help provide support for DBDM processes, and coaches likely need not only the skills to help teachers interpret their data and collaborate on a DBDM process, but also to help teachers build their content knowledge and pedagogical content knowledge (Shulman, 1986) they need to improve their practice. These studies suggest that the job of a district DBDM coach is complex and frequently changing. Coaches need to be able to build and maintain relationships, support teachers at different levels of proficiency with data skills and instructional practice, and interpret and adapt to changing environments. Coaches need to be attune to interpersonal dynamics on a team and act with awareness that members of a team may react differently to collaborative structures such as protocols depending on different elements of their personal and professional identities.

In order for DBDM to result in the kind of teacher learning that will result in improved student learning, districts need to be prepared to support not only the teachers who will be doing DBDM work, but also the coaches who will be helping the teachers. District-level coaches have the potential to make a major impact on teaching and learning in the district and have the opportunity to create a safe and productive data use culture (Burch & Spillane, 2004). This study suggests that giving coaches ample time to collaborate with one another can help them meet the demands of this challenging role. The opportunity to participate, as a district-level team, in the very DBDM process that coaches are coaching on school-based
teams may help district team members not only empathize better with school-based staff but also to identify problems with and improve their own practice.

These studies suggest that teachers likely need much more support with DBDM in order to achieve its potential for improving student outcomes. Like any professional development initiative, DBDM is not a silver bullet. It has the potential to lead to meaningful learning for teachers, and therefore students, but if that potential is to be reached, teachers need deep, rich learning opportunities and ongoing resources to support their learning.
Appendix A

Interview Protocol

Interview 1

1. What is your definition of the role of Inquiry Facilitator?
2. How did you come to this role?
3. Why did you decide to be an Inquiry Facilitator?
4. What is the purpose of this team?
5. What did you think it was going to be like being part of this team?
6. I’d love to learn more about your role, and specifically some times you felt challenged. Can you tell me about a time that you felt challenged in your role?
7. Can you describe a success that you’ve had in your role as an Inquiry Facilitator?
8. How has your experience as a member of this team been like what you expected?
9. How has it been different?
10. What did you need to know before you started working with school teams as an inquiry facilitator?
   a. How did you learn those things?
11. What did you need to know after your first six months on the job?
    a. How did you learn those things?
12. Can you think of any examples of things you have learned how to do or gotten better at doing since being in this role?
    a. How did you learn that?
13. Are there other ways that you learned how to do your job better?

Interview 2

1. Can you describe a typical team meeting?
2. What is the purpose of your team meetings?
3. What formal and informal norms has your team used?
4. Are there certain processes your team relies on to structure your own learning?
5. What do those processes look like?
6. What processes have you learned from?
7. What processes have been the least helpful?
8. Can you think of a time when you changed a process, role or norm?
9. Why?
10. What, if anything, could the team do to better support your learning?
11. What do you think has helped your team’s ability to learn?
12. What has hindered your team’s ability to learn?
### Appendix B

<table>
<thead>
<tr>
<th>Code Family</th>
<th>Code</th>
<th>Subcode</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protocol</td>
<td></td>
<td></td>
<td>A series of steps to structure a conversation or activity</td>
<td>“Early on, I kind of tried to seek out some past agendas that people use in other schools, so that I could kind of get a sense of like what protocols do you use for this stuff? And stuff like that, and then it’s like having practiced more protocols now, then it’s like, ‘Oh, I think this protocol will be good for this meeting.’”</td>
</tr>
</tbody>
</table>

| Attitude toward protocol | Negative | Participant mentions a protocol as unhelpful or frustrating | “I don’t like being detail oriented, that’s what the meeting today was. I think for me it’s just not my style, it’s harder for me to process what’s happening. I like there to be more flexibility. I like to have – I like to draw, think and do different – like be creative. I like to kind of again be more successful with how to draft an agenda so not like minute by minute, just like be specific about a block of time but allow kind of for organic conversation to come up and to adjust on the fly. I would prefer if I was the one who was like timekeeping, note to everything,” |
neutral  

Participant mentions protocol in passing or as something that is done without a value judgment.  

“Sometimes I'll facilitate a portion of it, but they’re like, I still don’t know how to facilitate this protocol or whatever.”  

positive  

Participant refers to a protocol having been helpful.  

“I think we all appreciate protocols, or specific structure. So, we used consultancy a lot this year, or like this gallery rock with the postscripts. I feel like we've done that a lot, and that’s been really helpful.”  

<table>
<thead>
<tr>
<th>Location of protocol</th>
<th>Central Office</th>
<th>Reference to a protocol or protocols used in an inquiry team meeting at the central office</th>
</tr>
</thead>
<tbody>
<tr>
<td>School</td>
<td>Reference to a protocol or protocols used in a meeting at a school</td>
<td></td>
</tr>
<tr>
<td>Both</td>
<td>Use of protocols both in school and in central office</td>
<td></td>
</tr>
</tbody>
</table>

Meeting Roles  

Reference to having roles in meetings, such as timekeeper, note-taker, facilitator. Not reflections on how inquiry team members have grown in their ability to facilitate their team.
meetings.

<table>
<thead>
<tr>
<th>Attitude toward meeting roles</th>
<th>Negative</th>
<th>Participant mentions a meeting role or roles as unhelpful or frustrating</th>
<th>“...if I am having a meeting with one person to have a timekeeper or some of those things don’t make sense to me in having a natural organic conversation.”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutral</td>
<td>Participant mentions meeting role or roles in passing or as something that is done without a value judgment</td>
<td>“Typical team meeting, one of us is the facilitator. Other roles include taskmaster, timekeeper, snacker, and, let me back up, note keeper.”</td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>Participant refers to a meeting role or roles having been helpful</td>
<td>“Their team facilitator actually facilitated and they felt like it was relevant to their everyday work and it was moving students forward. And those seem like almost the basics, right, but like it just, it was so lacking before. So it felt like a really big win.”</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location of meeting role</th>
<th>Central Office</th>
<th>Reference to a meeting role or roles used in an inquiry team meeting at the central office</th>
</tr>
</thead>
<tbody>
<tr>
<td>School</td>
<td>Reference to a meeting role or roles used in a meeting at a school</td>
<td></td>
</tr>
<tr>
<td>Both</td>
<td>Use of meeting roles both in central office and schools</td>
<td></td>
</tr>
</tbody>
</table>
Meeting Structures

Reference to a structure or structures other than protocols and roles, such as having a running task list or using the Meeting Wise agenda template, rotating facilitation, having a pacing calendar for school teams to follow.

<table>
<thead>
<tr>
<th>Attitude toward structure</th>
<th>Negative</th>
<th>Participant mentions a structure as unhelpful or frustrating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>“And their response will be like well in your head you know that you are timing it. In your head you know that there is an agenda. It is like sure, but organic conversations are more useful than making sure that you are building this guy’s capacity and you have an hour but you only have 20 minutes right now.”</td>
</tr>
</tbody>
</table>

| Neutral | Participant mentions a structure in passing or as something that is done without a value judgment | “The person who’s the facilitator will decide at the end of the previous meeting if they want to send out something we call the Buzz, which we do generally every other week, but it’s up to the facilitator to decide. And it’s just a way to solicit feedback and ideas for planning the next meeting. Sometimes it’s just already like clear enough based the feedback we got in previous weeks or from that meeting.” |

| Positive | Participant refers to a structure having been helpful | “A lot of these teachers hadn't been sitting in the same room with those people around the table before, so what's so successful was a productive meeting in which there was an
“I’m a huge proponent of the model for Teach for America, and the way that I was trained as a teacher, and how effective that was for me, just personally, and how effective I see it is for other people.”

“I’m at arm’s distance with them.”

“I get the sense that some of these things they do are like kind of vestiges of TFA but there’s no like – oh, when we did this in TFA – or anything like this. I do feel like they – like we interview
– our interview questions and our kind of like the way our interview process works, the way our inquiry application works, I think they’re looking for things that are very TFA-ish.”

<table>
<thead>
<tr>
<th>TFA Imprint</th>
<th>Confidence</th>
<th>Referring to “the types of individual-level efficacy associated with work and getting work done” (Higgins p. 10).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Coming from the TFA background, it’s really weird when people are, “On average let’s have them grow one point by the end of the year.” I’m like, “Wait a minute. That’s not good enough. That’s not real movement.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cognition</th>
<th>Referring to “the taken-for-granted assumptions, beliefs, and worldviews regarding work and getting work done” (p. 10).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“…the idea that it’s natural to use data in your practice; it’s natural to have people observe you; it’s natural to have to unpack standards; it’s natural that you go to professional learning sessions. It’s natural that you’re part, like all of those; you’re part of a larger community that goes to these PD sessions together. I think all of those mandatory things are things that are just ingrained in you, and become part of your experience as a teacher, and I don’t feel like all teachers have that, necessarily.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Capacities</th>
<th>Referring to “the specific kinds of human capital, skills, knowledge, and know-how regarding work and getting work done” (Higgins, p. 9)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Everything I know about teaching is based off my training with Teach For America…”</td>
</tr>
</tbody>
</table>
Connections
Referring to “the kinds of social capital, including both intraorganizational and extraorganizational relationships related to work and getting work done, including the strength and structure of such connections” (Higgins p. 9-10)

“...Our superintendent also did Teach for America and hired as our head of professional learning someone who was Jess’s corps member advisor, actually, so they were in TFA together.”

Non-TFA Work History
Reference to a work experience before this current position that is not TFA

“But at least I have spent two years on just focusing on argumentation so like I can kind of fall back on that and not have to worry about learning that and at the same time kind of learn about other things on my own, while we do that.”

<table>
<thead>
<tr>
<th>Gender</th>
<th>Respondent’s gender</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

| Gender dynamics | Reference to how gender may influence a respondent’s attitude or interaction with the team | “Being female I need think time, wait time to best participate.” |

<p>| Work style preference | Maker | Reference to preferring to have open space in meetings and the workday to be creative | “I like adapting. I like creating. I like being creative and this job has not always allowed for that flexibility to be like oh my God, this is not working; let’s change this.” |</p>
<table>
<thead>
<tr>
<th>Manager</th>
<th>Appreciating structure to meetings and the work day</th>
<th>“I think I came from a space where I needed a lot of structure all the time…”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reference to how structures, systems, and norms were established in the first year of the team</td>
<td>“I think there was just such a lack of understanding of what we were doing as individuals that it was hard to envision what we were doing collectively.”</td>
</tr>
<tr>
<td>Positive</td>
<td>Respondent is positive about one or more founding conditions of the team</td>
<td>“It was just like, ‘Throw us in there, and like kind of do it,’ so I thought there was going to be a much more intentional education phase to the newer facilitators.”</td>
</tr>
<tr>
<td>Neutral</td>
<td>Respondent is negative about one or more founding conditions of the team</td>
<td>[Liz] made it clear to us, we chose you because we have confidence that you can jump into things [laughter] even when you aren’t entirely sure and she made it feel safe - - she set very high expectations and certainly it was nerve wracking the first time we facilitated in a meeting. But if we’re going to be doing it in front of teacher teams we need to be doing it in front of each other and she made it feel like a safe space to do that. So I think that was fine.”</td>
</tr>
<tr>
<td>Tenure on team</td>
<td>Founder Member of the original team</td>
<td></td>
</tr>
</tbody>
</table>
New member | Joined the year of the study
---|---
Purpose of meetings | Reference to the purpose of meetings and collaborative work on the team of inquiry facilitators

“...the purpose of our shared work is to kind of develop an understanding of the work that we’re doing, and a shared understanding, because my interpretation is like the Data Wise model in the book is deliberately very, very vague in terms of the actual implementation mechanisms, and there is a lot of different ways you can go, and I think what we do is share ideas, and share understandings of what are sort of the nonnegotiable things that need to happen, and where do you have wiggle room?”
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