



Building teacher and school capacity to teach to ambitious standards in high-poverty schools



Elizabeth Leisy Stosich

Research and Policy Fellow, Stanford Center for Opportunity Policy in Education, 113 Barnum Center, 505 Lausen Mall, Stanford, CA 94305, USA

HIGHLIGHTS

- Limited research on interventions designed to build school capacity.
- Collaborative planning and inquiry improved instruction and professional community.
- Job-embedded support key for translating learning from PD into changes in practice.
- Principals, not teacher leaders, determined whether PD led to schoolwide changes.

ARTICLE INFO

Article history:

Received 13 April 2015

Received in revised form

19 April 2016

Accepted 29 April 2016

Available online 13 May 2016

Keywords:

Standards

Common Core

Professional development

Capacity building

School capacity

Education policy

ABSTRACT

The present study examines the experience of two high-poverty schools that participated in a district professional development (PD) initiative designed to support teachers in meeting the goals of the Common Core State Standards. A small group of teachers from each school attended PD, learned collaborative planning and inquiry practices, and were expected to lead this work at their school. Key findings suggest that job-embedded support from experts and direction from the principal, rather than the leadership of teachers, were essential for translating learning from PD into changes in instruction and collaboration. Implications for developing capacity in high-poverty schools are discussed.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

Many countries have adopted standards-based reforms designed to support excellence and equity in student performance by raising expectations for student learning and holding all students accountable for meeting these same high standards (Hargreaves, Fullan, Lieberman, & Hopkins, 2010; Volante, 2012). In the United States, most states have adopted the Common Core State Standards (CCSS), which emphasize more critical thinking and less routine learning in English language arts (ELA) and mathematics than previous state standards (Porter, McMaken, Hwant, & Yang, 2011). These increased expectations for students require commensurate increases in the knowledge and skills of teachers.

Professional development (PD) is an essential tool for bridging the gap between ambitious policy goals and the capacity of

teachers and their schools to meet these goals. Typically, teachers select workshops to attend and make individual decisions about whether and how to apply their learning back in their classroom (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009). This approach to PD reflects both the isolated nature of teachers' practice in classrooms (Lortie, 1975) and the pervasive cultural norms of autonomy, privacy, and egalitarianism (Donaldson et al., 2008; Little, 1990). These norms hold that each teacher has the authority to decide which ideas from PD, if any, she will take up and use in her classroom, the expectation that she will make these decisions with limited intrusion from others, and the assumption that no teacher is considered more expert than any other in making these judgments. When PD reinforces rather than challenges these norms, increased teacher capacity "occurs roughly in proportion to the number of teachers who are intrinsically motivated to question their practice on a fundamental level and look to outside models to improve teaching and learning" (Elmore, 1996, p. 16).

E-mail address: stosich@stanford.edu.

Scholars argue that meeting policy goals depends not only on the instructional capacity of individual teachers, or teachers' knowledge, skills, and beliefs, but also on the capacity of the school to respond to external demands (Elmore, 2004; Little, 1999). School capacity can be defined as the collective ability of the faculty to improve instruction and student learning throughout the organization (Elmore, Forman, Stosich, & Bocala, 2014; Newmann, King, & Youngs, 2000). There is a rich literature on the features of effective PD (e.g., Borko, 2004; Darling-Hammond et al., 2009) and the essential elements of school capacity for improving teaching and learning (e.g., Bryk, Sebring, Allensworth, Easton, & Luppescu, 2010). What remains unclear is how to build capacity, including how to use PD as part of a comprehensive strategy for fostering deep, widespread, and sustained change in teaching and learning in schools with low levels of initial capacity (Cobb & Jackson, 2011, 2012; Coburn, 2003).

The current study examines the Common Core Innovation Network (CCIN),¹ a district initiative designed to enhance the ability of teachers to meet the demands of the CCSS, and the experience of teachers and principals in two high-poverty urban schools, Bay and Park Elementary, who participated in the network. Six district administrators, whom I refer to as network leaders, designed and led the CCIN. The CCIN's approach was guided by the belief that teachers are professionals who should work with colleagues to determine the best methods for meeting the CCSS rather than being told how to respond to standards by outsiders. According to the CCIN's theory of change (Weiss, 1995), if a small group of teachers from each school 1) learns how to design curricular units aligned with the CCSS, 2) engages in collaborative inquiry practices for analyzing and improving these units and the work of their students that results, and 3) develops leadership skills for facilitating this collaborative work, they will develop a deep understanding of how to teach to new standards and engage in the collaborative practices that will support ongoing learning about standards. These teachers, in turn, would be expected to act as leaders back at their school by sharing their expertise about curricular planning, instructional approaches, and collaborative inquiry practices. In this way, the CCIN was designed to improve three elements of capacity in participating schools: teachers' knowledge and skills in teaching to the CCSS, the collaborative practices of teachers' professional community, and teacher leadership.

A close analysis of the theory behind the network's approach can help to identify whether and how this approach works and how it can be revised to better meet the challenge of promoting widespread improvement in high-poverty schools (Weiss, 1995). My findings suggest that the network leaders overestimated the power of collaborative inquiry for supporting teachers in learning to meet the new standards and underestimated the challenge of developing deep instructional expertise and strong professional community in schools with limited initial capacity. The article concludes with recommendations for designing a system of supports to build capacity for improving teaching and learning in high-poverty schools.

2. Literature review and theoretical framework

2.1. Teacher capacity

Mounting evidence suggests that teachers have the largest effect on student achievement of any school-based factor (Rivkin, Hanushek, & Kain, 2005; Rockoff, 2004; Rowan, Correnti, & Miller, 2002) and that this effect is especially pronounced for low-income students, who rely to a greater extent on schooling for

developing academic skills than their more affluent peers (Downey, Von Hippel, & Broh, 2004). This line of research has motivated policymakers to seek ways to identify and reward highly effective teachers while rooting out underperforming teachers. However, this approach fails to recognize the important role that school context plays in supporting teachers' development (Johnson, 2012). Scholars argue that efforts to develop the capacity of teachers may be more likely to be successful when they include not only opportunities for individual learning but also opportunities to engage in collective learning through collaboration with colleagues in their school context (Darling-Hammond et al., 2009; Johnson, 2009).

Teachers' knowledge and skill is the frequent target of PD efforts. Research suggests that PD can support improvements in teachers' instruction and student learning when focused on evidence of student learning and the instructional shifts teachers can make in response to this evidence (Blank, de las Alas, & Smith, 2007; Gallimore, Ermeling, Saunders, & Goldenberg, 2009; Timperley, Parr, & Bertanees, 2009). Similarly, researchers find that teachers are more likely to implement instructional practices aligned with standards when they have extensive opportunities for learning about standards and when those opportunities are closely connected to practice (Coburn, 2008; Cohen & Hill, 2001; Spillane, 2004). Notably, evidence suggests that PD may only result in improvements in instruction and student learning when provided directly to teachers, rather than in a "train the trainer" model, and sustained over time (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). This line of research raises questions about the effectiveness of the CCIN's focus on training a small group of teachers to lead PD for their colleagues.

Nevertheless, scholars argue that collaboration among teachers can provide opportunities for teachers to learn from more effective colleagues (Jackson & Bruegmann, 2009), encourage teachers to experiment with new instructional approaches, enhance teachers' confidence in their ability to improve student performance, and, ultimately, lead to improved student learning outcomes (Moolenaar, Slegers, & Daly, 2012). Furthermore, recent research suggests that engaging in quality collaboration with colleagues can grow the professional capacity of individual teachers and create an environment that improves student learning across classrooms (Ronfeldt, Farmer, McQueen, & Grissom, 2015).

One popular strategy for improving instruction is developing a cadre of teacher leaders who develop deep instructional expertise and lead ongoing PD in their school (Coburn, 2003), provide direct support to colleagues, or design curricular resources for use schoolwide (Donaldson et al., 2008). Significantly, each of these approaches relies on a relatively high level of capacity among these teacher leaders to be successful. Borko, Elliott, and Uchiyama (2002) describe how four exemplary schools used external expertise provided during PD to enhance the instructional capacity of teachers and, ultimately, the full faculty. Following a "train-the-trainer" model, a small group of teachers from each school participated in workshops on standards-based assessments and were expected to turnkey this training to their colleagues. Borko and associates argue, "Through such sharing of materials and ideas, individually-oriented professional development provided resources for in-house professional development and helped to build the sense of professional community within the school" (p. 982). However, opportunities for teachers to share learning from PD may be less productive in schools with weaker levels of existing teacher capacity or lower levels of collaboration among teachers than the four exemplary schools described in this study.

2.2. School capacity

The concept of school capacity proposed by Newmann et al.

¹ Pseudonyms used for all organizations and individuals.

(2000) and others (e.g., Bryk et al., 2010; Darling-Hammond, 2010; Fullan, 2007) helps to clarify how external interventions could be designed to strengthen the capacity of schools to support teachers' learning and practice. This line of research suggests that PD can be used to address four areas of school capacity: teachers' knowledge and skills, professional community, teachers' leadership, and principals' leadership (King & Bouchard, 2011; Newmann, Smith, Allensworth, & Bryk, 2001; Youngs & King, 2002). Nevertheless, PD alone is insufficient for improving teaching and learning schoolwide (Elmore, 2004). Teachers' work is embedded in their school and district environment, which can encourage or undermine changes promoted by PD. Therefore, complementary shifts in the roles of principals and teachers, collaborative practices (Spillane, Parise, & Sherer, 2011), and curriculum and tools are necessary to support and sustain new learning from PD (Cobb & Jackson, 2012; Coburn, 2003). As is the case with the CCIN, external interventions typically address some but not all aspects of school capacity. In this section, I review the literature on initiatives designed to improve school capacity and the questions they surface for research.

When PD includes school-based opportunities for collaboration it can enhance individuals' instructional capacity and strengthen professional community (Darling-Hammond et al., 2009; King, 2002; Penuel, Riel, Frank, & Krause, 2009), which describes an environment that supports teachers' learning through collaboration and collective responsibility for reaching shared goals for teaching and learning (Louis & Kruse, 1995; Newmann et al., 2000). Moreover, when principals share or "distribute" (Spillane, Halverson, & Diamond, 2001) leadership among teachers, they can empower teachers to take responsibility for continuous improvement (Heck & Hallinger, 2009; Robinson, 2008). Distributing leadership among teachers and supporting collaborative learning may be essential for building wide support for instructional changes learned in PD and sustaining improvements in the performance of traditionally underserved students (Bishop, Berryman, Wearmouth, & Peter, 2012; Lai, McNaughton, Timperley, & Hsiao, 2009).

Cohen, Peurach, Glazer, Gates, and Goldin (2014) examined models of comprehensive school reform that relied on top-down and bottom-up approaches to building the capacity of high-poverty schools to improve instruction. For example, Success for All dictated specific curricular plans and expected teachers, with support from outside experts, to follow these plans closely until they developed stronger instructional expertise. In contrast, the Accelerated Schools Project focused on developing strong professional community among teachers that focused on identifying problems, setting shared goals for student learning, and selecting or designing curriculum to meet these goals. Both of these programs sought to strengthen teachers' capacity schoolwide, either through external direction or internal agreement. While many schools that participated in Success for All improved student achievement, the authors found little evidence of improved teaching and learning in the Accelerated Schools. Their findings raise questions about the level of external intervention necessary to improve teaching and learning in schools with the weakest levels of capacity to do so.

Schools with lower levels of capacity may require higher levels of external intervention to develop internal commitment to schoolwide improvement. Coaching has been seen as a promising approach to providing context-specific PD and technical assistance (Darling-Hammond et al., 2009; Grissom & Harrington, 2010). King and Bouchard (2011) examined an initiative that used school-based coaching to build leadership for instructional improvement among principals and a small group of teachers in participating schools. In one school with low performance and limited collaboration among teachers, coaches provided support to principals and teacher

leaders in developing structures for teacher collaboration and problem solving when teachers refused to collaborate. Although teachers on the leadership team had chosen this focus on collaboration, they played a limited role in leading the work of their grade-level teams. Instead, the principal, with the support of the coach, used his positional authority to compel teachers to collaborate. The experience of this school calls into question whether teacher leadership is a promising entry point for building capacity for instructional improvement in schools with low levels of capacity.

Although all schools have the potential to create the conditions that foster continuous professional learning, schools with high-poverty, high-minority student populations often have the least capacity to do so. Following 100 Chicago schools over the course of seven years, Bryk et al. (2010) found that schools that improved student learning focused on building teachers' instructional capacity and collegial relationships. While improving schools did not follow a particular pattern of student demographics, most schools that continued to struggle served students who were predominantly African-American and almost all ($\geq 90\%$) low-income. Scholars find that high-poverty schools have lower levels of capacity, on average, than schools serving more affluent student populations, including less capable teachers (Goldhaber, Lavery, & Theobald, 2015), fewer opportunities for teachers to collaborate, and weaker principal leadership (Boyd et al., 2011; Kraft & Papay, 2014). Thus, low levels of capacity for improving instruction and student learning in high-poverty, high-minority schools will continue to result in inequitable outcomes for students unless there are effective interventions to build capacity in these schools.

In this study, I examine the CCIN, a district initiative designed to improve the capacity of teachers to meet the expectations of new standards, including in schools with lower levels of capacity for improvement. I analyze the network leaders' theory of change (Weiss, 1995) for the CCIN against teachers' and leaders' experiences to better understand whether and how the CCIN influences individual teachers' knowledge and practice and their work with the broader school community. Specifically, I ask.

1. How do network leaders describe the intended effects, if any, of the CCIN on teachers' knowledge and practice, professional community, and leadership in participating schools?
2. How do teachers and principals describe the effects of the CCIN, if any, on teachers' knowledge and practice, professional community, and leadership?
3. What contextual factors (e.g., professional norms) enable or constrain teachers' work related to activities from the CCIN?

3. Methods

This research is part of a larger study of teachers' learning about the CCSS² and uses a comparative case study approach to examine how teachers and principals in two high-poverty schools, Bay and Park Elementary, responded to CCIN PD activities within their school context. Although the experiences of educators at Bay and Park are not generalizable, a qualitative case study approach is well suited for examining complex social phenomena and has the potential to contribute to theory about how school capacity influences teachers' learning (Yin, 2009).

3.1. Site selection and sample

The CCIN was composed of 35 schools in a large urban district

² See Stosich (2015a, 2015b) for descriptions of the larger study.

that volunteered to be early adopters of the CCSS and receive additional support in teaching to the standards. I purposefully selected (Seidman, 2006) high-poverty schools ($\geq 75\%$ low-income) (Aud et al., 2010) that were in their third year of participating in CCIN PD, served similar student populations, had demonstrated success in supporting student learning, were at different levels of initial school capacity, and engaged in the collaborative practices learned in PD back at their school sites. Table 1 details the schools' student demographics and performance. Both schools had demonstrated average or above average student performance on previous state standards in comparison with schools serving similar student populations; the past performance of these schools suggested that they had the potential to productively respond to new and more ambitious standards. To understand how differences in school capacity related to each school's response to PD activities, I selected schools of differing levels of initial capacity according to school surveys and district reviews of school conditions, with specific attention to differences in teachers' knowledge and skills, professional community, and leadership.

Bay and Park Elementary were located in the same neighborhood and served similar, high-need student populations; however, the schools differed in three important areas of school capacity. First, the district rated teachers' pedagogy at Bay as "proficient" and rated pedagogy at Park as "developing" in school quality reviews. Notably, Bay teachers had more experience designing curricular units, a key process for learning how to teach to standards in the CCIN. In contrast, Park teachers had little experience planning curricular units and the principal described planning as "something that [had] always been a challenge for teachers." In addition, Bay teachers rated their professional community and principal more favorably than Park teachers on a district survey of school conditions. For instance, 58% of Bay teachers but only 34% of Park teachers strongly agreed that teachers in their school worked on teams to improve their instructional practice. Importantly, the district rated the school environment of Bay as a "C" and Park as a "D" on an A-F scale based on teacher and parent surveys and student attendance. Thus, neither school was considered to have particularly strong school conditions by the district.

CCIN PD focused on collaborative practices that teacher teams could use to build instructional knowledge and professional community. To better understand teachers' work in grade-level teams, I invited all teachers in third, fourth, and fifth-grade to participate in the study. These teachers taught similar content and were under substantial pressure to improve their instruction and students' performance. In addition, the principal at each school and network leaders were invited to participate. All network leaders and principals and almost all (81%) teachers who were invited chose to participate in the study. Teachers had from 4 to more than 25 years

of teaching experience. Most teachers and both principals had worked in their school for 10 or more years.

3.2. Data collection

The study used multiple data collection sources and methods (Maxwell, 2012) to examine the experience of CCIN PD from the perspective of network leaders, principals, teachers who participated in network PD, and the larger faculty at each of the two schools (see Table 2). Network leader interviews focused on the design and intended outcomes of PD activities. Interviews with principals and teachers included questions about how learning from PD influenced teachers' practice individually or as a full faculty and the school conditions that supported or constrained these opportunities for learning. In addition, observations of CCIN PD, faculty and team meetings, and classroom practice provided information about how PD activities related to teachers' collaboration with colleagues and instructional practice. Most interviews were recorded and transcribed verbatim. Detailed field notes were taken during observations and school visits. Approximately 27 h of PD, 10 h of faculty and team meetings, and 15 h of classroom practice were observed. Document collection, including PD protocols, instructional plans, student work, and meeting agendas, provided additional information about learning from PD.

3.3. Data analysis

Weiss (1995) argues that researchers can better understand whether and why complex initiatives, like the CCIN, are successful by designing research that explores the "theories of change" behind these initiatives. An important limitation of this theory-based approach is that I am unable to identify causal links between the

Table 2
Data collection.

	Participants	Interviews	Observations
Common Core Innovation Network			
Network leaders	6	10	5 PD sessions
Bay Elementary			
Principal	1	2	2 faculty meetings
Teachers	7	10	2 team meetings 5 classrooms
Park Elementary			
Principal	1	3	1 faculty meeting
Teachers	12	20	3 team meetings 7 classrooms
TOTAL	27	45	25

Table 1
Demographic characteristics and performance of schools.

	Bay Elementary	Park Elementary
Student enrollment	244	521
% Free and reduced price lunch	86	81
% Limited English proficient	12	6
% Special education	23	20
% African American	57	80
% Hispanic	39	16
% Asian	2	1
% White	2	1
% Proficient ELA 2012	31.4	47.1
% Proficient math 2012	53.7	57.1
% Proficient or Advanced in ELA 2013 (CCSS)	11.5	18.3
% Proficient or Advanced in Math 2013 (CCSS)	14.8	24.1

Source: State Education Data 2012–2013

PD design and teachers' practice. Instead, I analyzed direct reports from network leaders, observations of PD activities, and PD documents to identify network leaders' explicit and implicit assumptions about how CCIN learning activities would result in changes in teacher and school capacity. This analysis surfaced network leaders' assumptions about the relationship between PD and three factors related to school capacity: teachers' knowledge and practice, professional community, and leadership.

Using Dedoose qualitative software, I coded data from each school based on Newmann and associates' (2000) framework for school capacity, with particular attention to the factors identified by network leaders. In addition, codes related to teachers' opportunities to learn about the CCSS were applied, including the specific opportunities for learning about standards promoted by the CCIN: engaging in inquiry of teachers' instructional plans and students' work, developing curricular units in teacher teams, and using curricular materials provided by the district. To understand alignment with the new standards, I coded interviews and observations for the instructional changes in ELA and math that the district identified as CCSS-aligned: balancing informational and literary texts, reading and writing grounded in text evidence, building academic vocabulary, fluency with calculations, deep focus on conceptual understanding, and application of mathematical concepts to "real world" situations. Interpretive memos were used to capture emerging themes (Miles & Huberman, 1994; Yin, 2009). During data analysis, I explored alternative hypotheses, including whether the existing capacity of schools or other factors beyond CCIN PD better explained changes in teachers' practice in the two schools (Miles & Huberman, 1994).

4. Findings

4.1. *The Common Core Innovation Network's theory of change*

This section describes the network leaders' theory of change (Weiss, 1995), their assumptions for how participating in CCIN PD would influence the capacity of teachers and their schools for meeting the CCSS. Teachers who participated in CCIN PD engaged in collaborative practices for designing curricular units aligned with the CCSS, using inquiry protocols to analyze and improve the degree to which these instructional plans met the expectations of the standards, and evaluating students' work against standards. In addition, the network offered workshops and coaching on designing curricular units, instructional approaches (e.g., close reading), and specific content related to the standards (e.g., fractions) as well as methods for leading teacher teams during PD sessions and at school sites. Interviews with six network leaders and observations of PD events indicated that the theory behind the CCIN's approach was founded on four core assumptions:

1. Most of the professional knowledge and skill necessary to learn to teach to ambitious standards currently exists in schools.
2. Collaborative, inquiry-based practices for designing and evaluating curricular plans and students' work can support teachers in learning how to meet the goals of standards and enhance teachers' professional community.
3. Some outside expertise is necessary for teachers to learn to work in new ways with students and with their colleagues.
4. A small group of teachers can influence the work of the faculty as a whole by sharing resources, instructional approaches, and collaborative practices.

In the following sections, I examine each of the core assumptions behind the network's theory for how PD would influence teachers and their schools.

4.1.1. *Developing teachers' knowledge and skill through collaboration around instruction and training from network leaders*

The CCIN's approach was based on the assumption that teachers were professionals who could draw on their existing instructional expertise to learn to teach to new and more ambitious standards. The director described the theory behind the design of the network:

I think that it's just been confirmed to me that the best way for teachers to work is to have collegial, professional relationships where they can share their work, talk about it, and have access to some expertise. Building those communities where people can really talk honestly about their work and get past personality issues and team dynamics ... raises the level of professionalism. But it's bucking a trend of professional development that has been happening for years, which is that there is an expert who has all the information and you just need them and then you'll be able to work.

This description emphasizes the focus on enhancing professional community rather than delivering expertise from above as the central theory for building capacity among teachers for meeting the CCSS. Although the district hired network leaders based on their instructional expertise and knowledge of the standards, all network leaders emphasized in interviews and during PD sessions that they were not experts there to tell teachers how to teach to the CCSS. A network leader explained that teachers could figure out how to teach to new standards "[i]f they were given the time and space and resources."

This focus on providing time and space for teachers to determine the best ways to meet the expectations of the new standards was designed to empower teachers as professionals but also appeared to be a reaction to what network leaders viewed as the local union's protection of teacher autonomy in some schools. A network leader explained, "You can't mandate schools to do certain things. One of them is planning. That's against the union ... They should do what they want to do ... They're professionals." Instead of mandating the use of particular resources or approaches, network PD focused primarily on supporting teachers in using protocols to design CCSS-aligned curricular units or analyze their instructional plans and students' work against standards. Research suggests that using inquiry-oriented protocols, a set of explicit guidelines for teachers' discussions, can encourage teachers to focus their conversations on the instructional changes they can make to improve student learning when led by trained peer facilitators and sustained over time (Earl & Timperley, 2009; Gallimore et al., 2009). The CCIN trained a small group of teachers from each school to lead collaborative inquiry; however, in most cases, this group did not include a teacher from every grade-level or department team in the school.

Furthermore, network leaders quickly learned that engaging teachers in developing curricular plans was difficult because teachers varied greatly in their knowledge and beliefs about curricular planning and content. A network leader explained that some teachers brought in copies of problems from a textbook when asked to bring in a curricular unit; whereas, others brought in detailed curricular plans that they had created from scratch. To address this, the CCIN revised its approach and engaged teachers in what one network leader described as a "gradual release" process, moving from using curricular plans developed by experts to designing their own plans.

In addition, the network provided training in instructional strategies, content, collaborative practices, and teacher leadership techniques based on the needs that they identified from reviewing teachers' curricular plans and visiting schools. This external

support for schools took place in PD sessions, and network leaders were also available to support teachers and principals at their schools by request. For example, three network leaders said teachers were unsure how to support students in learning from the texts they had included in curricular plans. In response, the network offered workshops on close reading, an instructional strategy to assist students in comprehending complex texts. Although this approach was responsive to the needs of teachers, it sometimes resulted in brief opportunities for learning in many areas (e.g., one workshop on teaching fractions), which were unlikely to change teachers' knowledge or practice (Darling-Hammond et al., 2009).

4.1.2. *Teacher and principal leadership*

Network leaders asked each school to create an "instructional cabinet," a team of teachers who would develop expertise in teaching to the CCSS and lead these efforts back at their school. A network leader described how instructional cabinet members would work with teachers in their school:

The instructional cabinet would try things first. They would come back. We would look at the students' work. And in the interim, we would ask them to work with other teachers who were not on the instructional cabinet back at their school and say—"Hey, there's this [unit planning template]. Look at the students' work we got from it. You may want to try it as well."

This description highlights the assumption not only that teachers who had changed their practice as a result of network PD could influence the practice of their colleagues by sharing information about practices and resources, but also the expectation that they would do so without threatening teachers' authority for deciding whether or not they would adopt these practices.

To support these teachers in working with colleagues, the network provided explicit leadership training for teachers. For example, during a workshop on facilitating teacher team meetings, participants learned about research on effective teams, evaluated the effectiveness of their team meetings, and learned strategies for solving common problems in teams. In addition, participants had opportunities to learn from teachers in the network who had been successful in working with colleagues. During one PD session, for example, a teacher presented about how humanities teachers in his school were conducting weekly PD sessions on improving standards-based curricular units. In addition, teachers from his school hosted a webinar to share how they rolled out this work with the full faculty. Making time for participants to share their work created normative pressure for applying learning from PD at their school sites and reinforced the message that teachers should exercise leadership in setting the direction for the work of their school.

The structure of the instructional cabinet only lasted one year because it violated norms of egalitarianism protected by union advocates. The CCIN director explained, "The union came out against identifying instructional leads city-wide and then providing PD because they considered it to be preferential treatment for a subset of teachers." One explanation for the local union's opposition to the structure of the instructional cabinet was the fact that there were no guidelines for how principals would determine which teachers should be selected for this team of teacher leaders. In addition, there was no formal recognition of or support for the role of teacher leaders in the district. Given the strong professional norms of egalitarianism and autonomy, developing authentic opportunities for teacher leadership entails transparent selection criteria, stable and clearly defined roles, and deliberate support from principals and district leaders (Donaldson et al., 2008; Weiner,

2014).

As the CCIN director explained, network leaders recognized that they needed to involve principals if learning from PD was going to take root "schoolwide" rather than in "single classrooms." During the year of the study, the CCIN required principals to attend at least three PD sessions over the course of the school year; however, they offered no PD tailored to the needs of principals. Network leaders described principal participation in CCIN PD as limited. In fact, the Bay and Park Elementary principals were not present at any of the five PD sessions observed. Strong leaders in schools with higher levels of capacity may be able to leverage learning from PD to support schoolwide improvement with little or no external support (Borko et al., 2002; Youngs & King, 2002); however, schools with lower levels of initial capacity may require intensive principal support to create supportive conditions for organizational improvement (King & Bouchard, 2011).

4.2. *Educators in high-poverty schools respond to CCIN PD*

This section explains how educators in two high-poverty schools responded to network PD, how differences in school capacity influenced these responses, how their actions related to the CCIN's theory of change, and the implications for designing a system of supports to build capacity for improving teaching and learning. As described above, both Bay and Park Elementary had relatively low levels of existing school capacity, as measured by teachers' knowledge and skills, professional community, and principals' leadership. Nevertheless, the slightly higher level of capacity at Bay seemed to enable the school to leverage CCIN PD to enhance teachers' instruction and collaborative practices schoolwide. All Bay teachers described or were observed developing curricular units based on the CCSS and engaging in inquiry-based practices for analyzing and improving their curriculum and instruction. At Park, network PD led to meaningful changes in instruction and collaboration among only one small group of teachers (see Stosich, 2015a for details).

Importantly, the way in which PD led to enhanced teacher capacity and professional community differed from the network's theory of change in important ways. Despite differences in the capacity of the two schools, there were three common patterns in how teachers and principals responded to network PD. First, teachers and principals sought out network leaders, rather than teachers who had participated in CCIN PD, for expertise and described school-based support from these leaders as some of their most meaningful learning experiences related to the CCSS. Second, collaborative practices for planning and inquiry did support meaningful learning among teachers who fully engaged in these practices; however, this learning did not reach beyond the groups of teachers who participated in these practices. Finally, the degree to which network PD influenced teachers' practice depended largely on the leadership of the principal rather than the actions of teachers on the instructional cabinet.

4.2.1. *Educators relied primarily on school-based support from CCIN leaders, rather than teacher leaders, to learn new approaches for teaching and collaboration*

Teachers described school-based support from network leaders as the most beneficial for learning how to teach to the new standards. In contrast, teachers who participated in network PD were not viewed as "leaders" or as particularly knowledgeable about teaching to the CCSS by colleagues. These teachers shared information and resources with colleagues. However, the limited understanding of how to meet the new standards among teachers who participated in network PD constrained their ability to support colleagues.

Bay teachers had experience planning curricular units. Nevertheless, five teachers described designing units that met the expectations of the new standards and the needs of their students as a major challenge. A teacher explained that information about *what* to do for the network—develop a task that requires students to independently read and use evidence from complex texts—did not help her understand *how* to meet these expectations given the current abilities of her students:

Throughout the process, [the network was] sending out memos that say—these are the expectations and the dates things need to be done. The only problem was the text because it's hard to find texts that are ... on grade level and complex but that all the kids can have access to. The culminating task has to be a text that ... kids read on their own. When you have kids who are severely below grade level and close to grade level, that can be challenging.

Teachers who participated in network PD shared information and resources for planning CCSS-aligned units, but this sharing did not help to address the complex challenges teachers faced in preparing all students to meet the standards.

At Park, all 12 teachers described designing units aligned with the new standards; however, analysis of these units and their students' work revealed teachers' limited understanding of how to design units that would meet the expectations of the CCSS. For example, four third-grade teachers described developing and teaching a unit on China that involved teachers reading aloud several books on China and students creating brochures with lists of information about the country. This unit failed to meet the expectations of the standards because students neither read the texts independently nor used evidence from texts to support their ideas in writing. When the third-grade teachers handed in their unit to the instructional cabinet, they were asked which of the standards the China unit was designed to meet. According to one third-grade teacher, they found it difficult to answer this question because they had started with the activity—create a brochure—rather than the standards. She thought that they had gotten off track because the instructional cabinet was “only giving [them] the information in pieces.” For example, she thought her team would have been more successful if they had known about the network's unit planning template, described below, prior to designing the unit. This unsuccessful experience seemed to discourage the team from continuing to plan curricular units.

The principals and teachers at both schools looked to network leaders for expertise about the CCSS and information about how to plan units that would meet these standards. When new standards represent a major shift from teachers' practice, school-based support from experts, rather than the leadership of teachers, may help to connect learning in PD with teachers' practice, an essential element of effective PD (Darling-Hammond et al., 2009; Little, 2012). Network leaders provided explicit training in instructional approaches, feedback on curricular plans, and support for using collaborative protocols. Importantly, school-based support was only offered to teachers and principals by request.

Recognizing the need for expertise and support, the principal at Bay Elementary asked network leaders to provide school-based training for all teachers in developing curricular plans and engaging in inquiry practices. A teacher described why receiving support from a network leader in teaching students to comprehend complex texts was more helpful than support from teachers who participated in network PD:

One time the network [leader] came, instead of just two teachers that were selected to go out to the Common Core

[network]. They actually came in and had us read a text. Then they gave us a template. They had us come up with possible questions or prompts that the students would answer. I thought that was helpful, and it allowed me to go from point A to B. I now know what my students are expected to do.

Five Bay teachers reported that having outside experts model how to develop curricular plans and carry out instructional approaches with their students was helpful for learning how to teach to new standards. One teacher had attended two network PD sessions on designing curriculum units, but said that job-embedded support from network leaders was essential for learning to teach to new standards. She explained: “We totally needed someone to hold our hands and guide us along” because the expectations for CCSS-aligned units were dramatically different from the way they had been teaching.

Evidence that teachers had learned the strategies modeled by network leaders and incorporated them into their instructional practice was apparent in classrooms and in discussions with the faculty at Bay. For example, in both 5th grade classrooms examples of a close reading strategy were posted. There was a sign that read “We Stop and Jot” along with examples of the notes students had taken while reading a text. Similarly, I observed three fifth-grade teachers ask students to use this close reading strategy while analyzing video evidence for a history lesson.

Network leaders also supported Bay teachers in engaging in inquiry protocols. For example, two teachers described using a protocol for receiving feedback from colleagues on their instruction, which was facilitated by a network leader, as one of their most meaningful professional learning experiences related to the new standards. All teachers set goals for how they would improve their instruction, received “warm” and “cool” feedback from colleagues, and reflected on how they could improve. A teacher described how the protocol worked:

My goal was to raise the level of the questioning. Did you meet your goal? You have to reflect ... “How do I think I did? Could have I done better?” That was helpful. It was brutal, but it was helpful ... It worked out because we're a family, but it was still tough having them evaluate you.

The strong collegial relationships among the faculty, the use of the protocol for providing guidelines for observation and feedback, and the support from an external expert enabled teachers to critically evaluate their instruction against standards.

Similarly, the four fourth-grade teachers at Park sought out support from a network leader for using inquiry protocols. A teacher explained how the network leader supported their collaboration: “She'll go over the protocols with us if there's a protocol that we don't understand. She'll introduce us to new protocols.” This teacher explained how using a “tuning protocol” in a recent meeting supported her in better supporting a student's learning: “I spoke first and explained the situation. Then my colleagues were able to ask me clarifying questions about the student ... After that, they were able to give me some feedback about what I should try out with the student.” The teacher explained that support from the network leader for using these new protocols had helped them become a more effective team, but this was also a result of the team's “willingness” to seek out and accept this support. Notably, only five of the 12 Park teachers interviewed described seeking out opportunities to engage in close collaboration around practice. The CCIN's decision to respond to requests for support rather than intervene in schools or teams identified as in need of support led to increased capacity among groups that had

higher levels of existing professional community: the full faculty at Bay Elementary and the fourth-grade teachers at Park Elementary.

4.2.2. *Teachers credited the use of collaborative practices and tools for improving teachers' practice within teams*

Teachers described changing their instructional practice to meet the goals of the CCSS when they fully engaged in the collaborative planning and inquiry practices promoted by the CCIN in grade-level teams. Although collaborative planning and inquiry in grade-level teams were established practices at Bay, three teachers described using the *Literacy Design Collaborative's (LDC) (2012)* unit planning template, which was introduced in network PD, as helpful for designing CCSS-aligned curricular units. The template included sample task descriptions and a set of “built in” reading and writing anchor standards that every unit should address, including standards that called for students to read independently, make inferences from text, and cite textual evidence to support their conclusions. A Bay teacher explained that using the LDC template represented a change from the units they had developed previously. For example, they used to have students write informational books “on a topic of their choice.” These topics were often familiar ones to students, such as hairdressing, and students wrote based on their personal experience rather than reading and using text evidence in writing about the topic. Thus, the network's focus on developing units and using planning templates to guide this collaborative work moved the curriculum of this teacher and her grade-level colleagues closer to the goals of the standards.

A special education teacher who worked with both the third and fourth-grade teams found the LDC unit templates useful because they reflected “the kind of writing that [students] are expected to do” on the new assessments. However, she noted that, although the third-grade team chose to use these templates, the fourth-grade team did not. At Bay, all teachers described working with grade-level colleagues to develop a shared approach to improving instruction and student learning. However, learning and changes to practice that resulted from collaboration in one team did not seem to influence the work of other teams in the school.

Norms of autonomy can make it difficult for learning in one group to influence teachers outside the group. At Park, for example, the instructional cabinet reviewed students' work from the school using a protocol to evaluate alignment with the CCSS from the network. The unit plans developed by the first-grade team stated that students would explain the meaning of the three kinds of matter in words and illustrations after reading and being read aloud informational texts on the subject. Most students had written descriptions and provided examples to support their ideas about matter. However, students in one class had copied sentences with missing words related to matter and filled in the missing words from a list of choices. Students' work from this class failed to meet the standards and reflected the low level of accountability among colleagues for following through with decisions made by their team (Elmore, 2004). A third-grade teacher explained, “Even though teachers plan on grade, they don't normally teach what they are asked to teach.” A teacher on the committee asked if she could speak with the first-grade teacher about her students' work, but this suggestion was quickly shut down by two teachers on the committee, who explained that they should not “personalize” their feedback. Teachers at Park expressed frustration with colleagues who did not follow through with decisions made in grade-level teams but did not challenge teachers' autonomy in making instructional decisions, even if they disregarded decisions made by the team that would have more closely aligned with the new standards.

Four fourth-grade teachers at Park who committed to working together to design and adapt curricular units and engage in inquiry

practices from the network reported that these experiences changed their practice and their expectations for students. For example, one teacher in the grade had attended network PD and shared a model curricular unit on child labor with her team. All four teachers said that they initially thought the unit was too difficult for their students. The unit included complex articles, political cartoons, and advanced vocabulary. However, they viewed the support of their colleagues as an essential resource for learning to teach to these new expectations. Thus, they committed to working together to teach the unit and spent months picking apart articles and developing supports for their students. A teacher explained how the process of adapting the unit together supported them in learning to teach to the new standards:

Learning how to scaffold, learning how to break things down, asking these questions of the students as they're reading to get them to understand it, all of that came from the child labor unit. Year after year it just got a little easier to do.

They continued developing their own units after this experience because they witnessed improvements in their students' work and assessment scores. In fact, the fourth-grade students scored higher than the district average for the grade-level despite having more low-income students than most district schools. This earned the teachers distinction in the school.

Three Park teachers said that learning about the fourth-grade teachers' success with curriculum planning and inquiry during faculty meetings had influenced their thinking about instruction. However, none of these teachers had made specific instructional changes based on this learning. Guskey (2002) argues that teachers change their practices and beliefs when they try out new practices and see evidence that these changes result in improvements in students' learning, as described by the fourth-grade teachers at Park. This theory for how PD changes teachers' practice runs counter to the idea that instructional cabinet members could change the practice of their colleagues by simply sharing stories of their own success. Nevertheless, for the larger organization to benefit from learning in teams, schools, particularly high-poverty schools, may need support in coordinating opportunities for learning across teams (Johnson, 2009).

4.2.3. *The strength of the principal influenced teachers' opportunities for collaborative learning, leadership, and connection to expertise*

Contrary to the CCIN's theory of change, principal leadership rather than teacher leadership had a major influence on teachers' understanding of the CCSS and their implications for practice. Specifically, the principal at Bay made learning from CCIN PD a priority, created opportunities for job-embedded PD from network leaders, and developed supportive conditions for collaborative learning. In addition, principals at both schools supported teachers in acting as leaders by sharing their learning with colleagues.

At Bay Elementary, teachers described the principal as the driving force behind their focus on working in grade-level teams to create shared curricular plans and examine student work to inform their instruction. The principal used her positional authority to compel teachers to engage in the collaborative planning and inquiry practices learned during CCIN PD and brought in network leaders to support these efforts. Although collaboration had always been encouraged at Bay, the principal made collaboration a priority during the year of the study by changing the schedule to allow more time for teams to meet. Furthermore, the principal held teachers accountable for engaging in collaborative planning and inquiry by setting the agenda for all team meetings and visiting team meetings monthly. Importantly, the principal's efforts to

make the work of the network the focus of her school's improvement efforts was not a result of the efforts of the CCIN. Instead, the strong instructional leadership from the principal, an essential element of school capacity, contributed to the school's ability to use PD to support all teachers in learning to teach to the new standards.

The Bay principal viewed their involvement in the CCIN as central to their work with the CCSS, but rejected the idea of putting together a large instructional cabinet. Given the small size of the school, having a teacher from each grade out for PD would leave them with only about half their faculty at school. Instead, two teachers participated in network PD, came back and shared their learning with the principal, the faculty as a whole, and their grade-level teams. At Bay, all teachers were expected to exercise leadership by sharing information and resources from PD during faculty meetings, and this process was observed during two faculty meetings. Teachers who attended the CCIN shared their experience in this same manner. This form of teacher leadership reflected the responsibility that all teachers held for supporting their colleagues. At the same time, this approach to sharing reinforced the equal status of teachers and protected teachers' authority for making decisions about which ideas, if any, they would use during instruction.

The Park principal chose to involve many teachers in leading the efforts of the CCIN at their school by creating an instructional cabinet comprised of teachers who attended network PD and several who had not attended. The principal explained the role of the instructional cabinet: "They play a very vital role in meeting their colleagues where they are, talking with them one on one, inviting them into their classrooms to show them how to go about implementing certain features of the Common Core." The principal encouraged teachers to share the success they had experienced teaching CCSS-aligned units and engaging in inquiry, but, as described above, this sharing had little influence over their colleagues' practice. Three teachers described their experience on the committee as helpful for their own learning about the CCSS and willingly shared information and resources in their grade-level teams and faculty meetings. However, they often met resistance from colleagues: "When we bring it back, they'll hear you. They'll do the work, but they're not really doing it as they should because they don't feel that it's going to stick." The principal encouraged collaborative planning and inquiry but provided limited support and no accountability for engaging in these processes. Thus, for most teachers at Park Elementary, network PD led to little change in their instruction or collaboration with colleagues.

5. Discussion

The current study analyzes the CCIN's theory of change (Weiss, 1995) for supporting teachers in meeting new and more ambitious academic standards against teachers' and principals' experiences in two high-poverty schools that participated in network PD and existing literature on professional learning and organizational improvement. My findings suggest that supporting widespread improvement in teachers' practice in high-poverty schools requires attention to deeply rooted challenges posed by weak instructional knowledge among teachers, strongly held norms of autonomy and egalitarianism that cause some teachers to repel efforts to build professional community, and ineffective instructional leadership from principals. PD alone is insufficient for addressing these factors. In fact, the CCIN's efforts develop PD that addressed the many challenges associated with learning to teach to the CCSS (e.g., weak content knowledge, limited collaboration in schools) resulted in one-shot workshops on many subjects, which were unlikely to produce meaningful changes in practice. The experiences of these two schools provide further evidence that a coordinated system of

supports for learning is needed to increase the capacity of teachers and their schools to improve instruction and student learning (Cobb & Jackson, 2011; Coburn, 2003) and that the level of external support should be inversely proportional to the current capacity of each school (Fullan, 2007).

Differences in how CCIN PD influenced teachers' instruction and collaborative practices at Bay and Park depended on differences in three areas of existing capacity: principal leadership, professional community, and teachers' knowledge and skills. The principal at Bay played a critical role in leveraging PD to support schoolwide improvement. In contrast, weaker principal leadership at Park led to more limited connections between learning from PD and teachers' learning and collaboration at the school site. Although research on principal PD is limited (Grissom & Harrington, 2010), recent evidence suggests that school-based coaching may be effective for enhancing the capacity of principals in schools with lower levels of capacity to lead instructional improvement (King & Bouchard, 2011). Furthermore, teachers at both schools described opportunities for school-based professional learning that was led by network leaders as some of the most beneficial experiences for learning about new approaches to instruction, curricular planning, and collaborative inquiry. However, the benefits of this support were limited to the teachers in a team and the faculty with a principal who requested it. When PD providers respond to requests for intervention rather than initiating support, they may miss opportunities for building capacity in those schools that need this support the most.

Direct support for enhancing teachers' professional knowledge and skills in high-poverty schools may be a greater need in countries, such as the U.S., with wide variation in teacher preparation pathways and concentrations of inexperienced or ineffective teachers in high-poverty schools (Darling-Hammond, 2010). Norms of teacher autonomy, including union advocates' protection of professional autonomy, are more problematic when teachers with weak professional knowledge make individual decisions about instruction. The slightly higher level of professional community among teachers at Bay and among the fourth-grade teachers at Park seemed to support a commitment to shared learning in teams; however, this did not include a commitment to learning across teams. Further research is needed to understand how to support opportunities for learning across teams that advance shared goals for schoolwide improvement.

6. Conclusion

Improving instruction and student learning in high-poverty, high-minority schools has proven a persistent challenge in the U.S. (Duncan & Murnane, 2011) and internationally (Organization for Economic Cooperation and Development, 2012). This study extends research on how school capacity influences teachers' learning and practice (e.g., Borko et al., 2002; Newmann et al., 2000) by analyzing a PD initiative that was designed to support a small group from each school in learning to teach to new standards and sharing this learning with the broader school community. Although participation in CCIN PD led to changes in instruction and collaboration among some teachers, the network's approach was insufficient for producing widespread improvement in participating schools. My findings suggest that PD is more likely to enhance teachers' capacity for improving instruction in high-poverty schools when part of a comprehensive system of external supports, including: 1) job-embedded support and accountability for engaging in instructional and collaborative practices and 2) direct support to principals in using PD as part of a schoolwide strategy for improvement.

References

- Aud, S., Hussar, W., Planty, M., Snyder, T., Bianco, K., Fox, M., et al. (2010). *The condition of education 2010* (NCES 2010-028). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.
- Bishop, R., Berryman, M., Wearmouth, J., & Peter, M. (2012). Developing an effective education reform model for indigenous and other minoritized students. *School Effectiveness and School Improvement*, 23(1), 49–70.
- Blank, R. K., de las Alas, N., & Smith, C. (2007). *Analysis of the quality of professional development programs for mathematics and science teachers: Findings from a cross-state study*. Washington, DC: Council of Chief State School Officers.
- Borko, H. (2004). Professional development and teacher learning: Mapping the terrain. *Educational Researcher*, 33(8), 3–15.
- Borko, H., Elliott, R., & Uchiyama, K. (2002). Professional development: A key to Kentucky's educational reform effort. *Teaching and Teacher Education*, 18(8), 969–987.
- Boyd, D., Grossman, P., Ing, M., Lankford, H., Loeb, S., & Wyckoff, J. (2011). The influence of school administrators on teacher retention decisions. *American Educational Research Journal*, 48(2), 303–333.
- Bryk, A. S., Sebring, P. B., Allensworth, E., Easton, J. Q., & Luppescu, S. (2010). *Organizing schools for improvement: Lessons from Chicago*. Chicago: University of Chicago Press.
- Cobb, P., & Jackson, K. (2011). Towards an empirically grounded theory of action for improving the quality of mathematics teaching at scale. *Mathematics Teacher Education and Development*, 13(1), 6–33.
- Cobb, P., & Jackson, K. (2012). Analyzing educational policies: A learning design perspective. *Journal of the Learning Sciences*, 21(4), 487–521.
- Coburn, C. E. (2003). Rethinking scale: Moving beyond numbers to deep and lasting change. *Educational Researcher*, 32(6), 3–12.
- Coburn, C. E. (2008). The role of nonsystem actors in the relationship between policy and practice: The case of reading instruction in California. *Education Evaluation and Policy Analysis*, 27(1), 23–52.
- Cohen, D. K., & Hill, H. (2001). *Learning policy: When state education reform works*. New Haven, CT: Yale University Press.
- Cohen, D. K., Peurach, D. J., Glazer, J. L., Gates, K. E., & Goldin, S. (2014). *Improvement by design*. Chicago: The University of Chicago Press.
- Darling-Hammond, L. (2010). *The flat world and education: How America's commitment to equity will determine our future*. New York: Teachers College Press.
- Darling-Hammond, L., Wei, R. C., Andree, A., Richardson, N., & Orphanos, S. (2009). *Professional learning in the learning profession* (Technical report). Washington, DC: National Staff Development Council.
- Donaldson, M., Johnson, S. M., Kirkpatrick, C., Marinell, W., Steele, J., & Szczesiul, S. (2008). Angling for access, bartering for change: How second-stage teachers experience differentiated roles in schools. *Teachers College Record*, 110(5), 1088–1114.
- Downey, D. B., Von Hippel, P. T., & Broh, B. A. (2004). Are schools the great equalizer? Cognitive inequality during the summer months and the school year. *American Sociological Review*, 69(5), 613–635.
- Duncan, G. J., & Murnane, R. J. (Eds.). (2011). *Whither opportunity: Rising inequality, schools, and children's life chances*. New York: Russell Sage Foundation.
- Earl, L., & Timperley, H. (Eds.). (2009). *Professional learning conversations: Challenges in using evidence for improvement*. New York: Springer.
- Elmore, R. F. (1996). Getting to scale with good educational practice. *Harvard Educational Review*, 66(1), 1–27.
- Elmore, R. F. (2004). *School reform from the inside out: Policy, practice and performance*. Cambridge, MA: Harvard Education Press.
- Elmore, R. F., Forman, M. L., Stosich, E. L., & Bocala, C. (2014). *The Internal Coherence Assessment Protocol & Developmental Framework: Building the organizational capacity for instructional improvement in schools*. Washington, DC: SERP Institute.
- Fullan, M. (2007). *Leading in a culture of change*. San Francisco: Jossey-Bass.
- Gallimore, R., Ermeling, B. A., Saunders, W. M., & Goldenberg, C. (2009). Moving the learning of teaching closer to practice: Teacher education implications of school-based inquiry teams. *The Elementary School Journal*, 109(5), 537–553.
- Goldhaber, D., Lavery, L., & Theobald, R. (2015). Uneven playing field? Assessing the teacher quality gap between advantaged and disadvantaged students. *Educational Researcher*, 44(5), 293–307.
- Grissom, J. A., & Harrington, J. R. (2010). Investing in administrator efficacy: An examination of professional development as a tool for enhancing principal effectiveness. *American Journal of Education*, 116(4), 583–612.
- Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching: Theory and Practice*, 8(3), 381–391.
- Hargreaves, A., Lieberman, A., Fullan, M., & Hopkins, D. (Eds.). (2010). *Second international handbook of educational change* (vol. 23). London: Springer Science & Business Media.
- Heck, R. H., & Hallinger, P. (2009). Assessing the contribution of distributed leadership to school improvement and growth in math achievement. *American Educational Research Journal*, 46(3), 659–689.
- Jackson, C. K., & Bruegmann, E. (2009). Teaching students and teaching each other: The importance of peer learning for teachers. *American Economic Journal: Applied Economics*, 1(4), 1–27.
- Johnson, S. M. (2009). *How best to add value? Strike a balance between the individual and the organization in school reform*. EPI Briefing Paper #249. Washington, DC: Economic Policy Institute. Retrieved from <http://www.epi.org/page/-/pdf/bp249.pdf>.
- Johnson, S. M. (2012). Having it both ways: Building the capacity of individual teachers and their schools. *Harvard Educational Review*, 82(1), 107–122.
- King, M. B. (2002). Professional development to promote schoolwide inquiry. *Teaching and Teacher Education*, 18(3), 243–257.
- King, M. B., & Bouchard, K. (2011). The capacity to build organizational capacity in schools. *Journal of Educational Administration*, 49(6), 653–669.
- Kraft, M. A., & Papay, J. P. (2014). Can professional environments in schools promote teacher development? Explaining heterogeneity in returns to teaching experience. *Educational Evaluation and Policy Analysis*, 36(4), 476–500.
- Lai, M. K., McNaughton, S., Timperley, H., & Hsiao, S. (2009). Sustaining continued acceleration in reading comprehension achievement following an intervention. *Educational Assessment, Evaluation and Accountability*, 21(1), 81–100.
- Literacy Design Collaborative. (2012). *Elementary template task collection*. Retrieved from <http://ldc.org/sites/default/files/LDC-Elementary-Template-Tasks-v1.pdf>.
- Little, J. W. (1990). The persistence of privacy: Autonomy and initiative in teachers' professional relations. *Teachers College Record*, 91(4), 509–536.
- Little, J. W. (1999). Organizing schools for teacher learning. In L. Darling-Hammond, & G. Sykes (Eds.), *Teaching as the learning profession: Handbook of policy and practice* (pp. 233–262). San Francisco: Jossey-Bass.
- Little, J. W. (2012). Professional community and professional development in the learning-centered school. In M. Kooy, & K. van Veen (Eds.), *Teacher Learning that matters: International perspectives* (pp. 22–46). New York: Routledge.
- Lortie, D. C. (1975). *Schoolteacher: A sociological study*. Chicago: University of Chicago Press.
- Louis, K. S., & Kruse, S. D. (1995). *Professionalism and community: Perspectives on reforming urban schools*. Thousand Oaks, CA: SAGE Publications.
- Maxwell, J. A. (2012). *Qualitative research design: An interactive approach*. Thousand Oaks, CA: SAGE Publications.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis* (2nd ed.). Thousand Oaks, CA: SAGE Publications.
- Moolenaar, N. M., Slegers, P. J. C., & Daly, A. J. (2012). Teaming up: linking collaboration networks, collective efficacy, and student achievement. *Teaching and Teacher Education*, 28(2), 251–262.
- Newmann, F. M., King, M. B., & Youngs, P. (2000). Professional development that addresses school capacity: Lessons from urban elementary schools. *American Journal of Education*, 108(4), 259–299.
- Newmann, F. M., Smith, B., Allensworth, E., & Bryk, A. S. (2001). Instructional program coherence: What it is and why it should guide school improvement policy. *Educational Evaluation and Policy Analysis*, 23(4), 297–321.
- Organization for Economic Cooperation and Development. (2012). *Equity and quality in education: Supporting disadvantaged students and schools*. Paris: OECD.
- Penuel, W., Riel, M., Krause, A., & Frank, K. (2009). Analyzing teachers' professional interactions in a school as social capital: A social network approach. *The Teachers College Record*, 111(1), 124–163.
- Porter, A., McMaken, J., Hwant, J., & Yang, R. (2011). Common Core standards: The new unintended curriculum. *Educational Researcher*, 40(3), 103–116.
- Rivkin, S. G., Hanushek, E. A., & Kain, J. F. (2005). Teachers, schools, and academic achievement. *Econometrica*, 73(2), 417–458.
- Robinson, V. M. (2008). Forging the links between distributed leadership and educational outcomes. *Journal of Educational Administration*, 46(2), 241–256.
- Rockoff, J. E. (2004). The impact of individual teachers on student achievement: Evidence from panel data. *American Economic Review*, 94(2), 247–252.
- Ronfeldt, M., Farmer, S. O., McQueen, K., & Grissom, J. A. (2015). Teacher collaboration in instructional teams and student achievement. *American Educational Research Journal*, 52(3), 475–514.
- Rowan, B., Correnti, R., & Miller, R. (2002). What large-scale survey research tells us about teacher effects on student achievement: Insights from the Prospects Study of Elementary Schools. *Teachers College Record*, 104(8), 1525–1567.
- Seidman, I. (2006). *Interviewing as qualitative research: A guide for researchers in education and the social sciences*. New York: Teachers College Press.
- Spillane, J. P. (2004). *Standards deviation: How schools misunderstand educational policy*. Cambridge, MA: Harvard University Press.
- Spillane, J. P., Halverson, R., & Diamond, J. B. (2001). Investigating school leadership practice: A distributed perspective. *Educational Researcher*, 30(3), 23–28.
- Stosich, E. L. (2015a). *From sharing to joint inquiry: Teachers' collective learning about the Common Core in high-poverty urban schools*. Manuscript submitted for publication.
- Stosich, E. L. (2015b). *Leading in a time of ambitious reform: Principals in high-poverty urban elementary schools frame the challenge of the Common Core State Standards*. Manuscript submitted for publication.
- Timperley, H. S., Parr, J. M., & Bertanees, C. (2009). Promoting professional inquiry for improved outcomes for students in New Zealand. *Professional Development in Education*, 35(2), 227–245.
- Volante, L. (Ed.). (2012). *School leadership in the context of Standards-based reform: International perspectives* (vol. 16). London: Springer Science & Business Media.
- Weiner, J. M. (2014). Disabling conditions: Investigating instructional leadership teams in action. *Journal of Educational Change*, 15, 253–280.
- Weiss, C. H. (1995). Nothing as practical as good theory: Exploring theory-based evaluation for comprehensive community initiatives for children and families. In J. P. Connell, A. C. Kubisch, L. B. Schorr, & C. H. Weiss (Eds.), *New approaches to evaluating community initiatives: Concepts, methods, and contexts* (pp. 65–92). Washington, DC: The Aspen Institute.
- Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). Thousand Oaks,

CA: Sage Publications.

Yoon, K. S., Duncan, T., Lee, S. W.-Y., Scarloss, B., & Shapley, K. (2007). *Reviewing the evidence on how teacher professional development affects student achievement* (Issues & Answers Report, REL 2007–No. 033). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for

Education Evaluation and Regional Assistance, Regional Educational Laboratory Southwest <http://ies.ed.gov/ncee/edlabs>.

Youngs, P., & King, M. B. (2002). Principal leadership for professional development to build school capacity. *Educational Administration Quarterly*, 38(5), 643–670.