Dan Mindich and Ann Lieberman

BUILDING a LEARNING COMMUNITY

A tale of two schools

scope
Stanford Center for Opportunity Policy in Education

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This report was published by Learning Forward and the Stanford Center for Opportunity Policy in Education as part of their multi-year study, *The Status of Professional Development in the United States*. The study is supported by a generous grant from the Bill & Melinda Gates Foundation.

Suggested citation: Mindich, D., & Lieberman, A. (2012). *Building a learning community: A tale of two schools*. Stanford, CA. Stanford Center for Opportunity Policy in Education.

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Abstract

Education research has found that collegial work is connected to teachers' professional growth and positive student outcomes, but for various social and psychological as well as organizational reasons, teachers often face challenges to working together. As a result, efforts to bring teachers together have had uneven success. There is a good deal of research about what effective professional learning communities (PLCs) look like, but as McLaughlin and Talbert (2006) write: "We know much less about the process—how teacher learning communities get started, how they develop, and how requirements for their development and markers of maturity change" (129).

This study combines survey data of 33 New Jersey public schools involved in a state-sponsored PLC training program with case studies of two of those schools in order to trace the factors associated with the implementation of PLCs.

Interviews and observations at the two case-study schools showed that a set of predicted variables—vision, community, resources (including time to meet and teacher expertise), and processes—seemed to be connected to the development of collegial professional practice, and that all of these factors were influenced by principal leadership and the wider distributed leadership structures at the schools. These findings were corroborated by the survey data from the two case-study schools and the larger pool of schools in the program. Other factors, such as the state and local contexts of the two case-study schools, and the leaders' judicious use of their means of control while also supporting teacher autonomy, proved to be important for these schools as well. Although the staffs at both schools were already close socially and professionally, in both schools even reluctant teachers noticed greater depth to their collegial work. Challenges remained in terms of scheduling among teachers and the use of data to support high-quality teaching, but the move from congeniality to collegiality could be documented.

Acknowledgements

This study would not have been possible without funding support from Learning Forward through the Bill & Melinda Gates Foundation, and without the wise guidance of Joellen Killion and Stephanie Hirsh. We are very thankful for their support. We would also like to thank Andy Hargreaves for his thoughtful suggestions for improving this report.

In the process of researching and writing about professional development in New Jersey, many members of the New Jersey Department of Education's (NJDOE) Office of Professional Standards were particularly helpful. Cathy Pine, Eileen Aviss-Spedding, Victoria Duff, and Carol Albritton from that office offered countless hours discussing their professional development efforts and helping us make connections with schools and professional development leaders across the state. Similarly, Jerry Woeher, Director of the PLC Lab Project, helped educate us about the work of that program in our first study and then helped us in the site-selection process for this study.

Finally, this study would be nothing without the educators of Doug Marvin Middle School and Isaac Middle School.[1] The principals, Paul Matson and Phil Suarez, were helpful, inspirational, and hospitable, as were the teaching staffs in both schools. They all were great conversationalists, and the work they were doing was inspiring.

About Learning Forward

Learning Forward's purpose is to ensure that every educator engages in effective professional learning every day so that every student achieves. Learning Forward is an international association of learning educators focused on increasing student achievement through more effective professional learning. To learn more about Learning Forward, visit http://www.learningforward.org

About the Stanford Center for Opportunity Policy in Education

The Stanford Center for Opportunity Policy in Education (SCOPE) fosters research, policy, and practice to advance high quality, equitable education systems in the United States and internationally.

SCOPE is an affiliate of the Stanford University School of Education and the Center for Comparative Studies in Race and Ethnicity, and sponsors the work of two other centers: the School Redesign Network and the Stanford Center for Assessment, Learning, and Equity. To learn more, visit http://edpolicy.stanford.edu

[1] *The names of the schools and faculty and staff members used throughout the study are pseudonyms.*

Foreword

Teacher Professional Learning in the United States: State Policies and Strategies

Joellen Killion
Senior Advisor, Learning Forward

A growing body of research and professional consensus has given us a deeper understanding about what distinguishes effective professional learning from its ineffective cousin. Effective professional learning enables educators to develop the knowledge, skills, practices, and dispositions needed to help students learn and achieve at higher levels. Among the promising practices that many schools implement to promote effective professional learning are professional learning communities — groups of teachers and administrators who collaborate to improve their practice to meet learner needs.

The variance in how schools and districts define and enact learning communities varies dramatically from team to team, school to school, and district to district. As the practice spreads, it is increasingly important to understand what makes some teams successful as measured by increased student achievement, changing instructional practice, and development of a culture of continuous improvement. In order to spread the practices that produce these results, it is necessary to look inside successful learning teams and unpack their processes, strategies, structures, and supporting conditions.

Dan Mindich and Ann Lieberman offer a look inside two middle schools to provide insight into the schools' journey into learning communities, focusing on school leadership, relationships, structures, content, schedules, challenges, team autonomy, and how learning communities began, developed, are structured, and are supported. As they offer a deeper look inside the inner workings of teams, they share lessons learned and supporting conditions that contributed to the teams' successes.

By revealing the inner working of teams within two schools and comparing the way teams operated and the school conditions in which teams existed, Mindich and Lieberman's deep look is both invaluable and practical because it contributes important findings about effective learning teams, offers guidance to school faculties and district and state leaders, and identifies the difficulty of establishing and sustaining effective learning teams.

Building a Learning Community: A Tale of Two School is the fourth study in a series of studies on the state of professional learning conducted for Learning Forward by the Stanford Center for Opportunity Policy in Education under the leadership of Linda Darling-Hammond and by a skillful team of researchers. The first study, *Professional Learning in the Learning Profession: A Status Report on Teacher Development in the U.S. and Abroad* (2009), compares

teacher professional learning in the United States and countries whose students outperformed U.S. students on international assessments revealing significant practices in professional learning more prominent in those high-performing countries. *Professional Development in the United States: Trends and Challenges* (2010), examines patterns and barriers in professional learning based on updated national data. The third study, *Teacher Professional Learning in the United States: Case Studies of State Policies and Strategies* (2010), takes a close look at state policies and support systems in four states that demonstrated increased student achievement and upward trends in indicators of effective professional learning. This fourth study provides a look at the support and practice of professional learning inside two schools. Taken collectively, this series provides a comprehensive, current view of the field of professional learning and offers clear recommendations for improving both the quality and results of professional learning.

Learning Forward appreciates the scholarship of Dan Mindich and Ann Lieberman, the support of Linda Darling-Hammond, the work of the team of researchers who contributed to and authored the earlier studies in the series, and the generosity of the schools' faculty members who allowed the research team to look inside their work. It is through the collaboration of researchers and practitioners that all educators gain important guidance about how to strengthen professional learning to increase educator effectiveness and student results.

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Case Study Background

In current practice and in scholarly writing, academics and school leaders encourage teachers to work together in professional learning communities (PLCs) to share knowledge and to plan common strategies to address school needs. While such practice seems like common sense, research and anecdotal evidence indicate that getting teachers to do this work well is difficult.

This situation raises important issues for both practitioners and policy makers. Researchers including Little (1990, 2003) and McLaughlin and Talbert (2006) have closely documented elements of successful learning communities, but those studies and others have done less to document the process of implementation. More specifically, there is a lot of discussion about the importance of factors like trust (Bryk & Schneider, 2002) and good leadership (Elmore, 2000) to make these situations work, but there is less research about exactly how to create community and how principals work to support and monitor PLC efforts to allow for successful changes in practice.

This study extends the findings of a set of state case studies done by Stanford's Center for Opportunity Policy in Education (SCOPE) in conjunction with Learning Forward (formerly the National Staff Development Council or NSDC), looking specifically at schools in state-run programs designed to support PLC development. New Jersey was one of those states.

This report is part of one of the most comprehensive projects yet conducted on policies and practices that support high-quality professional development for teachers. The following reports have been released through this project:

Phase I, February, 2009: Professional Learning in the Learning Profession: A Status Report on Teacher Development in the U.S. and Abroad

Phase II, August, 2010: Professional Development in the United States: Trends and Challenges

Phase III, December 2010: Teacher Professional Learning in the United States: Case Studies of State Policies and Strategies

Phase IV, April 2012: Building a Learning Community: A Tale of Two Schools

New Jersey's Professional Development[2]

This study combines survey data of 33 New Jersey public schools involved in a state-sponsored PLC training program with case studies of two of those schools that trace the factors associated with the implementation of PLCs.

In 1998 New Jersey had neither a professional development requirement for teach-

[2] *This section is largely taken from one of the case studies written for the study that led to this report: Jaquith, A., Mindich, D., Wei, R., & Darling-Hammond, L. (2010).* Teacher professional learning in the United States: State policies and strategies.

ers, nor a cohesive plan for schools and districts to focus their efforts. At that time, the state commissioner of education, in concert with the New Jersey Education Association (NJEA), created the Professional Teaching Standards Board (PTSB). Composed of a majority of teachers, along with a diverse group of other educators and community members, this group met with national experts (including Michael Fullan, Dennis Sparks, Stephanie Hirsh, and Joellen Killion), reviewed research, and shared their own expertise in order to create governance structures, standards, and planning and approval tools to guide professional development work at all levels in the state.

By 2010, New Jersey code required that School Professional Development Committees (SPDCs) follow state professional development standards based on both NSDC guidelines and state content standards to create school professional development plans. These plans were collected by district-level committees and evaluated by a county board, keeping the work local and the responsibility on the schools to identify needs and develop action plans.

To do this work, schools were encouraged (though not mandated) to develop professional learning communities (PLCs). Knowing that this was a significant undertaking, the PTSB and other organizations worked to prepare schools by creating a common language around PLCs, supplying training materials, and offering coaching support. A range of providers, from university-based networks to private professional organizations, supported professional learning needs as well.

In turn, the state, with the help of NSDC, produced numerous resources to assist schools in working collaboratively, and brought in a number of high-profile speakers to energize the school leaders.

Believing that schools needed coaching to do this work, and that successful models would help encourage further experimentation, the New Jersey Department of Education (NJDOE) teamed up with a group called the Educational Information and Resource Center to invite schools to apply for a series of trainings on how to run PLCs for the first time. A total of 75 schools applied, and 33 were chosen to be in the PLC Lab School Project. Participants received both off-site training and on-site coaching for team leaders in how to set up and manage PLC work.

Run by a former school principal and assistant superintendent and supported by workshops with leading local professional development trainers, the four trainings were spread throughout the 2009-10 school year. Teams of school leaders were prepared in different areas, e.g., explaining PLCs, laying out the culture of PLCs, and how to use data.

As part of the agreement to be in the Lab School Project, all 33 schools agreed to two[3] administrations of the Standards Assessment Inventory (SAI) survey, which measures the fidelity with which schools' activities follow NSDC standards for high-quality professional development. For this study, we examined the data from that survey in order to create a context within which to choose two case-study candidates. We then performed an in-depth, qualitative study on those two schools and did further analyses of the survey data. All of the sites that participated in the survey, and the two featured in the case studies, were drawn

[3] *A third administration was added in November 2010.*

from this PLC Lab School network of New Jersey public schools.

What is a PLC?

Because there are numerous definitions for what constitutes a professional learning community, setting the platform for how the term PLC will be used in this study is important.[4] Knowing that this type of work is complicated and that confusion could derail the state's efforts to create a cohesive message, a group called the New Jersey Professional Development Partnership brought together representatives of professional organizations, union leaders, and university professors, as well as members of the DOE, to create a document called *A Common Language for Professional Learning Communities* (2008).[5] The group uses DuFour's definition of a professional learning community as "educators committed to working together using processes of inquiry, problem solving, and reflection upon their practice" (DuFour, DuFour, Eaker, Many, 2006). The Partnership also shares a list of the activities PLCs can undertake through collective inquiry (Professional Development Partnership, 2008):

- examining data on student progress,
- analyzing student work,
- determining effective strategies to facilitate learning,
- designing and critiquing powerful lessons, and
- developing classroom-based common assessments to measure progress.

Over the years, activities such as establishing procedures for setting goals and focusing PLCs have become popular in an effort to define the practice of PLCs and ensure that they do not devolve into mere group meetings. These strategies—while helpful to many—have been criticized by Talbert and others for reducing a complex activity into a formula (2009). The New Jersey Partnership guidelines do not create a list of procedural requirements. Rather, as the title implies, they give an explanation of common terms so they can be understood and utilized efficiently within schools and across the state to support teaching and learning, and they offer a practical set of guidelines for how PLCs will be defined in this study.

The implementation and support of PLCs seem to provide numerous opportunities but also carry significant costs. The purpose of this new research was to examine more closely the situations, policies, and practices of schools that have implemented PLC models of professional development.

Norms of Isolation

Historically, teaching has been an isolated activity. Part of the reason for this is practical. It can be more efficient for a teacher to work on his or her own rather than having to negotiate plans with multiple other players. This is especially important when teachers labor under busy schedules (Sizer, 1984), and in many situations the work that needs to be done can be accomplished more efficiently when outside influences are cut off. Barth (2001) comments:

[4] *In conjunction with Learning Forward, Lieberman and Miller (2011) have recently created a list of standards for PLC work.*

[5] *This paragraph is drawn from Jaquith, Mindich, Wei, and Darling-Hammond (2010).*

> In very real ways, teachers who choose to confine their work as educators to the classroom win. They have more time and energy to devote to their teaching, to each of their students, and to their responsibilities outside of school. They are immune from interpersonal conflicts with other teachers and with the principal. They enjoy a measure of safety in the relatively risk-free sanctuary of the classroom. (p. 449)

In this quest for efficiency, teacher discussions, rather than providing opportunities for meaningful sharing which would advance their work, are often fleeting and self-assuring, and act to maintain the status quo (Little, 1990; Lortie, 1975). Thus sharing amongst teachers is often confined within safe boundaries. In Little's (1990) seminal article, "The Persistence of Privacy," the author explains how largely isolated teachers make tactical decisions concerning whom they work with: "Contacts among teachers are opportunistic. Teachers gain information and assurance in the quick exchange of stories" (p. 513).

Structures of Schools

Some isolation is due to teachers' insecurities, and some is due to a school structure that gives teachers few chances to work together and many opportunities to opt out. Teachers interact with students in narrow, age-based bands, and in middle and high schools are often partitioned into subject-area departments. Wagner (2008) talks about well-meaning schools that want to make change, but without actually setting aside the time for their teachers to work together, they get little done. We know that creating time does not come without cost, but districts like New York's District 2 (Elmore & Burney, 1998), as well as countries like Finland and Singapore, have shown that giving teachers time to work together on meaningful professional development (among many other initiatives) has paid off greatly in improvements of teacher quality, instructional practice, and student outcomes (Barber & Mourshed, 2007; Darling-Hammond et al., 2009).

Collegiality: True Collegiality Is Rare

When an attempt is made to bring teachers together, it often happens at a surface level. McLaughlin and Talbert (2001, 2006) have done important work in the field of professional communities. They were the first researchers to set criteria for PLC quality, ranking schools as *weak, strong traditional*, and *learning communities*. Weak communities are typified as isolated and hierarchical, with rote learning dominating the curriculum. Strong traditional communities may meet regularly, but their focus is on knowledge transmission with limited depth in teacher interactions. Finally, learning communities work interdependently, pushing themselves and all students to think constructively about their work. The researchers also examined the developmental phases of schools attempting to build PLCs using the terms *novice, intermediate*, and *advanced stages*. Looking back on 15 years of qualitative case studies and quantitative surveys in more than 20 schools in Michigan and California, McLaughlin and Talbert (2006) report rarely finding advanced collegial work.

Creating a real collegial community takes more than just giving teachers more face time with each other. Lieberman and Miller (2008) define ideal, professional, working communities as:

> [c]ollegial cultures where teachers develop the capacity to engage in honest talk. There is a big difference between congeniality and collegiality. Congeniality is marked by relationships that are amiable and compatible but, more often than not, are also conflict and risk-averse.... Collegial cultures on the other hand develop bonds of trust [and] provide a forum for reflection and honest feedback, for challenging disagreement and for accepting responsibility without assigning blame. (p.18)

That shift from being just friendly to being constructively critical is vital for successful cooperation but difficult to make happen consistently.

The most likely place for functional collegial environments within middle and secondary schools has been in subject-area departments (Siskin, 1994). However, looking at the varied situations in these departments, it is clear that the connection of working in the same academic department does not necessarily make for predictable collegial relationships. These findings are corroborated by Little and McLaughlin (1993) who write, "There is no necessary relation between personal closeness in a department and a disposition to act collectively in regard to teaching" (p. 155).

In fact, in a case-study comparison of two elementary schools in the Bay Area, Achinstein (2002) found that at the school with the much more friendly, social staff, teachers were actually far less willing to question and push each other to improve; as a result, their students were not achieving at as high a level as those in the other school, despite similar demographics.

Power and Negotiation

Research in social psychology has shown that when the task at hand is unclear, it is difficult for PLC work—or even department work more generally—to move forward (Lawler, Thye, &Yoon, 2000). Departments or PLCs may have vague plans that entail meeting together and working toward agreed-upon goals, but these plans may not be directly task-related, and as a result it can be hard to pinpoint who is really responsible for a task and to judge how well people are doing in achieving their part. For example, measuring the improvement of writing quality in the absence of meaningful state or standardized testing or agreed-upon common assessments can be very difficult. The teachers are left to work toward a loose goal of improving the work of the department or the team.

Principals, department heads, or team leaders are put in the position of working to encourage department members to share their work and ideas, but they have little collateral to make the collaboration substantive and few reliable or meaningful tools to measure who is meeting that goal. Because the teachers are only moderately dependent on the resources of the leader (good rooms, preferable schedule), and because each new leader brings a new set of often short-lived and sometimes poorly thought-out initiatives, there is no convincing pressure on the teachers to act. In an effort to maintain harmony, little is done to upset the status quo (Ridgeway, 1994).

Looking into the Black Box of How Collegiality Works

Grossman, Wineburg, and Woolworth's two-and-a-half-year study (2001) of an

urban high school that brought together 22 English and social studies teachers, a special education, and ESL teacher to create a single humanities study group, peered into the life cycle of a collaborative group. Through the perspective of time, their study revealed for the first time some of the common struggles of learning communities. Following their group's journey, they mapped a set of challenges that developing groups face, including "formation of group identity and norms of interaction, navigating fault lines, negotiating the essential tension and communal responsibility for individual growth" across three typical phases (from "beginning" to "evolving" to "mature").

In their working group, they initially found huge disagreements on basic ideas of teaching theory, including such issues as how to teach non-fiction as opposed to fiction, how to interpret literature, and even what constitutes worthwhile discussion among teachers. In response, they saw that many teachers would try to hide behind differing visions of what constitutes positive classroom work. Despite all the discussions, they found an artificial sense of collegial work, sometimes referred to as "contrived community" (Hargreaves, 2000) or "pseudo-community" (Grossman et al., 2001) where people said they were collaborating, but really were sticking with their old patterns. With time, the teachers were able to overcome some of those barriers to develop a more highly functioning group. The study is remarkable not only for what it uncovered about collegial practice, but also for what it showed about the challenges of collaborative work.

Benefits of Collegiality

Despite such challenges, scholarly research shows that teachers benefit from social interaction, and, increasingly, school leaders and researchers have pushed for more collegial connections. The movement to share ideas and work more collaboratively was championed by groups like Ted Sizer's Coalition of Essential Schools starting in the late 1980s; and according to the most recent *MetLife Survey of the American Teacher* (2009), the vast majority of teachers today do seek social and resource connections with colleagues, and a high percentage of schools find ways for teachers to work collegially. This trend has been especially clear for new teachers who cite positive collegial relationships as playing a major role in their decision to stay in teaching (Johnson & Birkeland, 2003; Smith & Ingersoll, 2004); but more experienced teachers utilize the resources of their colleagues as well (Little, 1990). Additional research shows that bringing teachers together in collegial work situations is beneficial for teacher training (Smith & Ingersoll, 2004) and is associated with overall job satisfaction (Johnson, 1990) and student performance (Little, 1982; Louis & Marks, 1998).

Methodology

The New Jersey Lab School Project: Finding a Sample[6]

The New Jersey Lab School Project provided a set of 33 schools that were comparable in their state contexts and experience in dealing with collaborative work. In order to compare the schools within the group and to choose two schools for the case study, we considered data for average eighth-grade test scores in the New Jersey state exams in English and math, percentage of students who were eligible for free and reduced lunch (an indicator of income level), and number of students per eighth-grade class (the entire grade, not each classroom).[7] Perhaps the most important demographic category for the purposes of setting up the sample was the number of students per grade in each school. Because one of the areas of interest involved exploring shared practice, having a larger group of teachers from the same discipline was important.

Selecting Two Schools

Given the requirements of collegial practice, leadership that encourages teacher involvement, and indications of PLC progress, two schools, Doug Marvin and Isaac, were chosen (see Table 1, below) using the demographic data as well as SAI survey results. Doug Marvin did not show any

TABLE 1: DEMOGRAPHIC AND SAI* COMPARISONS OF CASE STUDY SCHOOL SITES

	Percent passing 2010 Eighth-Grade State Exam		Demographics		SAI Indicator Rankings (scale = 1-4)				
School	**English**	**Math**	**Pupils per Grade**	**Percent Free Lunch**	**Leader-ship**	**Learn. Comm.**	**Data-Driven**	**Collabo-ration**	**Re-sources**
Isaac	89%	79%	265	20%	3.1 (.0)	2.4 (.0)	2.5 (.0)	2.8 (.1)	2.7 (.1)
Marvin	80%	63%	200	41%	3.4 (.1)	2.5 (-.1)	2.9 (.1)	3.1 (.1)	2.7 (-.1)
Group Average					2.9 (-.1)	2.2 (.1)	2.5 (.1)	2.7 (.0)	2.5 (0)
State Average Grade 8	83%	69%		30%					

Sources: Common Core of Data, 2010; New Jersey Department of Education, 2010a; New Jersey Department of Education, 2010b. Numbers in parentheses show the difference from Fall 2009 to Spring 2010.

*The Standards Assessment Inventory (SAI) survey measures the fidelity with which schools' activities follow NSDC standards for high-quality professional development. Indicators used for this study are: Leadership, Learning Community, Data Driven, Collaboration and Resources.

[6] *For a more detailed discussion of the methods used for this report, see Appendix 1.*

[7] *The full table of schools and their demographic information can be found in Appendix 2.*

major increases in SAI scores, but among schools with a minimum number of students per grade and at least average numbers of low-income students Marvin had the highest scores in multiple areas, including Learning Communities, Collaboration, and Leadership; and they had some of the highest scores when compared with other schools of all sizes and income distributions.[8] Isaac had fewer but significant numbers of low-income students and still had relatively high scores on most factors, given their demographics; but were weaker in areas like use of data. Neither school had particularly strong growth in that initial year, but both seemed to have solid bases for examining middle-income schools doing collaborative work.

Data Collection

The bulk of the study analyzed varied factors behind the quantitative data to explore and illustrate the choices and dynamics of PLC implementation and their effects on schools. The primary focus of data collection involved a series of interviews with the principals, other administrators, and teachers of the site schools. Since both schools had a recent history of developing a PLC system, we asked questions looking retrospectively at the different stages of the PLC implementation process, without having to follow the entire arc of that process.

In both schools we interviewed seventh- and eighth-grade core content teachers and a sample of special education teachers. A total of 44 out of the 46 teachers and administrators who were invited participated in the interviews.

Beyond interviews, we observed PLC meetings. At each school, we visited the various core content teams between two and five times for a total of 23 observations. During these meetings, we focused on discussions of the implementation history and factors such as leadership and resource use issues; we also looked for evidence of measures such as interrelated goals, deprivatized practice, common assessments and planning, and team use of data to inform instruction.

We tried to get a sense of the types of issues the teams discussed and the basic interchange patterns within them, and we watched for indicators of successful PLC practice, including on-task vs. random conversations, participation patterns at meetings, support or dismissal of ideas, and how or if congeniality shifted to colleagueship.

[8] *See Appendix 3 for a breakdown of the questions within the SAI factors and Appendix 4 for more quantitative analysis of those survey results.*

The Two Schools

Doug Marvin Middle School: A History of Community

When we talked with teachers from Doug Marvin Middle School, the most consistent comment we heard was how close-knit the community was. As one veteran staff member said, "Maybe I have a warped sense of it, but we have a wonderfully supportive congenial staff." When asked what had happened to foster such a positive environment, teachers with as many as 30 years of experience were unable to think of a time when Marvin did not have such a sense of community. Since the staff had strong relationships, building them was not necessary to support collaborative work.

The school was led by a serious, self-effacing but highly regarded veteran principal and a young, more outgoing, assistant principal who had recently been promoted through the school's teaching ranks. Both were kind and supportive of their staff. One teacher said the positive school atmosphere "comes from the top. It comes from how you're treated. In some places administration is the authority, and then there is you—that's it. Here we're all one, and administration is respected because they respect us."

The administrators, in turn, recognized the value of the staff. As the assistant principal, Tanya Adams, said, "We have always had an amazingly compassionate staff, and they remain compassionate. There's a culture of care for students to be successful." Yet, in a nod to the thinking that led to the adoption of PLCs, she added:

> What was missing prior to the PLCs was how to make students successful academically in a cohesive sense. We've never been stagnant in our compassion, care, or making sure kids have what they need—I don't think we'll ever be stagnant there. But we had plateaued with achievement and professional growth.

Similarly, although Principal Paul Matson had been concerned about the possibility of teachers' resistance to taking on yet another task in adopting PLCs, he was confident that he could draw on a past history of coordinated support on the part of his staff. Matson was a former social studies teacher and basketball coach and a veteran school leader. He came to Doug Marvin from within the district in 2004 and immediately faced a challenge: The school had been placed under the state review system—Collaborative Assessment and Planning for Achievement (CAPA)—for its special-education passing rates, which hovered at 25% for language arts and 9.2% for math. In the six years following, the scores rose to 32% and 31%. Matson attributed those changes to an increased sense of inclusion and more importantly to a school-wide effort to improve practices.

Not one to take credit, Matson said staff attitude had a lot to do with that change:

> The CAPA report says it all. It says that Marvin is an extraordinary school in terms of the family atmosphere, and that the staff members do not look at a problem as an individual or small group problem, but it's always a staff problem.

Matson praised the staff for taking the suggestions from the CAPA report in "a spirit of improvement rather than defensiveness." In the two years following the CAPA review, the school had addressed all but one of the 87 issues brought up in the report[9] and test scores were on the rise.

For Matson, continuous improvement was a guiding philosophy:

> I think the challenge, at any school, is to not fall into the trap of doing the same thing year after year even if it seems like things are working pretty well. There always has to be a challenge. Nobody on this staff will ever say to me, "That's the way we've always done it," because I told them on Day One, don't do that to me. That's like swearing at me. There always has to be change; it doesn't have to be radical change, but there has to be change, and it shouldn't be something they're afraid of.

When the call came out from the NJDOE that 30 schools would be chosen to participate in a program to train school leaders to run PLCs, Matson and team jumped at the chance, and it was through this program that staff leaders were trained to help implement the current PLC system at the school.

Isaac Middle School: "We're Good. Let's Be Great"

— Isaac Principal Phil Suarez

Isaac Middle School was similar to Doug Marvin in many ways. Both schools had overcome academic challenges and they both had deeply connected staffs and strong leaders.

Like Doug Marvin, Isaac (along with one other middle school) was less affluent than the two other district schools "on the other side of the tracks." Historically, that status had been both a problem and a motivator for teachers at Isaac: As one veteran teacher explained, "Isaac was kind of considered almost a dumping ground. So, we had a chip on our shoulder at that point." Still, the school had a reputation for a tightly knit faculty with an attitude of taking on challenges rather than avoiding them. For instance, when teaming was introduced in the 1990s, Isaac was the first school in the district to get involved. As a result of such efforts and a number of other possible factors, test scores were moving up; but the progress arc had flattened, and by the mid-2000s, the school was failing to meet Average Yearly Progress (AYP).

Isaac Principal Phil Suarez was a confident, straight-talking man. A former special-education teacher at Isaac and basketball coach at multiple schools, he had worked in different schools throughout the district, Suarez knew the Isaac landscape intimately and was intensely proud of the school's achievements. When he came in as principal in 2007, the school had failed to meet AYP for three years in a row. By the next year, the school had turned things around, and soon was rivaling the scores of its more

[9] *That last issue, forming a school-wide professional development committee, has since been addressed as well.*

affluent district neighbors. Suarez commented:

> I was fortunate to come into this building four years ago in a time when they needed change. So between that situation, my personality (in terms of what I felt was important), and this phenomenal staff, when I said, "Here's the direction I want us to go in," the buy-in was there.

Despite the common focus on test scores as a motivation for school reform, Suarez and staff tried to keep their attention on the bigger educational picture as well. Suarez explained:

> As far as changing culture is concerned, what we did is to look at direct instruction and look at how we are approaching the individual needs of each learner. I want to see the kids interact and engage. Two years forward we had made some real strides.

Suarez had three mantras. One was "work smarter, not harder." He understood that with the many demands teachers face, everybody was stretched, so he encouraged his staff to think of ways to work more efficiently, not necessarily for longer hours.

After a few years of success, Suarez and his leadership team, made up of Assistant Principal Jackie Preston and school Professional Development Committee Leaders Kate Baldwin and Linda Carrillo, wanted to push the staff not to be complacent. Suarez explained:

> It was a matter of saying, "We're good. Let's be great." And people sometimes don't join that bandwagon. They really enjoy being good—from being down in the gutter to being a school that people are watching and where things are happening. It feels good when other schools are saying, "Wow! How do they do it at Isaac?"

But Suarez wanted them to push further. Teachers recognized this quality in him: "[He] is always looking to try new things, you know, challenge us. He does not want us to sit on our laurels and kind of go with the same thing all the time."

Another of Suarez's frequent expressions was "Every student learning every day." As Suarez explained:

> That's our goal. That means everyone has to learn every day as much as they can. With that, I promised them, "You will see if you do that, the kids will pass the state exams. They will become honor society kids. They will do all these other things."

Most teachers at school could recall the mission statement in some form. As one teacher leader said:

> Every child matters, and every single one of them needs to feel important. And every single one of them needs to be recognized as an individual and know that they can succeed. For us, it's all about the kids. The bottom line is if it's good for the kids, go with it. I think it definitely comes from our leaders. Our principal and vice principal are very big on that.

At Isaac, there did seem to be a difference between this philosophy and one mainly focused on keeping afloat with test scores.

PLCs seemed like an effective way to make all three of these of Suarez' mantras happen.

Mapping Growth at Marvin and Isaac

Relationships: Building a Close Community

At both schools, teachers were colleagues and friends. As one Marvin teacher explained:

> When someone's hurt, when someone is sick, someone is not thriving, for whatever reason, you're never alone here. And you know what? You have to go through some really tough times to really know how supportive this place can be.

Marvin's vice-principal Tanya Adams compared their staff to a family, saying, "There's always been the family relationship that existed in this building, which made collaborative work very easy to do because people look at each other as extended family anyway." Obviously, not all schools start at that point. Isaac's principal, Suarez, said, "In some buildings, the culture isn't ready. That's the question people need to ask. 'Is your culture ready?' We were ready to start."

Perhaps equally important, in both schools teachers had been through serious challenges. At Marvin, the state CAPA review tested their staff's willingness to respond to constructive criticism, and Isaac's staff had faced a number of years not meeting AYP. In both cases, under the leadership of their current principals, they turned things around. According to Matson, the teachers at Marvin drew on the family relationship that Adams described in order to overcome their challenges. Part of that family atmosphere came from believing that problems are shared. As Matson recalled:

> Marvin is an extraordinary school in terms of the family atmosphere. They do not look at a problem as an individual or small group problem, but it's always a staff problem. Although the special ed. students were identified as not achieving, everybody accepted responsibility to do something to change that situation.

At the same time, being close as a community, and even vowing to make an effort to change practice individually, do not themselves constitute the actual steps to opening classroom doors and taking the time to share. Numerous people at both schools mentioned the ready sharing of information, but, except for a few examples, the collaborative work at both schools prior to the PLC implementation was reported to be more superficial cooperation rather than transformative, interdependent group action.

At Isaac, although there had been an earlier grant-funded PLC program called Collaborative Learning Communities (CLCs), which many teachers found effective, involvement had been optional. As a result, participation was not universal, and the program did not have a major effect on the school as a whole. Similarly, at Marvin, a few groups like the math teams had previously been doing sustained collegial work, but that work did not necessarily include all members of that department or the teachers in the other departments. Relationships were important in setting a base for the implementation process, but they did not guarantee true collegial work.

Reluctance to Change

It would seem that partial or surface cooperation would easily lead to deeper connections, and yet, in some ways, such situations can cause reluctance to make further changes. As one Marvin teacher said, "If it's already working and it's not broken, why are you fixing it? We didn't need to be fixed," and a teacher from Isaac made an almost identical statement. While we did not see evidence of active resistance in the meetings we attended or in the interviews, about 15% of the teachers interviewed at Marvin and about 20% at Isaac expressed a sense that they had been doing enough and didn't need administrative interference, and some quotes from teachers about their colleagues implied that others felt the same way. Part of that feeling came from the belief of some faculty members at both schools that teachers had the right to maintain their relative isolation, as long as they collaborated to a certain degree. This belief was maintained under a system where principals and department heads gave teachers space to follow their own paths.

Within such a system, it is easy to get into a rut. As one math teacher from Marvin mentioned, even for a conscientious teacher it was much easier to continue to use the same materials year after year than it was to open all her activities to scrutiny:

> You know how teachers are. We all want to do it our way, even if we have no evidence that it works. Like the whole idea of evaluating the tests. I really think before the PLC, the test would have been made up, and we would've said, "Here's the test" and gone with it. It is what it is. "Oh, the kid got a bad grade, oh well." There would be no discussion about whether there were bad questions, and there would have been no evaluation of ourselves.

Some teachers in the two schools saw the move to systematize community work as a threat to their autonomy. For some, this threat was rooted in a simple desire to continue down the easier path of freedom. Others saw the PLC effort as a yet another potentially short-lived reform strategy that was not worth a significant investment of energy because, like others, it would soon be scrapped. Around 10% of the teachers interviewed at both schools used terms like "initiative fatigue" and "alphabet soup" to describe their initial wariness toward adopting PLCs.

Teachers have good reason to be protective of their time. Even though both schools had planning periods, teachers at Marvin had duties during many of those periods, and teachers at both schools had numerous team meetings of different sorts. Fitting in a new, possibly temporary, effort on top of all of the teachers' existing responsibilities was a concern for many.

Leadership

Stability vs. PLCs

At both schools the teachers were close personally but did not all choose to work collegially. Leadership created a link between the teachers' close relationships and the desire of the leaders and some teachers to develop collegial practice.

"Why choose PLCs?" was a valid question to ask of the principals and other leaders at both schools, which had seen some academic success without taking that step. At the core, both principals abhorred complacency. As

Matson said, "We always need to be getting better." Similarly, Suarez pushed his school by saying, "We're good. Now, let's work on being great."

Part of this push for continuous improvement seemed to come from the personalities of the leaders, and part from the pressures of No Child Left Behind (NCLB), which required all schools to march toward the goal of 100% of their students reaching proficiency by 2014. While both schools had previously made significant moves to improve scores, both had plateaued, and the leaders as well as the school professional development committee members were looking for a way to continue to move the schools forward.

More idealistically, both principals and their leadership teams saw PLCs as a means to bring all teachers together to meet the needs of all students. In both cases the principals had already seen hints of what PLCs could do. In the case of Isaac, considerable energy had arisen from previous experiences CLCs. However, the initial attempt by the district to make them required, once a week after school, met strong resistance. When the district retreated, making the meetings voluntary, the program lost the critical mass of teacher involvement but continued to see some positive results from those who stuck with it. At Marvin, seeing the success of teams like the unofficial math groups, and hearing about the success other schools in the area were having with the PLC model, encouraged Matson and other school leaders to think about PLCs as a next step to school improvement.

Leaders Willing to Take a Risk

For these leaders, this vision of what further collaboration could bring raised the question of whether to require teachers to be involved. As one teacher explained, on the positive side, "Well, we were fortunate in that we already had common planning time so we had a culture of sharing that was already there, and this was taking it a step further." But both leaders still needed to convince portions of their faculty that an increased level of collaboration was necessary.

The ability of the leaders in both schools to decide to move forward when it would have been easier to maintain the status quo seems critical. This decision was followed by a number of other subtle moves that illustrate the intricacies of the change process.

Both leaders understood that they couldn't just throw the idea out to their staff. In each case resources played a role; for example, sharing and discussing articles (at Marvin this occurred before the decision was made to move forward, while at Isaac the bulk of this work was done in the teams after the decision was made). There were also discussions about PLCs, and inservices to kick off the work and set some basic expectations. At the initial inservices, some of the common reasons for establishing PLCs were:

- **We already do this work, and this will just push things further.** In both cases leaders reassured faculty that this was not something new. Instead PLCs would only make what they already had stronger. This statement was intended to calm those fearing a new requirement or some highly specialized version of a system they felt already largely worked.
- **The state is going to start requiring this work, so let's get out in front of the wave.** This technique was an interesting one.

Under the New Jersey professional development system, PLCs were not required as such. However, school professional development committees (SPDCs), which acted somewhat like PLCs, were required, and those groups had to make professional development plans for the schools. It is hard to say whether the leaders were consciously using this explanation as a way to deflect responsibility for the decision, or if, as experienced leaders, they could tell when a growing idea was on the way to becoming a requirement. Either way, in both schools leaders used the threat of impending state requirement as an incentive to get up to speed quickly.

- **We are all learning about the PLC process together. Let's take some time to figure this out.** The leaders of both schools made it clear from the beginning that they were not experts in this work, and that they were all figuring things out as they went. This gave the teams room to learn about PLCs themselves and to take ownership of the system, which seemed to have helped convince some reluctant staff but, as we will see later, created room for confusion as well.

Despite the flexibility shown by the leaders in establishing PLCs at their schools, the other major factor in the equation was that the PLCs were required.

Moving Forward: Setting Norms

While efforts were made to help the faculty become comfortable with the process, the adoption of PLCs was not presented as a choice. In both cases, the principals set the course broadly and then let the teams find their own directions within that course.

In both cases, processes like norms and ground rules were set in the first inservices to help give shape to the work going forward. The basics were derived from a combination of the PLC trainings and the decisions of the leadership teams, and they reflected two basic needs: purposeful meetings and creating a safe space.

Purposeful Meetings

The school teams developed norms to help keep meetings on track. Among the norms: PLC sessions should be focused on discussing questions of importance to the team (as opposed to gripe sessions) and attendees should give the meeting their full attention (no grading or even eating in one of the schools). As one teacher from Marvin pointed out:

> [The norms] make sure meetings stay structured, and you stay on task and topic because the purpose can get lost, and time ends up being wasted. If everybody's just chatting about other things, you can leave with a feeling of, "Oh, my gosh, I have so much work to do."

Safe Space

The second concern was that group members should feel safe to share ideas without worrying that their points would be devalued. The effect, according to one Isaac teacher, was:

> The norms give us ways to go through a meeting and conduct it as professionals, which I think we all had done in the past, but this went

> past the idea that we're just doing a team meeting now. This is more important than that.

Strong Relationships Helped the Process

Clearing the way for these types of discussions was relatively easy in these two schools, where strong relationships had been built over many years. In neither school were conscious efforts made at actual team building, and, for the most part, teachers acknowledged that such work was not necessary.

Around 10% of those interviewed in both schools, however, did mention that spending more time on team- and trust-building would have been helpful. That observation probably resulted from the fact that despite the closeness that existed in both schools, there had been numerous shifts in team composition in the previous few years.

Those shifts were largely due to retirement, but in some cases the moves were purposefully made to energize the groups and to increase discussion. As one teacher at Isaac said, "Our teams were all mixed up by administration. I think that's one of the reasons why they did this whole PLC protocol was to kind of shake things up. The majority of teams have someone new." Suarez corroborated this point, saying that retirements and other moves allowed him to shift people in ways that, in his view, had the potential to cross-fertilize the expertise of other groups. More organically, the initial work of the Marvin eighth-grade math group was developed in response to a need to train new teachers; in the most recent group, bringing new teachers up to speed gave a purpose to the meetings.

Distributed Leadership

Neither principal tried to do all this work alone. Both had strong assistant principals (Marvin originally had two) interested in and focused on doing collaborative work. Both schools had systems of distributed leadership that supported the work and allowed for multiple people to be trained to support the other teachers. Both schools had the state-required School Professional Development Committees (SPDCs), both had PLC committee members who attended state trainings, and both had a system of grade-level teams with team leaders. Isaac's distributed leadership system seemed to be further along in its development, with dynamic leaders who had taken over more of the responsibility for designing and implementing inservices for the school. Matson described Marvin's distributed leadership committees as "still developing," but in both cases the leaders put their confidence and support in the groups.

Both principals were able to lean on networks of teachers, showing that the two schools had the capacity to create functioning leadership teams and that the principals felt comfortable enough to hand over responsibility. As Matson explained:

> Some administrators will fear a school improvement team like it's taking over their power. For me, I'm an equal partner in it, as is the assistant principal. I see myself as kind of letting them know where the landmines are. I really serve as a resource, going out and getting resources if they need them.

This attitude of willingly sharing power and respecting teacher expertise was the case in both schools.

An excellent example of the strengths of distributed leadership in both schools was evident in a whole-faculty inservice at Isaac in December 2010. Designed by Kate Baldwin and Linda Carrillo of the SPDC and Assistant Principal Preston, the two-hour after-school workshop featured the eighth-grade resource teachers' team sharing their methods for using data. The members of each of the PLC groups went through a check-in and goal-setting process, followed by smaller workshops that focused on such topics as the use of technology and formative assessment, run by teachers on the Isaac staff. Suarez counseled the group before the workshops, but most of the work was done by the teachers. This work was seen by the teacher leaders as daunting but empowering. Carrillo reflected on her job responsibilities:

> Do I like that role? I have a struggle within myself because at the next staff inservice, I'm the presenter, and I laugh because I took public speaking in college, and it took me a month, every day of speaking, just to get in front of the group and not sweat. But, I feel privileged that Phil has trusted Kate and me and feels confident in us. That has made me feel good, and I certainly want to do everything in my power to do a good job.

The inservice design made a strong statement about the willingness of the teachers to publicly discuss their practice, to take responsibility for goal setting, and to step up to take on leadership positions, from organizing the inservice itself to teaching sessions within it.

Both leaders looked to the resources of expertise in their schools to build ownership by encouraging stakeholders to get involved. Suarez explained:

> You always want to make sure that there are going to be stakeholders in any organization. There are key people that you want to buy in, and those people have to be respected by the rest. I adore the people who work here. I feel lucky to have people who say, "Look, we get it; what do we need to do?'

For Suarez, part of the process was supporting the work of the people on board and being patient with the people who took longer to jump on. He argued that the most important stakeholders are not the people who jump on immediately, but the people who, after seeing the value of the work, choose to get deeply involved. For both sets of leaders there was a belief that given time, the system would work.

Relationships, Trust and Leadership: Negotiating the Balance

Despite the faith that both principals showed in sharing leadership, the perception of most teachers was that the move to introduce PLCs was a top-down decision. While some people expressed excitement at the decision along with some concern, the most common comment in this area was something along the lines of, "Of course, when a decision comes from the top down, there is going to be resistance."

In reality, however, the cultures of both schools helped overcome this resistance, as the teachers' faith in and respect for leadership encouraged their participation in the initiative. As Tschannen-Moran and Hoy (2000) argue, "Even when leaders work to build a common vision and foster ac-

ceptance of group goals, absent trust, these leaders do not inspire workers to go beyond the minimum requirements of their jobs" (p. 585). This connection seemed to be the case in both schools and is a good example of the overlapping relationship between two central factors observed in this study: trust and leadership.

Learning Together

Even though both principals made the PLC work a requirement, there was a sense that they were trying to make things work for the faculty members. Both principals encouraged staff members to talk with them about concerns and to share successes. As Matson said, "I have a ton of paperwork in here, but my door is always open to the staff." Both principals admitted that they did not know all the answers and looked to the work of their leadership teams and the faculty to inform future directions. The principals were learning at the same time as the rest of the staff. Suarez said, "People want to see that you're out there with them. And when people see that and they feel it—especially in a building like this with terrific people—they will follow you." Teachers appreciated that honesty and understanding of the process. As one Marvin teacher commented:

> Last year was all baby steps, and about once a month an administrator met with our group. They were learning it at the same time, and I loved how they weren't ashamed to say it. They were like, "I'm about a chapter ahead of you on this, and that's it." So that was nice because they were very real about it. It was clear that this was a work in progress; there was no real right or wrong.

Those kinds of concessions went a long way toward engaging people in the process, but there were other big-ticket items that were traded to support the PLC effort, the biggest of which were training and time.

Resources: Using Supportive State Policy

Once leadership made the decision to move forward, the implementation processes at Marvin and Isaac were strongly influenced initially by the professional direction and resources of the state of New Jersey. Both schools' SPDCs saw the state's invitation to apply for the PLC Lab School training program as an opportunity to push their schools further. As Isaac's Kate Baldwin said, "The PLCs were a natural direction from the plans we had developed."

For both schools, the training was a very useful resource, giving direction and materials to help lead the change. Baldwin called the trainings "invaluable." The work of translating the trainings to action in the schools would prove trickier, however.

Solving the Time Problem

The resource of time is at a premium in schools. Like many other middle schools, almost all of the academic core teachers at both Isaac and Marvin had a single preparation (e.g., five sections of seventh-grade language arts), and students of a particular grade had their non-academic core periods together, leaving the academic core teachers with a common planning period. Such was the case at Marvin and Isaac as the idea of PLCs was being discussed; however, those planning periods were largely filled with various team and/or grade-level meetings for planning events, discussions with

guidance counselors, and parent meetings, as well as hallway and bathroom monitoring. Beyond the academic core teachers, most other teachers did not have a common planning period.

For many of the teachers, the announcement that they would be working in PLCs meant the immediate concern of having one more thing to do in an already busy schedule. As one teacher leader said, "The challenge is always our time. Okay. You want to put this on our plate, what are you taking off of it so that we have room?"

Listening and Learning from Teachers: Protecting Time

Both Matson and Suarez knew that time would be an issue and worked to make the scheduling as smooth and fair as possible. At Marvin Middle School, the biggest move was to remove a number of duties for core-content teachers. For many teachers this was a significant upgrade in use of time. As one teacher remarked, "Meeting with colleagues instead of guarding the bathroom? Yeah, I'd say that's a good trade." For others the benefit, beyond just getting out of a duty, was in the good will shown by administration in giving something back. Another teacher noticed, "[Matson] was willing to say, 'Well I'll take this from you to give you this' and I think people kind of need that 'feel-good news' to want to take on something new." Similarly, at Marvin, the school started out with three meetings for every six-day cycle, and that was seen as too much by the faculty. Matson and his leadership team heard that complaint, and in the second year the number of meetings was reduced to two.

At Isaac, core-content teachers had fewer duties and more protected time, but "non-team" teachers did not have common planning time. The leadership team worked to cover periods for teachers who wanted to attend meetings but had classes and duties. Suarez also encouraged teams to find alternative times to meet with their PLCs and to get the professional development credit that was required by the state as well. As was the case at Marvin, these efforts were recognized by the staff. Baldwin commented:

> We would not be where we are without the support that was given because, last year especially, time was provided for off-team people in particular. If you're sitting on a hall duty, and there's a PLC going on that you really want to be a part of, we'll cover that. We'll do what needs to be done.

The baseline goal at both schools was for the core-academic teams to meet multiple times a week (see Table 2, page 23). At Marvin, math and language arts teachers were expected to meet twice in a six-day cycle. At Isaac, core-team teachers were expected to meet twice a week. In both cases these meetings were in addition to the other team and student support meetings that happened throughout the week. In both cases, one of the two 45-minute daily planning periods was given to meetings of some sort.

Structural Issues and PLCs

In both schools, PLCs were initially required for the core academic subjects, but at Marvin, staffing numbers made PLC work in some departments challenging. Even though the core-academic teachers at Marvin had common planning periods in theory, the shift to half-year social studies and science classes made it hard for

teachers in those disciplines to meet; even if they had time, some teachers had split assignments and were required to take part in multiple PLCs. At both schools, scheduling challenges were common to other disciplines like the arts and physical education as well.

Scheduling Challenges

At Marvin, as a result of these scheduling issues, PLCs were only required for math and language arts, a situation that both teachers and administrators found problematic. While some of the science and social studies teachers at Marvin missed the opportunity to work in PLCs, the hassle of trying to patch together time with different configurations of people teaching each class seemed to outweigh the potential benefit. The administrators regretted the imbalance, but having lost one administrative position in the previous year, they did not have the staffing to create a workable solution at that time. The physical education department had been meeting before school, and the special education department maintained multiple groups, but there were some uncomfortable feelings around the uncertainty of who was involved in the PLC process and who was not.

Despite the scheduling challenges at Isaac, Suarez asked all teachers to try to find a way to be on a PLC team even if they didn't have a common planning period. Although he didn't want to play this card, he made it clear that he could require teachers to come to faculty meetings one afternoon every other week. However, he tried to encourage teachers to find their own times to meet (he arrived at school at 5:15 every morning, modeling the possibilities for early arrival), and, as mentioned, tried to find classroom substitutes so that teachers could sit in on meetings.

In some cases, teachers met in groups of convenience. For example, in the first year of the PLC program, a group of special education teachers found themselves having the same free period as some world language teachers, and together they formed a PLC focused on the common needs of classroom management. In other cases teachers with similar situations had common planning time by chance. In 2010-11, almost all teachers of eighth-grade special education resource classes had a common planning period once a week, so they met then; however, there was no guarantee that the scheduling situation would exist again the following year.

Even with flexibility and supports, teachers without common planning periods or those on multiple teams had a different experience than those who were on a single team with common free time. That inequity was probably the biggest challenge that school leaders faced, and no department faced this issue more strikingly than special education.

The Special Case of Special Education

At both schools, the special education departments were arguably the most involved players in the PLC process. At Marvin, special education teachers met with the content teachers on the math and language arts teams, in their own department meetings before school, and in resource teacher teams and inclusion teams. One teacher interviewed at Marvin taught with a mainstream math teacher and a mainstream English teacher as well as teaching her own resource classes in both subjects. This situation gave her a total of five potential PLC meetings, if she were able to make them all. The situation at Isaac was similar. Although fewer special education teachers attended the mainstream PLCs, they, like

TABLE 2: FORMATS OF PLCS IN CASE STUDY SCHOOLS

	Marvin	Isaac
Schedule	Six-day rotating	Five-day traditional
Common Planning Periods	For academic core teachers, but only some teachers in social studies and science had single preparations. Some special education teachers had the same planning time as their core content teams.	For academic core teachers, but non-core teachers needed to find common time before or after school, or during common break periods.
Duties	Bathroom and hallway duties were removed, but teachers still monitored in-school suspensions and had spot substitute duty.	Some hallway, lunch, and bus duties were removed. Faculty meetings were greatly reduced.
Expected PLC Commitment	Three days per cycle for language arts and math. Switched to two days a cycle after the first year.	Twice a week for academic core teachers. Once a week, whenever possible, for a minimum of 15 hours for non-core teachers, with the hope was that teachers would meet beyond that minimum.
Areas of Focus	Planning, student data analysis, sharing of curriculum ideas, technology training, and state testing preparation.	Planning, student data analysis, sharing of curriculum ideas, technology training, state testing preparation, and elective professional growth sessions.
Structure of PLCs	By department. Special education teachers were included in math and language arts meetings, but also had their own meetings.	By grade-level teams in most cases. Other teams, like physical education and world language, crossed grade levels and sometimes departments.
Membership of PLCs	Required for math and language arts; teachers, special education, and physical education met as well.	Required for all academic core teachers; others were expected to find a group to work with.

their peers at Marvin, had to make special arrangements to meet, a fact which Suarez noticed: "I'm proud of them for that because you've got some great teachers getting together on off time before school."

At Marvin, and where it happened at Isaac, the input of special education teachers was invaluable. Special education teachers shared important expertise about the learning patterns of their students and the

teaching of all students. The nature of the challenges of their job made PLC work a natural fit. Despite the fact that they had multiple preparations (and lengthy individualized education plans or IEP reports to write), many special educators in both schools sat on multiple PLC teams.

However, there were also challenges with special education involvement in PLCs. At Marvin, where resource teachers met with mainstream teachers, the perspective that the special educators brought to the group was much appreciated, but the occasional need to use meeting time to get resource teachers caught up to the mainstream classroom teachers was a source of some frustration. In cases where the mainstream teachers had worked together for a while and the curriculum was largely set, some teachers felt that these catch-up discussions could be done in separate one-on-one conferences.

At both Marvin and Isaac, special education was the largest department in the school. Teachers in those departments dealt with some of the most difficult students, and because of their mixed assignments, they served on multiple teams. Remarkably, in both these cases, the teachers consistently went beyond normal school responsibilities, largely without complaint.

Processes: The Structure of Teams

Between the two schools, there were a number of different PLC formats and processes for how PLC work was carried out (see Table 2, page 21). At Marvin the PLCs were organized by department. At Isaac the central PLCs were organized by grade-level core content teams, which were configured differently between the seventh- and eighth-grade teams. In addition, at Isaac, different teams composed mostly of members of non-core departments formed PLCs that met at various times within and outside of the school day. The variety of formats supported the theory that there is no single way to do PLCs.

In both cases, school leaders let teachers largely decide what their PLCs would look like. Baldwin explained the reasoning behind this decision by the leadership team at Isaac:

> The second people feel that something is a requirement, is being regulated, is just forced on them, they kind of lose sight of its value. So we have tried to market PLCs in a positive way and where we don't expect to hear from you tomorrow. This is where we are. Take the baby steps so that we can move forward.

Both schools tried to leave room for teams to create situations that worked for them. This strategy seemed to work as far as supporting a sense of autonomy for most teachers, and it left the door open to multiple interpretations of what PLCs should look like even within the same schools.

Subject Matter vs. Interdisciplinary Teams

At these schools, there were two main types of teams: discipline-based and interdisciplinary. At Marvin, all teams were discipline-based, and there was an obvious efficiency in the choice: Teachers spoke the same academic language, they knew the same material, and they were largely working toward the same goals. Teachers in both the math and English PLCs at Marvin were appreciative of the shared insights

they gained from working in discipline-focused teams; if anything, the complaints that arose concerned distractions that took them away from the team focus.

Subject Matter Teams at Marvin

At Marvin PLCs reflected differences between the math and language arts teams. The math teams were more tightly coordinated with very similar unit plans and identical major assessments. There was a lot of examination of common assessments and use of data from those assessments to inform future planning.

Perhaps the best representation of the math teams' PLC work was a discussion in the eighth-grade group about a test the teachers were getting ready to give. The test was projected up on a screen with one teacher at the computer making changes, while three other mainstream math teachers and two special education math teachers sat in a circle of desks. The discussion became heated when modifications were proposed to one test question, which had challenged students previously. Teachers debated whether the parts of the answer to a word problem should be separated out for the students so they could see the different aspects of the question being asked.

One of the special education teachers said that she would definitely modify the question. One of the mainstream math teachers disagreed, saying, "The [state] test won't break it up."

Other teachers jumped in to ask whether it was important to make sure that students wrestled both with the concepts and with finding the information needed in the wording of the question. Soon there were raised voices, people were laughing, and some strong opinions were shared, and in the end there was an agreement to disagree. Some teachers would scaffold the question, some would not; and presumably they would analyze what they saw. What the teachers did agree on, however, was a set of SMART goals coming out of the test material.

Because of the disagreement, this example showed the kinds of behaviors that a strong PLC can engender. The teachers felt comfortable freely challenging each other. More importantly, test questions that could have been simply recycled were scrutinized deeply by the whole team, and measurable goals were created to see if the students were meeting the desired levels of understanding.

The language arts teams also showed similar levels of coordination in some areas (e.g., in essay-scoring calibration sessions), but there was more room left for interpretation in their work. Their meetings were more often about sharing ideas and general professional learning. One could speculate that the differences were due to the nature of the disciplines (and the nature of those who teach in them), but other factors ranging from book supplies to the personal choice to maintain flexibility could be other reasons.

At both schools test scores motivated some of the PLC work teachers were doing. One teacher went so far as to say, "It's all about test scores." But the discussions with many other teachers showed that many valued the attempt to use the data to improve teaching, with the hope that improved teaching would raise test scores.

The decision whether to focus on NCLB requirements or not has important implica-

tions. Although there was no denying the power of the dynamics of the math teams' discussing specific questions on specific tests, similar work was done in the English department around "open-ended" questions (a specific type of question on the New Jersey state exam, which also has broader critical-thinking value). It could be that there is something to be gained from giving teachers space to agree on certain issues and to explore options in other situations. In both schools there were some teachers who wanted more coordination and others who wanted to maintain certain amounts of freedom.

Interdisciplinary Teams at Isaac

At Marvin, department-based teams allowed core-content groups of teachers to create their own identities at the possible cost of gaining deeper understanding of what other departments were doing. By contrast, at Isaac the decision was made to create interdisciplinary teams of core-content teachers at each grade level. Teams were composed of teachers who shared the same grade-level groups of students, with one teacher from each content area; they also met in larger interdisciplinary grade-level teams.

Suarez explained:

> All for one, one for all. That's one of our mottos. Whether I'm a math teacher or a social studies teacher, I'm still involved with what's happening in English. They are all of our problems. So therefore, if I'm a health teacher or art teacher or special ed teacher, I'm also involved in that.

As a result of this philosophy, the seventh- and eighth-grade teams were interdisciplinary. Similarly, the "off-team" teachers were also expected to do work to support the learning goals of the other departments.

Many teachers at Isaac expressed an appreciation for being able to meet with different colleagues at their grade level and within their department. On some levels the sharing was highly practical, especially for activities like examining data. Having all teachers look at student data, as the interdisciplinary teams at Isaac did, put the responsibility on all teachers to think about what should be done to address needs, instead of leaving the responsibility only on the teachers of the tested subjects. On a more subtle level, a number of teachers said they enjoyed just learning from people they didn't ordinarily see, and a few teachers mentioned having less inter-group competition as a result.

When the interdisciplinary groups were working well, the benefits seemed clear. This was definitely the case for the seventh-grade core-content team. For most of the 2009-10 school year, during their PLC time, the teams examined research articles brought in by various members. While these articles sparked some interesting discussions, there was a sense that, as one teacher said, "PLC meetings sometimes repeated ideas we already knew." While the experience brought teachers from different disciplines into contact with each other, sometimes the set-up limited the options available to teachers. As one group leader said, "The last thing we want to do is waste people's time. You don't want to leave the PLC saying, 'Well, what did I really get out of that?'"

In response to the issue of inefficiency of PLC time, Victoria Nielsen, a seventh-grade team leader, came up with the idea

of setting up a series of elective classes for teachers. At the beginning of the 2010-11 school year, the whole group developed a set of topics that people wanted to study further, based on their examination of student-achievement data at the beginning of the year. The plan was to take each of their two weekly PLC days and divide them into multiple sessions. People signed up to lead the sessions, understanding that they did not need to be experts, only facilitators. Nielsen explained her plan:

> When I think about PLCs, I focus on the last two words, the learning community, which to me should be centered on how you might want to look at something and grow professionally, and your professional growth then impacts what you're doing in your classroom. I think a lot of people want to have somewhat of a kind of cookie-cutter PLC—this is what you need to do, this is how it would look—but because our community is actually driving our learning, it might look differently for different people, and it may take different avenues as it's going on.

The system tapped into powerful forces of autonomy and motivation. Members of the team shared their excitement in their interviews. According to one teacher:

> Our elective system makes the requirement better for more teachers because then you're not feeling like, "Well, I'm forced to sit in this meeting, and I don't have a choice about what we're talking about." Where now you've chosen where you want to go. So if you don't like it, that's your choice.

While the system played to people's individual interests, its main effect was to bring teachers together who otherwise would not have had much contact. Larry Stoeher, a team leader, described the situation:

> I like that this system cuts across team boundaries. It used to be four or five of us in a room, and you didn't really get exposed to people in the other teams. You were kind of off in your little cocoon. Where in this, you're exposed to different people in all different departments (including your own) with different styles, some of whom have been teaching for 40 years and others that have been teaching for two.

This balance between interdisciplinary and individual interests could be seen at the PLC meetings themselves.

Learning in Interdisciplinary Teams

At a session on formative assessment at Isaac, a veteran science teacher shared resources for activities that could be used to check student understanding in class. Teachers from various disciplines shared ideas and questions. Then the teachers separated in discipline-specific groups to think about how they could implement similar activities in their classes. At another session for members of a technology strand, a young English teacher led a hands-on workshop on using Google Docs. The workshop was followed by a discussion about how to make this type of work possible despite limited computer access.

Ultimately, the uptake of ideas in both subject-matter and interdisciplinary teams proved vital to the success of the PLC system. According to Stoeher:

> What goes on in PLCs can be taken directly and applied in your classroom. Whereas with the teaming, sometimes it seemed like we just would talk about kids or you would talk about an idea, and then when you got back to your classroom, it sort of ended like it was a dead end.

The PLCs generated a palpable energy in the seventh-grade meetings, with veteran and young teachers sharing ideas and learning from each other, and seemingly putting some of this learning into classroom practice. Similarly, the eighth-grade core team and the eighth-grade resource team both utilized the expertise of the whole group as well.

Challenges of Interdisciplinary Groups

There were also challenges with the interdisciplinary model at Isaac. At times finding ways for all of the players to be involved was difficult. The eighth-grade team had always operated as one big group, and they initially had a hard time finding a topic that appealed to everyone, so that teachers would not feel that the topic didn't fit their needs and become disengaged. A number of teachers said that they would prefer to spend more time with their discipline groups, and eventually the eighth-grade core-content team did just that.

Of all the core subject areas, math presented particular challenges, which is somewhat ironic because, compared to the other subject teachers at both schools, the math teachers seemed to be doing the most interdependent work. In interdisciplinary settings, however, the connections could feel forced. For example, the eighth-grade resource teacher PLC was a tightly cohesive group that had carefully looked at student data together and decided to work on open-ended questions across the curriculum. Math, however, has different needs for open-ended questions than other disciplines.

Dealing with a similar situation but with larger numbers, the eighth-grade core-content group eventually divided into discipline-area groups to discuss the issue of open-ended questions. Math was largely on its own, and the other discipline areas, which shared the reading comprehension style of open-ended questions, worked independently to suit their own needs. The whole group then reconvened to discuss ways to share information on the topic. Because they had multiple teachers in each discipline, however, the math teachers were not left alone to do their share of the work.

The Value of Teacher Autonomy

These complications seem to point to the value of systems such as the seventh-grade elective solution, which tapped into teachers' sense of autonomy and their desire for efficiency. Rather than finding a topic that worked for everyone, the group looked at topics that people chose according to their needs as defined by the data or their own interests as professionals. The multiple choices in each session gave teachers a chance to have a say in what they did each day.

The autonomy and degree of involvement of teachers in many of the groups at both schools reflected the flexibility and patience of the principals, administrators, and leadership teams. Leaders at both schools discussed their desire to give teachers the ability to figure out and own the PLC process, and in many ways, that worked. At

both schools teachers in many of the groups were energized by the freedom (and responsibility) given to them.

The Cost of Teacher Autonomy

Teachers' appreciation and comfort with the autonomy given to them was not universal, however. Some individuals and groups expressed frustration in not knowing exactly what was expected of them. As one teacher said, "I don't think we know what to ask. I don't think we know what is expected of an actual PLC." Part of the frustration had to do with personal styles. Nielsen, the creator of Isaac's seventh-grade elective system, said that she liked the freedom to design PLC work as it developed, and in this case, the combination of the personalities, the leadership, and the system all seemed to make the PLCs work for a large majority of the teachers. The eighth-grade core team, however, took a little longer to find that working balance. As a whole, the team had prided itself on making decisions as a large group. But with some members wanting to keep the big group, some wanting smaller groups, some wanting clear direction, and some wanting an organic process, the crystallization of their work took longer than that of the seventh-grade team.

Leadership and Teacher Autonomy: Keeping the Balance

In both schools, the principals positioned themselves on the more open-ended side of the spectrum. Both required teams to report minutes of meetings and both periodically visited meetings. As Suarez said, "We made it real simple. We didn't come out of the gate saying, 'students have to start improving their New Jersey state test scores tomorrow.' Each team dynamic will be different in how they approach it." Teachers got that message of freedom. As one teacher said, "I think it was given to us very openly. So, it was like, experiment with it, play around with it, see where it takes you, and then narrow it down from there." The teachers at Marvin got a similar message, and many appreciated the flexibility and the sense of trust that the freedom represented.

As Tanya Adams, the assistant principal at Marvin, explained, there was a general belief among the administrators that with more structured interaction, good things would happen for teachers and students alike. Suarez believed he could see the difference in classrooms:

> Each teacher has been made responsible. I made them make their own school-level plan and focus plan. And so I look at those elements when I'm looking at their lesson plans. And I see the changes in the maturity of how the teachers are addressing the student needs.

Building Collegial Professional Practice

Getting (Almost) Everyone Involved

As these schools evolved from friendly communities into collegial learning communities, the changes began to resemble a developing professional practice. First, the principals and school leadership teams seemed to realize that collegiality was much deeper than friendship. At Marvin, they had seen how individual teams like the math groups were learning from each other and educating new teachers. At Isaac, the

principal and the leadership team had seen the effects of collaboration in the previous, voluntary PLC program. The results were excitement and innovation for some, but uneven distribution of effort overall. Comments in interviews implied that the hoped-for critical mass to impact the school and the district had not been achieved. Principals made the difficult decision to require participation in PLCs. They made some concessions and offered some protections; nonetheless, PLC work in both schools was required.

Some of the credit for this shift to mandated professional development with local autonomy in New Jersey should be given to the state department of education's Office of Professional Standards, which drew on current research and local expertise to create a system that required schools and teachers to look inward to identify their specific professional development priorities. This turned out to be an ingenious idea, because it left schools with the freedom to explore their own needs in developing systems like PLCs, but did not allow schools or teachers the option of not participating.

The principals in both of the schools tried to follow the state's line of thinking. As one teacher explained, "The biggest change is that everyone had to do it. It forced a different kind of conversation." What had been a friendly environment of sharing became a more structured atmosphere of discussion about practices among professionals. And those like the math teachers at Marvin and the CLC teachers at Isaac, who had done some of this work previously, were suddenly joined by much larger numbers of other teachers, who had not previously participated. That shift led to a change in the way the teachers saw their connections with each other. In the words of one Marvin teacher, "Even though this is a school that was very cooperative, every teacher was, to some extent, on their own island, and we've really kind of merged into a chain of islands as opposed to individual islands." This quote acknowledges the growing connection between the teachers but also their independence. The change was about more than the feeling of closeness, however; it was about the way the work was accomplished.

Changing the Nature of the Discussion

Having this set-aside time, entailing flexible but unavoidable demands, forced teachers to go into greater depth in their discussions with their colleagues. The focus derived from the norms gave a sense of professionalism to meetings. As one Isaac teacher explained:

> [Teachers were pushed] past the idea that we're just doing a team meeting now. This is more important than that. And we're in this community with the idea of helping each other be more successful and be more successful for the kids as well.

Many teachers mentioned the idea that the PLCs made them more aware of focusing on what students were and were not learning, as opposed to just planning what the teachers would teach or what events would happen for students.

That awareness also enabled ideas and plans to be tested in a way that hadn't occurred prior to the PLC implementation. There was a sense of accountability and reflection that came from publicly sharing ideas. As a Marvin math teacher

said, previously she could feel like she was giving the students thoughtful work, but she wasn't really reflecting on the assessments. In the PLC system, she had that work vetted by other professionals on her team. To do this kind of work, there had to be high levels of trust and professionalism, both of which were positively connected to the strong sense of community that had previously existed in both schools.

Teachers Deeply Examined Their Work

For some teachers this shared accountability led to a change in the culture of analyzing student results. The central focus of this work shifted so that it centered on student needs. The idea seems so simple, and yet this way of thinking is often ignored in teaching. Rather than looking at what can be done to change situations, teachers and schools often use information to label or discount programs or individuals.

Data Analysis Drove Instruction not Just Diagnosis

Both the state and the two case-study schools saw PLCs as needing some sort of objective basis to measure impact, and the bulk of the evidence on the effects of PLCs was necessarily in the form of state test scores. The use of student-achievement data, like the use of research more broadly, has always been a slippery subject for teachers. A focus on compliance with state-level standardized tests is sometimes seen as an incentive to teach to the test, which often puts emphasis on short-lived, lower-order thinking skills at the cost of deeper teaching (Darling-Hammond, 1991). While there was some evidence in both schools of teachers using strategies that were somewhat limited to test preparation, in general the use of student achievement data was pointed toward improving instruction overall.

There were also striking examples of ways in which data were being used in ways that had not been done previously. Comments from the special education teachers in both schools were most revealing. Anyone with any experience with special education over the past 20 or more years knows that data have been a significant part of these teachers' work. For example, test scores have been used to identify needs and determine placements. At both case-study schools, however, special educators used data differently than they had before participating in PLCs. Instead of using scores solely to diagnose and label students, they were now using data to help them determine what needed to be taught in the classrooms and to check what students were learning. This switch was subtle, but important, because it took the burden of the results off the student and shared it with the teachers.

In the past, students who struggled could be dismissed as damaged or unresponsive. At the case-study schools, however, they were front and center in the schools' plans, and much of the work monitoring their progress was done by mining the data in groups like the Isaac eighth-grade resource teachers' PLC. That team had always shared a set of students in resource classes, and they had always had data about those students. In 2010-11, however, they used the data collectively to design strategies to help change instruction. Drawing from trainings given by the state, they posted the data on large boards allowing them to see trends in different test areas and to collectively discuss the results of individual

students. The process helped the different resource teachers come together as a team instead of working as friendly but isolated coworkers. The tests became a collective tool for change, which in turn led the team to be more goal-oriented in the way they looked at the scores and their students.

Using Data to Establish Goals

The core-content teams at Isaac also changed the way they looked at data. As with the special educators, they had always received their students' scores, but the scores were often reviewed and then shelved. For the most part the responsibility for the scores, which focused on math and language arts, would be left to the teachers of those disciplines. Through their PLC work, Isaac's core-content teams began using the data to establish goals across disciplines. In some cases these goals were focused directly on the issues/skills of the New Jersey state exams (e.g., open-ended questions) and in other cases the test score data acted as a bridge to broader educational issues like formative assessment.

Using Data to Inform Instruction

The teachers at Marvin similarly looked at student data to inform instruction. That could be seen particularly in math, where teachers on both grade levels collectively debated the significance of in-house test results and made decisions on remediation of subjects based on the results of unit exams. While sharing individual teacher data requires courage, for many teachers it actually helped them see the issue less personally. As one Marvin math teacher said, "Where before, it was 'All right, what'd *I* do wrong?' Now it's collective. 'Well, where did *we* go wrong? What did *we* miss?'" In English, as well, the teachers used the data to guide efforts for classroom practice.

At its best, the data became a collective tool to focus the work of the teachers and guide their instructional goal setting. At its worst, the data could be a distraction from larger issues of quality teaching and learning, especially if the data were used to drive classroom practice to focus on test preparation. Both schools knew that in the educational conditions of the time, there was pressure to keep up with unrealistic AYP requirements. In a letter to American teachers, Secretary Arne Duncan (2011) acknowledged this pressure:

> You have told me you believe that the No Child Left Behind Act has prompted some schools—especially low-performing ones—to teach to the test, rather than focus on the educational needs of students. Because of the pressure to boost test scores, NCLB has narrowed the curriculum, and important subjects like history, science, the arts, foreign languages, and physical education have been de-emphasized.

Teachers have been put in the difficult situation of serving conflicting agendas. At both case-study schools, though, it seemed that state test-score data was seen as a guiding tool as opposed to the ultimate measure of outcome. At Marvin, math teachers used their own benchmark data to analyze their students' performance on local assessments and adapt their plans accordingly. At Isaac, the seventh-grade core content team used state-test data to inform elective workshops they created for themselves. In situations like these, the various forms of data became tools to enable teachers to confront the realities of their students' progress, spurring

them to work to solve problems instead of blindly moving forward year after year, following more abstract agendas.

Deprivatizing Practice

Perhaps the most powerful evidence of the PLCs' effects was the practice of teachers putting their work on display. In traditionally isolated schools, teachers could practice their craft largely unwatched by anyone else (Lortie, 1975). Even visits from evaluators would often be announced and then carefully scripted to ensure success.

In our visits to the PLCs, teachers shared their successes and struggles with other teachers in both small team meetings and full-faculty gatherings. Whether it was a group of teachers sharing the scores their students got on a recent math quiz at Marvin, or the special education teachers at Isaac getting up in front of the staff to share the test data of their students and the ways they planned to help support them, teachers began to break down their isolation and began using the PLCs to think about how they could improve their practice.

Those kinds of shifts provided graphic evidence of the difference between congenial work and true collaboration. Whereas congenial work consisted of casual sharing of ideas and reinforcing the status quo, teachers working interdependently and publicly shared the reality of what they were facing and made plans to do something about it. This raised the bar for what those teachers expected from themselves and each other.

Cutting the Work Load and Sharing the Benefits

While all of this work took more time, in many ways it had the potential to save time. Teachers working together at both schools divided tasks, from planning to making copies to sending notes to parents. They shared knowledge and resources, and this practice seemed to greatly increase once teachers saw how the meetings benefitted their students. Once the Isaac eighth-grade core content group figured out what they were going to do with their time, they saw that they could use time more efficiently by splitting into smaller content groups, focusing on work that could help further their classroom efforts. This helped them to become much more invested in the process. The teachers in both math groups at Marvin expressed relief at the amount of time saved by sharing the planning and preparation process.

A further benefit came from the valuable mentoring effects of PLCs. Veterans and new teachers in both schools prized PLCs for helping newer teachers get established, and veterans discussed the value of getting new ideas (especially about technology) and energy from the younger teachers.

Convincing Skeptics

In convincing skeptical teachers of the value of PLCs, one might assume it would be most effective to remind them of the school's vision and mission during initial team-building and PLC training, as Guskey (2002) predicts. However, it seemed that at both schools those elements were secondary to getting immersed in the work itself. It could be argued that before starting the PLC process, both schools had accepted a broader vision that existed because of the staff's longstanding willingness to take on challenges as a team. Although it is impossible to tease out the exact timeline for that acceptance process, teachers seemed

aware of their schools' missions, and both schools utilized distributed leadership and floated the idea of PLCs before getting fully involved. Still, it seemed that having teams up and running did more to win people over than the initial training and discussions.

One key to allowing the work to win people over was providing the time to do the work. While there was reluctance, many teachers said that having the work required was important and, in ways, liberating. With so many existing responsibilities, it would be easy for teachers to spend all their time planning, grading, or talking about student concerns. All of those areas are vital to teachers' work, but when they take up all of their time, teachers can get stuck in repetitive ruts. Proactive efforts like making changes to curriculum can take a backseat to demands for daily survival. As one Isaac teacher said, PLCs "force us to experiment," and many teachers mentioned appreciating having that time set aside.

What Can We Learn?

State and School Contexts

Context seemed to play an important role for both schools, and perhaps for all of the schools in the PLC Lab School Project and in the state as a whole. The state's professional development planning policy required school committees to assess professional development needs, but the schools were given the autonomy to create professional development plans that best fit their individual contexts. The state supported this initiative by providing training and resources for schools to create SPDCs and to make professional development plans. Both schools took this initiative seriously, and the leaders made efforts to empower the SPDC members to take leadership roles in charting the professional development course of each school.

While collaboration beyond the SPDC was not required by the state, the state leaders, in partnership with various universities and professional organizations, provided numerous resources and training opportunities, such as the PLC Lab School Project, to encourage schools to increase their collaborative efforts in order to meet their professional development needs.

Providing State Training for PLCs

The state training for the 33 PLC lab schools was reported to be very helpful by PLC leaders at both of the case-study schools and in survey data collected from the participants (Monahan, 2010). Issac's Kate Baldwin explained, "The PLC Lab School process has been incredible. I would say hands down the best opportunity. If only every school could have the chance to have that kind of training." Having the training appeared to be vital to those teacher leaders and administrators in order to gain the expertise and confidence to counsel teams when necessary.

An Example of Change in Congenial Schools

Prior to the state's increased emphasis on collaboration, the two case-study schools were already farther along the path of collaborative growth than what scholars would call the earliest stages of collegial growth (Grossman, Wineburg, & Woolworth, 2001; McLaughlin & Talbert, 2006). In this way, the two provide a window into the workings of relatively collaborative schools looking to deepen their collegial connections. At both schools teachers already supported each other, were comfortable sharing ideas, and overcame struggles with state accountability together. For a few teachers the pre-existing social community seemed to be an impediment to the effort of developing an even more collegial environment. They felt that they had been doing enough collegial work and didn't need to be pushed to do more, so that requirement caused some initial frustration.

For many other teachers, however, the sense of community made it easier to step into the more intentional collaboration of PLCs. At Isaac many teachers had been previously trained in a form of PLC work, and at Marvin some groups, like the math and social studies teams, had already been operating as unofficial PLCs. As a result of having this base, very little was needed in the way of relationship building, although

for most groups some loose ends still needed to be addressed through leadership decisions, structural changes, and training and planning to shape the PLCs.

Providing the Necessary Conditions for PLC Growth

Leaders were put in the position of navigating much of the implementation process. With input from the state and the SPDCs, principals made the final decision to move these already somewhat collegial schools to a more systematic PLC process. They made the decisions about who was required to be involved in the PLCs, helped set the tone for how the learning process would happen, and, where possible, made structural moves to free up time for teachers to meet.

As mentioned, the most common concern for teachers was finding time in the weekly schedule. Their days were packed with planning, meetings, grading, and duties. When asked to give advice to other schools looking to start PLCs, many teachers went straight to the time issue. Comments such as "Our plates are full. What will be taken away?" were common. Leaders recognized this and did their best to either eliminate some duties or make other possibilities available to those whose schedules did not offer convenient times to meet.

Scheduling Dilemmas Remained

Even with schedules adjusted to create opportunities for teachers to meet, there were still significant challenges in making time for all teachers to attend PLCs, especially within the school day. Having the luxury of teaching a single preparation with common planning time is limited, in most cases, to middle schools with the funding for classes like physical education and creative arts, which give the core-content teachers common blocks of free time. At these two schools, however, the ability to make time concessions beyond a single common planning period for some teachers was constrained. While classes were covered so teachers could attend meetings at Isaac, there was no money for ongoing weekly substitutes, so the gesture, though valuable as an act of goodwill, was not sustainable.

There are challenging issues around what is fair to ask of teachers in situations where there are unequal responsibilities or resources. The case-study schools had common planning periods for core-content teachers, and even then, some teachers had concerns about time being taken away. At Marvin there were not enough science or social studies teachers to meet as a group, and some teachers had multiple preparations. In both schools "non-team" teachers were not guaranteed common meeting time, and many special educators belonged to particularly large numbers of teams. Such situations led to difficult questions about time equity and expectations.

Focus Was Critical

In meetings at both schools, there seemed to be an appreciation for structures that focused the sessions. While some teachers bristled at the idea of meeting protocols, many mentioned appreciation for the norms and SMART goals[10] that kept the meetings from devolving into chat sessions. While norms were pretty consistent between and within schools, there was a wide range

[10] *SMART goals, often used in teaching practice, are a practice for project planning and monitoring and stand for "Specific, Measurable, Attainable, Realistic, and Time-bound."*

of ways in which SMART goals were used, from guiding daily or weekly goals for some of the math groups, to developing longer-term goals for other teams. Overall, most teachers seemed to feel that guiding structures were helpful in moving forward with the PLC implementation process.

Supporting Each Other

At both schools leaders shared the beliefs that everyone was learning together, teachers were not expected to master the process immediately, and leaders were there to help teams that were having trouble finding their way. Teachers at both schools expressed appreciation of this overall sentiment, and the principals backed up their statements of support with actions, such as Matson's reducing the weekly requirement from three PLC meetings a cycle to two.

Multiple Levels of Leadership: Nurturing PLCs

Research tells us that for professional development to be effective, it can't be disconnected and sporadic (Lieberman and Miller, 2008). As shown in this case study, both school principals as well as the other administrators and teacher leaders understood this situation and tried to support teachers need for time to develop their learning communities.

The retrospective nature of this study allowed us to examine not only the two years that the schools had been in the PLC program but earlier experiences as well. Community, for example, had been built over decades in both schools. Yet, turnover in both schools required that new teachers and leaders be acculturated. The PLC process itself started with a year of training in 2009-10 by the state for the PLC leadership teams and exploration for the actual school teams, followed by more focused implementation efforts later in 2009-10 and into the 2010-11 school year.

Even with the prior understanding that the work would take time, teachers found their patience challenged. Leadership is commonly cited as a crucial piece in the school reform or school success puzzle, and this study highlighted how complicated that role can be. The leaders were constantly calling on combinations of traits and skills to deal with a continually changing landscape. The two principals hoped that the teachers would cooperate long enough to find the work valuable, while they decided whether to step in to help teams who were struggling.

At the same time, the members of the broader leadership networks also monitored the progress of the PLCs and offered help and guidance where needed. Both schools were fortunate to have assistant principals, professional development leaders, and team leaders who were invested in the process and worked to make the process understandable and meaningful.

At both schools, two years into the process, all of the teams seemed more comfortable working as PLCs than they had been previously, but the work had not ended. Furthermore, it became clear that to some degree the process must begin again each time new teachers or new leaders arrive who may or may not have the interest or ability to sustain the work.

In these already close-knit communities, both leaders were willing to challenge their staffs to try something new because they felt that the result would be good for the

teachers professionally and for student learning; they also felt confident that the channels of distributed leadership could support the work and that the teachers would participate effectively. After resources of time and expertise were provided, processes were set up for doing the work. Involvement was largely required by the leaders, but team leaders and teachers had the autonomy to design the PLCs in ways that would fit with the work they needed to do. The staffs, for their part, were both willing and wary. Positive past experiences with collaboration were tempered by some "initiative fatigue" and multiple existing demands. At both schools, however, the existing PLCs seemed to be doing increasing amounts of collegial work as teachers found ways to make the PLC process their own and bought into the vision.

Requirement: A Catalyst for Change

Many teachers were too busy to take on the time commitment of doing PLC work without being required to do so. At the same time, there was cynicism from years of revolving reform demands. The findings of this study suggest that given the right situation (of leadership, resources, and relationships), requiring PLC work can help push the work forward in meaningful ways. In determining the value of PLCs versus collaborative work, it can be argued that all teachers can benefit from feedback and interaction.

Despite teachers' knowledge of successful practices, classroom observation studies show that the vast majority of class time is still devoted to traditional practices such as teacher-led direct instruction and individual seatwork (Pianta, Belsky, Houts, & Morrison, 2007). So what stops teachers from working to improve their teaching techniques to stimulate learning and interest? Good and Brophy (1987) argue, "Teachers are often unaware of much of what they do, and this lack of perception can result in unwise, self-defeating behavior" (p. 1). McLaughlin (1993) describes the converse situation: "Teachers who work in sequestered and non-collegial settings receive neither challenges to their conceptions of practice and to their assumptions about students, nor support for trying to do something different in response to today's students" (p. 94).

Furthermore, there is evidence that working together fosters deeper thinking. The work of Cohen, Lotan, and Leechor (1989) shows that in effective learning environments, students' shared knowledge is greater than the sum of its parts. This case study shows examples of teachers sharing their ideas and knowledge and, as a result, gaining deeper knowledge, creating more thoughtful plans, and providing more varied and detailed student supports as well.

A number of teachers in this study appreciated the fact the time was set aside to do the work of reflection, learning, and curricular change that would have been otherwise taken up by the various demands of the job. In a paradoxical way, there seemed to be a liberating quality to the requirement, when the work was efficient. The observations of such work in meetings and the teachers' open admissions that such work had not been happening before were convincing evidence that some of this effort was transforming classroom practice.

Autonomy vs. Control

The tension between autonomy and control continued beyond the initial requirement to be involved. While the principals of both case-study schools required PLCs in some

form from some portion of their teaching staffs, they both left substantial room for teachers to figure out *how* they wanted the PLCs to look. This strategy is supported by psychological research on motivation (Deci & Flaste, 1995) and seems in most cases to have helped increase intrinsic motivation to be involved in the PLCs. But so much freedom also made some teachers feel lost. Deci & Flaste discuss this phenomenon, saying that "people need to feel competent and autonomous for intrinsic motivation to be maintained" (p. 86). When groups were having trouble defining what their goals were and how to go about doing this work, having too much autonomy was a source of frustration for some teachers, who expressed anxiety around not knowing what they were doing. Principals and other school leaders then were left to make the difficult decision of when to step in to provide direction.

Differences in PLC Format and Areas of Focus

The autonomy given to teachers to chart the courses of their PLCs also resulted in a wide range of different PLC formats. This was true between disciplines at Marvin and between interdisciplinary teams at Isaac. At Marvin, the math groups were tightly aligned, using their time to plan common curricula and assessments and analyze the data around that work. The English teams were more loosely connected, focusing on common assessments but with more room to interpret the design of that work. At Isaac, the seventh-grade team designed an elective system where, during each meeting period, teachers could choose from two teacher-led sessions on topics generated by the team. The eighth-grade resource teachers, by contrast, focused on analyzing data and supporting a specific type of reading analysis that was important for reading in general and prominent on the New Jersey state exams. It could be that these differences were incidental or even beneficial, but the differences warrant further observation to see if some PLC formats are more successful than others.

The Effect of Norms on Collegiality

As has been noted, both schools already had tight social communities before this PLC process was introduced. The teachers were friendly socially, and they had worked together professionally in teams and had shared ideas informally. This sense of community seemed to have been helpful in many ways. School leaders didn't need to do large-scale team-building exercises, and teachers didn't need to be convinced of the value of working with colleagues.

But in both schools there were pockets of reluctance to the idea of being "forced" to do something some felt they did already. Different groups flirted with what Coburn (2001) describes in her study of reading program implementation as leaders resorted to blaming people for problems rather than trying to solve them. Instead, what was needed was more of the model psychologists Kegan and Lahey (2000) call "switching from the language of complaint to the language of commitment" (p. 8), and for the most part groups in both schools seemed to have eventually done that.

In retrospect, teachers in both schools (even the initially reluctant teachers) consistently acknowledged that their interactions in the PLCs were generally deeper than they had been previously. The common assessments and ensuing data analysis done in math de-

partments at Marvin and the more proactive use of data by the special education teachers at Isaac were examples of this shift. Even in groups that were less closely aligned, there seemed to be movement toward a greater sense of colleagueship.

As a result, the work seemed to allow some of the teachers who appeared to have what Dweck (1999) calls entity beliefs—feeling that the way they worked was unchangeable—to see the possibility of and value in making incremental changes to their ways of collaboration.

All of the conditions of Allport's (1954) requirements for group building—equal status, cooperative activity, sustained personal interaction, and systematic social norms—were consistently seen in the meetings in both schools. Some of these are purposefully built into the PLC model; but equal status, which often is not found in schools, seemed particularly consistent across both schools in multiple groups.

Building PLCs: Negotiating the Tensions

This study has the potential to shed light on an important aspect of current educational practice and efforts toward school reform. More and more schools are investing time and energy in developing collaborative opportunities for their staffs (*MetLife*, 2009). Building PLCs, however, is not easy. As Stoll, Bolam, McMahon, Wallace, and Thomas (2006) observe: "A number of subtle as well as more overt processes require work, and there are influences, both within and external to schools that can either facilitate or severely inhibit the process" (p. 247).

While this research at Isaac and Marvin Middle Schools underscores the idea that PLC implementation is a process that resists any kind of simple recipe, it highlights several important elements that appear to be necessary for a PLC to be successful. A series of tensions were observed that highlight those seemingly productive elements of PLC implementation and the challenges that need to be faced. In each of the tensions, negotiations are needed to attain positive results.

Following are key findings of the conditions that can challenge and support the success of PLCs:

- Positive staff relations can help create the base for PLCs, but they can also create a sense that further collaborative work is not needed.
- State and school training support PLC learning, but require state resources and school expertise to be distributed successfully.
- In addition to training, time is an important support for collaborative activities, yet its allocation can cause inequity and resentment.
- Norms and goal-setting procedures seem to keep groups focused despite some teachers' distaste for the restrictions they create.
- Interdependent work seems to deepen practice, and use of data gives focus to teachers' work, yet data can also narrow the scope of teaching.
- Principals appear to play a vital role in making this work happen on a school-wide basis even when they are learners themselves.

- Support by the broader leadership networks and staffs of their schools is critical to principal success
- Principals need conviction to push their staffs to take on this effort, but they also need the flexibility to support and adjust the processes where necessary.
- Teachers are understandably protective of their time, but many appreciate the space created by required PLC meetings to discuss their work.
- Teachers need authentic investment. Autonomy for teachers leads to a sense of empowerment and creativity but can sow the seeds of confusion and uneasiness when the future is unclear.
- Autonomy also leads to varied PLC designs, which fit different contexts, but research is needed to decide if some formats are more useful than others.
- Leaders (and teachers) need to have the patience to allow the PLC process to develop despite a "results now" climate in American education.

Despite the limitations of this study, there seem to be many things we can potentially learn about the development of PLCs. Even though the teachers at both schools had a sense of community before the PLC work, the move to talking about teaching was a big leap. Making their teaching public took time, effort, and tremendous support. Leadership from all levels needed to adopt an openness to both positive results and continued reluctance. Developing something new (a PLC) appeared to help build trust as both leaders and followers were learning *how to be* and *what to do* together.

Enabling Policies and Supports for PLCs

Training

State-level policies in New Jersey were critical in fostering PLCs in the schools. Both the policy requiring professional development action planning and the training and resources to support that work point to important policy. The principals realized that the training and the resources from the state were critical and took full advantage of the offerings. Training in collaborative work proved to be a necessity for the development of PLCs.

More broadly, the many timing and decision-making challenges that leaders faced shined a light on the larger implications of principal leadership. These principals learned the processes of negotiation and navigation of control and autonomy through trial and error, but these skills and abilities could be part of leadership training in preparation for PLC implementation.

Effective Data Use

The SAI numbers show that other schools were also putting increased effort into looking at student achievement data, but it is unclear how those data were being used. Even if most schools were using data as constructively as Marvin and Isaac, there is a clear policy implication here for the need for quality testing. If teachers are going to teach to the tests, and if many PLCs are going to be focused on meeting that need, then policy-makers need to honor teachers' efforts by providing tests

of a different order. Darling-Hammond (2007), in testimony before Congress about the reauthorization of NCLB, and Darling-Hammond and Adamson (2010), gave numerous examples of international versions of standardized tests that actually encouraged deep thinking. These kinds of tests connected to Common Core Standards have important potential.

Negotiating the Building of PLCs

Both school leaders cleared time for many teachers to meet with their PLCs, but in neither school did all teachers have common meeting time during the school day. The creation of PLCs in these two schools highlighted the problems of time and structure in middle schools. Although accommodations were made, difficulties of team participation were never fully resolved.

Managing this work required delicate balance and thoughtful vision on the part of principals, including knowing when to push, when to adjust, when to support, and when to step back and let teams figure things out for themselves. This seemed to be a valuable skill both principals learned. Clearly, the role of the principal was large, but these situations also showed the value and importance of having other administrators and teacher leaders who could facilitate the process and the development of systems to help involve others in leadership positions.

Professional learning communities have the potential to change the culture of teaching and leadership in schools. These two cases begin to show the complicated, yet promising process of change. Countries all over the world are struggling to change schools to meet 21st century demands. Perhaps PLCs will provide the kind of school culture that can promote and support the changes that will be necessary. And perhaps these two cases can begin to give a sense of what it will take to get there.

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Appendices

Appendix 1: Methodology

Selecting the Sample

The 33 New Jersey Lab Schools provided a bounded set where the schools were comparable in their state contexts and experience in dealing with collaborative work. To further tighten the sample and because middle school is seen as a critical and under-researched time in students' academic development (Felner et al., 1997), the case-study pool was trimmed to include only middle schools or multi-age schools with grades seven and eight.

Also considered were data for average eighth-grade test scores in the New Jersey state exams in English and math, percentages of students who were eligible for free- and reduced-price lunch (a proxy for income level), and numbers of students per eighth grade class (the entire grade, not each classroom). These data allowed for a good range of demographic comparisons, which helped in making the site selections as well as adding context to the quantitative analysis of the SAI survey data.

Perhaps the most important category for the purposes of setting up the sample was the number of students per grade in each school. A small number of students per grade means that there is often only one subject teacher per grade, which would either make collaboration within the department solely vertical (between grades) or within teams of other disciplines. Both of these areas are interesting but different from situations where PLCs operate among multiple teachers in one subject area. Because one of the foci of this study involved exploring shared practice, having a larger group of teachers from the same discipline was important.

Using the SAI for School Selection

Of the 12 SAI factors, we focused on five (Leadership, Learning Communities, Data-Driven, Collaboration, and Resources) that fit most closely to the topic of the study.[11]

The areas of the SAI survey that reflect collegial practice are Learning Communities and Data-Driven. The questions in the Learning Communities parts of the SAI data include examples such as, "Teachers examine student work together" and, "We receive feedback from our colleagues about classroom practice." The "Data-Driven" section includes examples like "Teachers analyze classroom data with each other to improve student learning" (National Staff Development Council, 2010).

The SAI's Collaboration factor covers statements that acted as proxies for many of the expected implementation factors. The statement, "Our school leaders encourage sharing responsibility to achieve school goals" and "Our school's teaching and learning goals depend on our staff's ability to work well together" indicate a sense of shared purpose. While there is no specific statement about building relationships and trust, one—"Our faculty learns about effective ways to work together"—comes close to offering an indication in that area. Finally, in the statement, "My school structures time for teachers to work together to enhance student learning" is an indicator of the process of implementation.

[11] *See Appendix 3 for more information about the SAI survey factors.*

TABLE 3: DEMOGRAPHIC AND SAI COMPARISONS OF THE CASE STUDY SCHOOL SITES

	Percent passing 2010 Eighth-Grade State Exam		Demographics		SAI Indicator Rankings (scale = 1-4)				
	English	Math	Pupils per Grade	Percent Free Lunch	Leader-ship	Learn-Com	Data-Driven	Collabo-ration	Re-sources
Isaac	89%	79%	265	20%	3.1 (0)	2.4 (.0)	2.5 (0)	2.8 (.1)	2.7 (.1)
Marvin	80%	63%	200	43%	3.4 (.1)	2.5 (-.1)	2.9 (.1)	3.1 (.1)	2.7 (-.1)
Group Average					2.9 (-.1)	2.2 (.1)	2.5 (.1)	2.7 (.0)	2.5 (0)
State Average Grade 8	83%	69%		30%					

Source: Common Core of Data, 2010; New Jersey Department of Education, 2010a; New Jersey Department of Education, 2010b.

The SAI factor resources section includes statements like, "Fellow teachers, trainers, facilitators, and/or consultants are available to help us implement new instructional practices at our school," which serves as an indicator of capacity; and, "Substitutes are available to cover our classes when we observe each others' classes or engage in other professional development opportunities," which covers the actual resources needed to free up time.

Last, in the SAI factor of Leadership the statements, "I would use the word, empowering, to describe my principal," and, "Our principal fosters a school culture that is focused on instructional improvement," point to leadership qualities that would encourage teachers to be involved in reform work like PLC implementation.

Using those factors, we examined the first and second administrations of the SAI scores of the Lab Schools from fall 2009 and spring 2010 and their changes over that first year. We wanted to see schools that had at least somewhat strong numbers in the major categories. We also wanted to avoid schools that were trending downward, and ideally it would have been interesting to have schools that showed some increase from that initial administration.

Given these requirements, two schools, Doug Marvin and Isaac, remained viable (see Table 3, above). Doug Marvin did not show any major increases, but for schools with a minimum number of students per grade and at least average numbers of low-income students, they had the highest scores in multiple areas, including Learning Communities, Collaboration and Leadership, and they actually had some of the highest scores when compared with other schools of all sizes and income distributions. Isaac had somewhat similar numbers of low-income

students (20% free lunch as compared with 43%), and still had pretty high scores on most factors given their demographics, but they had some room to grow in areas like using data. Neither school had particularly strong growth in those first two administrations of the survey, but both seemed to have solid bases for examining middle-level-income schools doing collaborative work.

Determining Levels of Collegial Practice

There were two parts to the quantitative work for this study. The first part was just described in the school selection discussion. There we looked descriptively at the demographic statistics and applicable SAI factor scores from the fall 2009 and spring 2010 administrations of the survey in order to select the two case-study schools. While there were various ways the data could be analyzed in all categories, the main focus at this preliminary phase was to look at the SAI results in terms of evidence of factors of PLC implementation at the two schools. Doing so grounded the schools in a larger population of schools and in the case-study schools' own reported levels of professional development, which allowed us to look back later at how they got to those points.

The next step in the study was to analyze the SAI data from the three administrations of the survey along with the demographic data. We wanted to look more closely at the overall changes in the main SAI factors over time; especially with the November 2010 administration of the survey, we felt we could see the actual start of the effects of the state training. We then wanted to look at the two case-study schools to see how they changed over time, where they ended up, and how they compared with the larger group. We also wanted to look at individual questions along those lines to see if there were any interesting differences with isolated questions.

Unfortunately, the numbers of schools and people participating in the survey did not stay consistent over the three administrations, making quantitative analysis of the trends in the survey challenging. In the fall of 2009, 33 schools with a total of 1670 teachers and administrators participated. Those numbers went down to 28 schools and 1,233 respondents in the spring of 2010, and further still to 19 schools and 801 respondents in the fall of 2010 (see Table 4, page 48).

The numbers for each type of school descended relatively evenly, with middle schools holding the highest percentage of their original respondents and high schools losing the most. Doug Marvin and Isaac, both of which completed all three rounds of the survey, did see attrition in their numbers but did manage to maintain 64% and 61% of their original numbers respectively.

Although the sample demographics and even their responses to the surveys stayed largely consistent, the numbers were different enough that we decided to use only the core group of 19 schools when we did analyses between the administrations in the quantitative analysis section. The surveys still provide useful descriptive data for each individual administration, and despite the limitations of the sample, some valuable trends seemed to emerge.

Elements of the Case Studies

The bulk of the study, based in two New Jersey public middle schools, used a multi-methods case-study design. Working within a case-study mode allowed us to

TABLE 4: PERCENTAGE OF RESPONDENTS TO THE SAI ADMINISTRATIONS

Category	Fall 2009	Spring 2010	Fall 2010
Total Group (Schools/Respondents)	33 / 1,670	28 / 1,233	19 / 801
Elementary[12]	33%	34%	28%
Middle	48%	49%	55%
High	23%	22%	17%
Marvin	100%	92%	64%
Isaac	100%	58%	61%
Average Free- and Reduced Lunch	20%	18%	21%

Source: Common Core of Data, 2010; New Jersey Department of Education, 2010b.

analyze varied factors of the story behind the numbers of the quantitative data and to explore and illustrate the choices and dynamics of PLC implementation and their effect on schools. The primary units of analysis for this case study were the individual teachers in the two schools—each of whom had perceptions of how the implementation process had worked—as well as the professional learning communities which we observed and the degree to which they, as groups, showed the specific qualities of PLCs: specifically, how individual teachers learned, accommodated and eventually participated in the development of PLCs.

Interviews

The primary focus of data collection involved a series of one-on-one interviews. The main sources of subjects were the principals, other administrators, and the teachers of the site schools. Since both schools had a recent history of developing a PLC system, we asked questions looking retrospectively at the different stages of the PLC implementation process without having to follow the entire arc of that process.

Both schools were chosen in part because they had a number of students per grade that would support multiple teachers per

[12] *Some schools spanned multiple grade-level categories, so the sum of the schools in each type exceeds the total number of schools. Teachers were counted by the grade they reported teaching. Middle school was counted as grades six through eight. Some teachers did not report their grade level, and some reported more than one level. When looking at individual teachers, we counted sixth- to eighth-grade teachers as middle school teachers and kindergarten to fifth grade as elementary teachers, even in schools that covered both elementary and middle school years. When looking at schools as the unit of analysis, we treated any school with grades seven and eight as a middle school.*

TABLE 5: DISTRIBUTION OF TEACHER FTE ACROSS DEPARTMENTS AT CASE-STUDY SCHOOLS, 2009-10

School/ Grade Levels	Total Student Body	Eighth Grade Students	Number of Teachers	Special Ed	Math	English	Science	Social Studies	Arts, PE, Tech, and Others
Marvin (6-8)	627	200	61	20	9	9	3.5	3.5	16
Isaac (6-8)	823	265	84	22	10	17	9	9	17

Sources: Common Core of Data, 2010; School records from Marvin and Isaac, 2010.

discipline (see Table 5, page 49). Marvin had eight full-time core-content teachers per grade, and Isaac had even more. Rather than try to sample all three grades, we decided to interview all 16 of the seventh- and eighth-grade core-content teachers (see Table 6, page 50). Because of budget cuts, Marvin offered science and social studies as one-semester blocks, and as a result had only one full-time science and social studies teacher per grade, which limited their participation in PLC work. Nevertheless, we interviewed these teachers for their perspective on the process, which proved important for the findings of the study.

Isaac was a larger school and had double blocks of English in sixth and seventh grades, so they had more English teachers, and they offered a full year of social studies and science, so their seventh and eighth grade core-content teams were larger per grade (15 and 12 respectively). We randomly chose a collection that gave us two teachers from each discipline per grade. We also wanted to get the perspective of the special education departments in both schools, who played an important role in the work in the mainstream discipline classes as well as in their own resource classrooms.

At both schools, we were fortunate to get a high percentage of teachers to agree to participate. At Marvin all of the core-content teachers agreed to talk with us, and at Isaac 14 of the 16 initially invited accepted, and two more agreed to talk in place of the teachers from whom we had not gotten replies. Similarly, all of the administrators and professional development leaders and special educators whom we approached participated.

Observations

Beyond interviews, we observed PLC meetings and went to one school-wide meeting at Isaac (see Table 7, page 51). During these meetings, we were looking for discussions of the implementation history, and factors such as leadership and resource use, but we were also looking for evidence of outcome measures such as interrelated

TABLE 6: BREAKDOWN OF THE INTERVIEW SAMPLE USED FOR THE CASE STUDIES

School	Teacher Interview Sample	Number of Teachers	Administrators/ Total	Others
Doug Marvin	All seventh- and eighth-grade core content teachers	17 teachers invited, all accepted	Principal (3 times) and assistant principal	Three special educators, one PLC committee leader
Isaac	Random sample of seventh- and eighth-grade core content teachers	16 teachers invited, 14 accepted, two agreed to replace those that did not respond	Principal (3 times) and assistant principal	Two special educators, one school professional development committee leader

goals, deprivatized practice, common assessments and planning, and team use of data to inform instruction.

We tried to get a sense of the types of issues the PLC members discussed and the basic interchange patterns between them. We looked for situations like whether they talked about on-task work or had random conversations, whether all people talked at meetings, whether people dismissed or supported ideas, etc.

In the end, it felt like we had a good picture of where those departments were at that time in the PLC implementation process. In the interviews, and even in the meetings to an extent, we had reached what Seidman (1998) calls "a saturation point," where having interviewed a seemingly representative group of individuals and seen a broad sample of meetings, we felt like we were getting the same information over and over again.

TABLE 7: LIST OF PLC OBSERVATIONS AND DATA GATHERED

Meetings Observed	Data to Gather	Minimum Observations
Marvin 7th grade English meetings 8th grade English meetings 7th grade math meetings 8th grade math meetings	Factors shaping implementation process; factors of PLC work including interaction of group, and outcomes of interrelated goals, deprivatized practice, common planning and assessment, and team use of data to inform discussion.	2-3 each team 10 total
Isaac 7th grade team meetings 8th grade English meetings 7th grade math meetings 8th grade math meetings Full school meetings	Factors shaping implementation process; factors of PLC work including interaction of group, and outcomes of interrelated goals, deprivatized practice, common planning and assessment, and team use of data to inform discussion	5 each grade-level team 3 department observations 13 total

Appendix 2:
Schools in PLC Lab School Network
(BY INCOME LEVEL)

School	Grade Levels	Number of Eighth Graders	Percent Free Lunch	Percent Passing Math	Percent Passing English
Iris Calvino	K-8	91	0	89	95
Enterprise Middle School	5-8	68	0	85	90
Excel Middle School	6-8	270	1	87	94
Nuncia Middle School	5-8	147	2	76	95
Frank Iberia Middle School	6-8	56	2	86	88
Cortland School	PreK-8	59	8	72	93
Nassau Elementary School	K-8	85	9	93	95
David Harvey Middle School	6-8	451	9	83	91
Kopple Middle School	6-8	304	10	75	89
Oxford Community School	PreK-8	132	12	74	89
Oberlin Middle School	6-8	158	15	78	84
Isaac Middle School	6-8	265	20	79	89
Yardley Middle School	5-8	89	20	70	87
State Average Grade 8			30	69	83
Neville Elementary	P-8	39	31	81	85
Doug Marvin Middle School	6-8	200	41	63	80
Kronos School	K-8	120	51	55	75
Interboro Middle School	7-8	328	52	55	71
Mary Prince School	PreK-8	31	56	43	61
Quarry Road High School	7-12	70	57	50	60
Quincy Middle School	6-8	140	67	55	62
Hartsdale Elementary	PreK-8	39	75	19	41

Sources: Common Core of Data, 2010; New Jersey Department of Education, 2010a.

Appendix 3:
Standards Assessment Inventory Factors

Context

Learning Communities—shared practice

9. The teachers in my school meet as a whole staff to discuss ways to improve teaching and learning.

29. We observe each other's classroom instruction as one way to improve our teaching.

32. Beginning teachers have opportunities to work with more experienced teachers at our school.

34. We receive feedback from our colleagues about classroom practices.

56. Teachers examine student work with each other.

Leadership

1. Our principal believes teacher learning is essential for achieving our school goals.

10. Our principal's decisions on schoolwide issues and practices are influenced by faculty input.

18. Our principal is committed to providing teachers with opportunities to improve instruction (e.g., observations, feedback, collaborating with colleagues).

45. Our principal fosters a school culture that is focused on instructional improvement.

48. I would use the word, empowering, to describe my principal.

Resources

2. Fellow teachers, trainers, facilitators, and/or consultants are available to help us implement new instructional practices at our school.

11. Teachers at our school have opportunities to learn how to use technology to enhance instruction.

19. Substitutes are available to cover our classes when we observe each others' classes or engage in other professional development opportunities.

35. In our school we find creative ways to expand human and material resources.

49. School goals determine how resources are allocated.

Process

Collaboration

6. Our faculty learns about effective ways to work together.

23. My school structures time for teachers to work together to enhance student learning.

28. Our school's teaching and learning goals depend on staff's ability to work well together.

43. Our school leaders encourage sharing responsibility to achieve school goals.

58. Our principal models effective collaboration.

Data-Driven

12. Teachers at our school learn how to use data to assess student learning needs.

26. Teachers at our school determine the effectiveness of our professional development by using data on student achievement.

39. Teachers use student data to plan professional development programs.

46. Teachers use student data when discussing instruction and curriculum.

50. Teachers analyze classroom data with each other to improve student learning.

(National Staff Development Council, 2010)

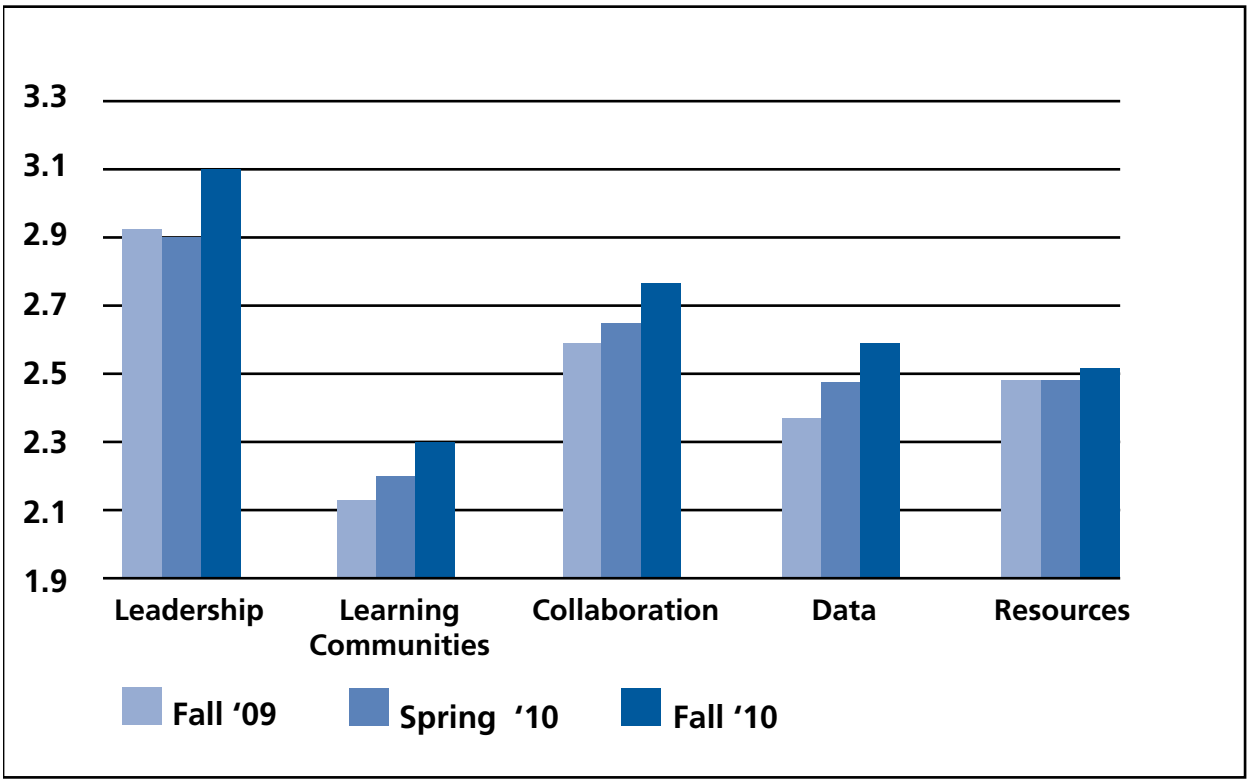
Appendix 4: Quantitative Analysis: Standards Assessment Inventory Score Changes

In order to triangulate the interview and observation findings, we looked at the Standards Assessment Inventory (SAI) scores of the two case-study schools and of the group as a whole over the three administrations of the survey. The numbers for the schools that did all three rounds of the survey show some interesting patterns over time (see Figure 1, below). In the year from the first round of the survey to the third round in November 2010, average scores for all of the main factors associated with PLC work improved, except for Resources. The fact that Resources stayed flat on average makes sense, given the challenging economic situation in the country and the state of New Jersey during the 2009-10 school year. In some ways it is amazing that those numbers didn't go down more.

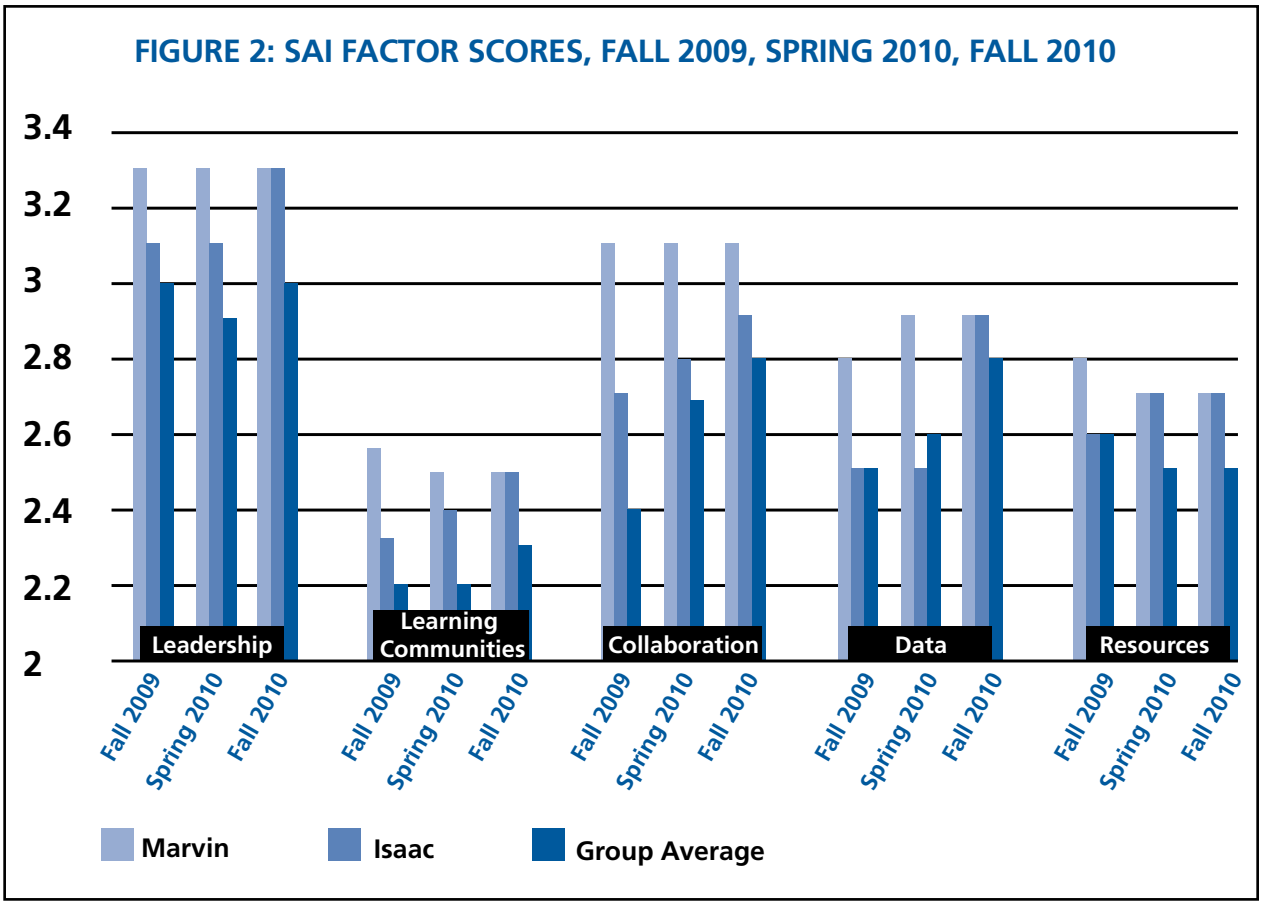
Figure 1 shows how the average score for Leadership, which ended up going up by .16 overall, actually dipped slightly at the end of the 2009-10 school year.

That dip, again, could make sense given the stress at the end of the year regarding both budget issues and the possibility of some people's frustration with the implementation of the new PLC program. The fact that the Collaboration and Data-Driven factors both steadily climbed makes sense in that they

FIGURE 1: SAI FACTORS SCORE CHANGES FOR FULL SAMPLE FALL 2009 - FALL 2010



Source: New Jersey Department of Education, 2010b
SAI scale= 4-1



Source: New Jersey Department of Education, 2010b
SAI scale= 4-1

would be the areas likely to respond most quickly to the PLC intervention. Similarly, Learning Communities, which measures more advanced collaboration like lesson study and classroom observation, had lower overall scores but climbed steadily.

Standards Assessment Inventory in the Case-Study Schools

Figure 2, above, gives a view of the trends over time, with the SAI factor scores of the two case study schools compared to the averages of all of the schools.

Marvin started with high scores but stayed flat in some areas like Collaboration and even went down in Learning Communities. The ending scores remain well above the averages in all of those areas, however, and they fit the fact that teachers at Marvin went into the PLC work already feeling like they did a lot of collaboration. In some cases, such as social studies, they had done more collaborative work in the past than the more recent schedule allowed them to do.

In that sense, the flat Collaboration scores could show a limitation in the SAI's ability to see an in-depth change in some of these areas. It is true that teachers at Marvin had been collaborating prior to the PLC implementation, but for most of the teachers who were doing the current PLC work, the sense was that the PLCs had taken that collaboration to a deeper level. The increased data scores may be due to practices introduced in the state-run workshops, which the respondents were more able to see as a real change.

Isaac also had done collaborative work prior to getting involved in the state PLC Lab School Project, and their baseline

scores, which were above average in all categories, reflect that past work. Because some of their prior collaborative work was voluntary, the implementation of the school-wide PLC efforts may have affected the growth in areas like Collaboration and Learning Communities once the work became a requirement for everyone. The rise of data use fits with the qualitative interviews and observations as well. While the work of researching and discussing PLCs had begun between the first two administrations of the survey, the work of looking at data had not, so the fact that the scores for the data factor jumped dramatically in the fall of 2010 survey corroborates observations made at the school site.

The results of individual questions in the final administration show that the scores for the teachers in both schools were significantly above the average compared to the scores of the rest of the middle school teachers in a number of areas (see Table 8, page 58). The fact that both schools were strong in supporting new teachers (question 19) and in using data by the time of the last survey (questions 50, 12, and 46) fits well with the findings of the case studies. Also it is not surprising that both schools were strong in structuring time to work together (question 23) as both had dedicated time within the school day for core-content teachers.

Even though both schools were still above average in almost every category, some of the differences between the two schools described in the case studies are supported by the survey numbers. For instance, Isaac's scores for question 19 support the interview data that the school made the effort to supply substitutes and time to do PLC work. Their relatively high scores for deprivatized practice make sense as well, and may be higher than those of Doug Marvin because they were able to have meetings with all subject areas, whereas only the teachers of certain disciplines at Marvin met regularly.

For Marvin, the strength of the numbers for vision and relationships (question 6) fit with the qualitative data, as do the numbers for finding creative ways to expand human and material resources (question 35), which was shown in the elimination of teachers' duties. Finally, both leaders have overall high scores in all of the individual questions, with Suarez standing out as empowering (question 48) and Matson as giving space for faculty input (question 10), evidenced by his reduction of days of PLC work.

Setting the Context for PLCs

Looking at the survey numbers adds useful context to the interview data. The addition of the November 2010 scores was particularly helpful. While the first two rounds were adequate to ensure that the school sites had acceptable baseline levels of professional activity, the spring 2010 survey was too early to show a strong shift in the progress of those scores. The fall 2010 scores seem to show the beginnings of growth in the factor areas (except Resources) generally, and in the case-study schools specifically. The means of the teachers' responses at both Marvin and Isaac are statistically above the mean for the rest of the middle school teachers, but they are not outliers either.

The two case-study schools provide an interesting contrast. Marvin, a high-scoring school, maintained its high scores even though scheduling problems made collaboration difficult for many departments at the school; Isaac, which also started with a strong sense of collegiality although generally lower SAI scores, saw those scores rise more significantly. These findings were very consistent with the qualitative findings at the schools.

TABLE 8: T-TESTS BETWEEN CASE-STUDY TEACHERS AND OTHER MIDDLE SCHOOL TEACHERS

Question	Isaac	Group[14]	Marvin
Shared School Vision 43. Our school leaders encourage sharing responsibility to achieve school goals.	2.92	2.81	**3.24*** **
Relationships 6. Our faculty learns about effective ways to work together	**2.90** **	2.67	**3.1*** **
Resources 35. In our school we find creative ways to expand human and material resources.	2.83	2.76	**3.24*** **
32. Beginning teachers have opportunities to work with more experienced teachers at our school.	**3.0*** **	2.60	**3.05*** **
Time 19. Substitutes are available to cover our classes when we observe each other's classes or engage in other professional development opportunities.	**2.4*** **	1.88	1.72
Processes 23. My school structures time for teachers to work together to enhance student learning.	**2.96*** **	2.54	**2.83** **
Interdependent Goals 43. Our school leaders encourage sharing responsibility to achieve school goals.	2.92	2.82	**3.24*** **
Deprivatized practice[15] 34. We receive feedback from our colleagues about classroom practices.	**2.47*** **	2.19	2.38*
56. Teachers examine student work with each other.	**2.67*** **	2.36	2.59**
Data 50. Teachers analyze classroom data with each other to improve student learning.	**2.84** **	2.59	2.95***
12. Teachers at our school learn how to use data to assess student learning needs.	**2.9*** **	2.57	**2.97*** **
46. Teachers use student data when discussing instruction and curriculum.	**2.97***	2.8	**3.11*** **
Leadership 10. Our principal's decisions on school-wide issues and practices are influenced by faculty input.	**2.82** **	2.59	**3.08*** **
45. Our principal fosters a school culture that is focused on instructional improvement.	**3.45** **	3.22	**3.54*** **
48. I would use the word, empowering, to describe my principal.	**3.12*** **	2.75	**3.05** **

Source: New Jersey Department of Education, 2010b
* Difference is significant (p<.10) **Difference is significant (p<.05) ***Difference is significant (p<.01)

[14] *For the t-tests the schools were compared to the group mean without their scores. Rather than show the two slightly different scores in this middle column, we just showed the total mean for descriptive purposes.*

[15] *Scores in this section were very low generally.*