The Role of Professional Learning Communities in Successful Response to Intervention Implementation

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Many challenges confront educational professionals as we strive to ensure that all students in our classrooms meet rigorous standards for academic achievement. Whether the goal is proficient reading by third grade, or knowledge of algebraic principles by eighth grade, or college-ready writing skills upon exit from high school, there are many obstacles that complicate the road to universal student success in school. No matter how talented or dedicated a teacher may be, the Herculean efforts of one, or even a multitude of individuals, will not be sufficient to meet important societal goals for student learning. To design instruction and school structures that help overcome impediments to achievement in specific schools, a focused and comprehensive approach within that particular context is needed. For this reason, powerful professional development is no longer seen as an isolated event for individuals, but rather a structural process in which the school becomes a learning organization with a tight focus on the success of each and every student.

We therefore judge our success in transforming the teaching profession by our students' outcomes: High levels of student achievement, judged by multiple measures that assess students' ability to understand and apply the knowledge and skills that matter most to their readiness for college, careers, and citizenship. From *Transforming the Teaching Profession Vision Statement* (US Department of Education 2012)

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Professional learning communities, or PLCs, are an increasingly prevalent structure for professional development and school improvement. In PLCs, teachers, administrators, and educational specialists collaborate to understand a problem, propose and enact new ideas, and analyze the effects of their teaching on student learning. The goals of PLCs are easily aligned to a response to intervention (RTI) framework in that both are based on the tenets of teamwork, evidence-based practice, and a dedication to continuous improvement in results. This chapter takes an in-depth look at where PLCs came from, and what the research literature says about their effectiveness for improving teaching, student learning, and school productivity. Characteristics of PLCs and how these align with structures within an RTI process are shared. Next, a data team meeting that merges principles from the PLC and RTI literature is described, and examples of schools that are integrating these two currents in school reform are presented. Finally, the chapter concludes with recommendations for future research that is needed to enhance the role of PLCs in RTI implementation.

Evolution of Professional Learning Communities

In the early to mid-1990s, a transformation was taking place in traditional notions of professional development for teachers. Where once teacher development had been conceptualized

S. R. Jimerson et al. (eds.), *Handbook of Response to Intervention,* DOI 10.1007/978-1-4899-7568-3_7

as preservice *preparation* and in-service *training,* new thinking pushed against the "pour it in" model of professional learning (Darling-Hammond and McLaughlin 1999). As student populations became increasingly diverse, teachers needed new skills, and a "packaged" approach would not be enough. Proposals for new structures and institutional arrangements were being made that included opportunities for educators to integrate theory with classroom practice, examine student work with colleagues, and engage in inquiry around problems in practice (Darling-Hammond and McLaughlin 1995). Key among the ideas being proposed was the need for procedures for reflecting critically on teaching practices and student outcomes. Darling-Hammond and McLaughlin outlined the importance of a supportive "community of practice" where teachers could closely examine and review the effectiveness of their teaching practices (1995). At the same time, Lieberman voiced similar calls for a reconceptualization of best practices for teacher professional learning (1995). She asserted that teachers "must have opportunities to discuss, think about, try out, and hone new practices…" (Lieberman 1995, p. 593). Suggestions for structuring these opportunities included common planning time, partnering new and veteran teachers, and forming teams for enacting their own professional learning (Lieberman 1995). Louis and Marks studied 24 elementary, middle, and high schools going through a restructuring process and found that a stronger level of professional community had a positive relation with the organization of classrooms for learning and students' academic achievement (Louis and Marks 1998). These ideas challenged old notions of professional improvement and set the stage for what would become the professional learning community approach.

One of the first discussions of the term *professional learning community* in print occurred in Shirley Hord's literature review entitled, *Professional Learning Communities: Communities of Continuous Inquiry and Improvement* (1997). In this document, she notes Astuto and colleagues' use of the phrase *learning community* to describe the ways in which administrators and teachers intentionally share and act upon what they are learning to improve professional practice for students' benefit (Astuto et al. 1993). In much the same way that the business sector was considering what it meant to be a learning organization (Senge 1990), a new view of school improvement was evolving: one that valued shared decision-making and collegial efforts that positioned children's learning at the center. Attributes of such PLCs included supportive and shared leadership and vision, collective learning, and the physical conditions and human resources to put these ideas into practice (Hord 1997).

DuFour and Eaker's 1998 book *Professional learning communities at work: Best Practices for Enhancing Student Achievement* outlined the rationale and purposes for PLCs. Based on DuFour's work as an educational leader at the high school level, the authors provided detailed descriptions of how these learning communities are developed and function to enhance teacher and student success. With a mixture of passion and formula, the authors heralded a new model for school change that promised to transform the culture of schools by uniting principals, teachers, and parents to work collaboratively on a shared vision for student success (DuFour and Eaker 1998).

Over the past 15 years, the literature on PLCs has expanded exponentially. A recent search of the term *professional learning community* on the Internet resulted in 242 million results that included professional organizations, publications, case studies, presentations, "how to" documents, blogs, planning tools, and more. Since Hord's literature review, many books and articles have been written on the topic, professional organizations have standardized the term, and numerous educators and consultants have made PLC implementation their full-time work. Among others, DuFour, DuFour, and Eaker disseminated a user-friendly model of PLCs across the USA (2005). The term PLC has become so ubiquitous these days that in many schools it is a synonym for collegial planning or meeting time.

Characteristics of PLCs

This section shares the essential prerequisites for productive PLCs as proposed by those who study them. What does the literature say about how they are structured for success? As the PLC model has come to life in the real work of schools, what has been learned about best practices for implementation?

In Table 1 characteristics of well-implemented PLCs based on the work of several important thinkers in the field are delineated. To a great degree, there is a consensus about the necessary components of success: shared vision, collaboration, inquiry, commitment to continuous improvement, and the appropriate physical and psychological support systems (Hord and Hirsch 2008; Kruse et al. 1994; Little et al. 2003; Stoll et al. 2006). These terms are explicated in greater depth below.

Shared Mission, Vision, Values, and Goals A PLC is unique because at its center is a collective commitment to a set of principles that govern the group's work. Foundational principles for PLCs often include putting student learning first, a willingness to share professional practice with others, and holding high expectations for all students and adults within the school community.

Collaborative Culture Professionals in a learning community work in teams that share a common purpose. Members understand that working together is more powerful than individual efforts. They learn from each other and create the momentum that drives improvement. Together, teams build the structure and tools that make collaborative work and learning effective and productive. Members of the PLC construct a set of agreed-upon norms for how the group will engage and operate.

Collective Inquiry Professionals in a learning community seek improved methods of teaching and learning. They test these methods, examine evidence of student learning, and then reflect publicly on the results. Teams coordinate their investigations and actions so that the work of each individual contributes to a common strand of new knowledge applicable in their school context (Dunne et al. 2000).

Action Focus Members of PLCs turn their learning and insights into action. They recognize the importance of engagement and experience in learning and in testing new ideas. Their collaboration moves beyond discussion about students to producing materials that improve instruction, curriculum, and assessment.

Commitment to Continuous Improvement Members of PLCs continually seek ways to bring present reality closer to future ideal. They constantly ask themselves and each other: "What is our purpose?" "What do we hope to achieve?" "What are our strategies for improv-

Table 1 Characteristics of professional learning communities

Source	Shared mission, vision, values and goals	Collaborative culture	Collective inquiry	Action focus	Commitment to Continuous Improvement (professional growth)	Physical support	Relational support (mutual trust)	Supportive leadership	Shared leadership
DuFour 2004	X	X	X	X	X	X			
Hord and Hirsh 2008	X	X	X	X	X	X	X	X	X
Kruse et al. 1994	X	X	X	X	X	X	X	X	X
Stoll et al. 2006	X	X	X	X	X	X		X	X
Little 2003	X	X	X	X	X	X	X	X	X

ing?" and, "How will we assess our efforts?" Assessment and reevaluation are the keys to continued improvement.

Physical Supports Administrators in a PLC provide the sanctioned time, space, and resources needed for PLC members to work together.

Relational Support Members of PLCs respect and value the opinions of other team members. Norms allow all members to trust their colleagues enough to voice weaknesses and questions, as well as strengths and successes. The focus is on collaboration and goal achievement, as opposed to competition.

Supportive Leadership Administrators share decision-making with teachers and provide leadership opportunities.

Shared Leadership Leadership is shared and distributed formally and informally among PLC members. All participants take responsibility for the success of the group process.

Taken together one paradigm-shifting concept emerges from the characteristics of effective PLCs: what Louis, Marks, and Kruse (1996) call the "deprivatization of practice." Deprivatization occurs when teaching is no longer seen as an activity conducted "behind closed doors" by an individual and becomes a professional practice that is studied, questioned, and replicated by a team. In PLCs, teachers share, discuss, compare, and question each other about their instructional techniques. Classroom teaching and assessment are opened up for observation and reflection, and teachers build on each other's successful practices in order to achieve school-wide goals.

Research on Professional Learning Communities

Research on the relationship of PLCs to educational outcomes focuses on three areas: (1) shifts in teaching practice, (2) student achievement, and (3) school-wide or program effects.

Teaching Practice By far, the bulk of research to date on PLCs has focused on their relationship to changes in teacher behaviors and attitudes. The literature demonstrates that teachers who participate in PLCs demonstrate more of the positive behaviors that school change projects seek to regularize. These capacities include increased leadership and collaboration skills, higher satisfaction and participation in professional activities, and improved knowledge of research-based approaches to instruction. These features are delineated over the next several paragraphs.

On a personal level, PLCs have been associated with increased teacher morale, participation, and ownership of the functioning of the school. In schools that were organized into student and teacher learning communities, Lee, Smith and Croninger (1995) found that teachers expressed greater job satisfaction and lower rates of absenteeism. In her summary of the literature based on reports of school restructuring efforts, Hord (1997) concluded that outcomes for staff working in PLCs included a reduction of feelings of isolation and an improved commitment to the mission of the school. Several researchers noted changes in teachers' attitudes after participation in collaborative professional development, such as an increased sense of confidence and efficacy, a willingness to collaborate and share (even though there was anxiousness about having their teaching observed), and an openness to trying out new practices (Cordingley et al. 2003; Supovitz 2002).

Skills for leading and collaborating also appear to be developed through participation in PLCs. PLCs facilitate a culture of collaboration that includes peer observation and feedback, collegial support, dialogue about practice, and extended time to embed new instructional strategies (Berry et al. 2005; DuFour 2004; Stoll et al. 2006). PLC members develop shared norms and values that create opportunities to build collaborative knowledge through the use of collegial dialogue to reflect upon the successes or inadequacies of their practice (Dufour 2004; Lieberman 2003; Newmann and Wehlage 1996; Phillips 2003). Vescio, Ross, and Adams' (2008) litera-

ture review found documentation that these collaborative efforts led to teachers changing their instructional practices to include more interaction (e.g., author's center, choral reading, writing process), flexible grouping strategies, and focusing on the needs of diverse students. Wilhelm (2010), reporting on a California project that implemented learning communities in close to 100 schools, noted that principals and teachers demonstrated increased levels of shared responsibility for student achievement.

Perhaps most importantly, participation in PLCs appears to engender an increased teaching focus on student learning (DuFour 2004; White and McIntosh 2007). Since essential characteristics of PLCs include collective inquiry, an action focus, and continuous improvement, team meetings are primarily centered around student performance outcomes (Clauset et al. 2008; Love et al. 2008; Peery 2011). When PLC meetings focus on student data, they are much more likely to have an impact on achievement, changes in school culture, and instructional quality (McLaughlin and Talbert 2010; Saunders et al. 2009; Vescio et al. 2008).

Student Achievement Although PLCs are frequently discussed in the research literature, few studies have measured their effect on student achievement. The Center for Comprehensive School Reform and Improvement points to four studies that attempt to measure the connection between PLCs and student performance (see http://www.centerforcsri.org/plc/literature.html). In the first study, Hughes and Kristonis (2007) analyzed data from schools in Texas that were using PLCs. Over the course of a 3-year time period, 90.3 % of schools showed an increase in mathematics scores on standardized tests, and 81.3 % of schools demonstrated an increase in English language arts scores (Hughes and Kristonis 2007). Strahan (2003) conducted case studies of three elementary schools with diverse populations that participated in PLCs and found that students from low income and ethnic minority groups improved from 50 to 75 % on proficiency levels on state achievement tests. Supovitz (2002) and Supovitz and Christman (2003) discerned that PLCs may have an effect on teachers' attitude and school culture, but without an explicit focus on instruction, there may be few gains in student achievement.

A recent quasi-experimental study by Saunders et al. (2009) involved a 5-year, two-phased investigation on the effects of grade-level team meetings for student achievement in nine experimental and six control elementary schools. In phase 1, only principals were trained in meeting protocols. In phase 2, principals and teacher-leaders were given guidance on the team meetings and explicit protocols were shared. Results showed no differences in student achievement between control and experimental groups during phase 1, but experimental groups showed faster growth and better scores on standardized assessments in phase 2 of the study. The authors conclude that shared leadership, focused teams, and clear protocols are essential to producing increased student achievement.

School Wide or Program Effects There are many articles on the positive effects that PLCs have had on overall school improvement. Observed advancements include an increased focus on data-based decision-making (Strahan 2003), a school-wide focus on results (DuFour 2004), mutual accountability of staff (Reichstetter 2006), effective scheduling of curricular blocks (Supovitz 2003), and enhancement of communication mechanisms (Burnette 2002). The website *All Things PLC* provides a forum for schools to share their successes using the PLC model (see http://www.allthingsplc.info/evidence/evidence.php). Currently, there are 170 elementary and secondary schools listed as contributing data on their school-wide practices and successes to share with educational colleagues. Unfortunately, among the criteria for posting school information to the website, schools must be able to show student achievement growth and sustainment. Thus, this site is more a showcase of

anecdotal information rather than a repository of evidence on the effectiveness of PLCs.

PLCs and Response to Intervention Approaches

The next portion of this chapter connects the literature on PLCs to RTI frameworks of multi-tiered systems of support. The ways that PLCs can serve as vehicles for RTI goals, and how the data-based and collaborative decision-making processes intrinsic to RTI uphold the goal of improved student learning in team meetings, are discussed. Finally, an example structure for PLC meetings within an RTI system is described, and the types of interactions and outcomes associated with these meetings are shared.

Goals of RTI RTI involves the targeting of resources to meet all students' needs through the systematic use of assessment data and efficient allocation of resources to ensure enhanced learning (Burns and Gibbons 2008). The RTI organizational model is typically conceptualized as a three-tier support system with approximately 80% of students receiving research-based core instruction in the general education classroom (tier 1), approximately 15% of students needing additional targeted small group instruction as part of general education (tier 2), and approximately 5% of students possibly requiring intensive, focused interventions based on problem-solving models (tier 3; Burns and Gibbons 2008). The RTI model aims to prevent and remediate learning problems through the utilization of meaningful and ongoing assessment, instructional differentiation, and collaboration among knowledgeable professionals working to maximize each student's success (International Reading Association 2010).

Uniting RTI and PLCs Several guiding principles bind RTI to the work of PLCs. Both frameworks involve models for school-wide change; they acknowledge that support for improved instruction and student learning comes from whole school structures and cannot be implemented in isolation by individual teachers. Both RTI and PLC models value collaboration among multiple professional perspectives including principals, teachers, resource specialists, and school psychologists. In a similar manner to PLCs, an RTI model relies on shared values, physical and relational support, supportive leadership, and a commitment to continuous improvement. Because both the PLC and RTI structures require focused inquiry and substantial institutional support, it is critical that schools implementing these approaches integrate the processes into one cohesive school-wide plan. If not united, the strain on time, material resources, and professional energy to carry out two diverse initiatives will likely reduce the effectiveness of both efforts.

RTI is built on the need for the highest quality core instruction in the general education classroom (Vellutino et al. 1996). It is only by having an opportunity to experience research-based, well-delivered, developmentally appropriate instruction in the general education classroom that educators will know which students might require additional targeted support for academic success (Wixson et al. 2010). This core instruction should be based on the most current research in the content area, as well as teaching practices that have been found to be successful with the specific population of students in the classroom. In addition, the instruction must be based on formal and informal assessments and differentiated to students' developmental levels accordingly. Finally, for students who are learning English as a new language, classroom instruction must be tailored for accessibility by clarifying unknown vocabulary, modeling academic language structures, frequently checking students' understanding, and fostering student discussion and questioning (PRESS 2011). Effective teaching practices in core instruction are important inquiry topics for schools implementing a PLC or an RTI framework. Even better, when these two frameworks are integrated, teachers examine their instructional practices in collegial teams, discuss the effect of their teaching on student learning through examination of student work samples, and ensure that each content area or grade-level team is providing instruction that is maximizing student success.

The integration of RTI into the PLC framework gives it additional power and facilitates teacher buy-in. Once teachers have had an opportunity to inquire into their core instructional practices and work with colleagues to regularize optimal approaches, the team can evaluate whether or not such a teaching approach is meeting all students' needs. If a high percentage, but not all students are successful, the team turns its attention to what next steps can be put in place for targeted, supplementary support (tier 2) for those students who are not making good progress. The outcome of these team discussions may be to provide students with small group supplemental instruction within the classroom, a collaboration of focused instruction across a grade level or content area, or to have the general educator team with a specialist or support teacher within the school. After a short period of time, the PLC team reevaluates the progress of students receiving this tier 2 support.

Uniting RTI into a PLC framework is likely to change some of the latter's routines. Whereas some PLC teams may operate more as a study group than a data analysis team, an RTI framework will institutionalize the regular review of students' progress on key academic benchmarks. For example, at the elementary school level, in order to ensure that all students are making sufficient progress on district and state performance standards, approximately three times a year a benchmark assessment will be given to all students. Following this data collection, PLC teams will need to review the assessment results to determine which students are on track to meet academic goals, and which students need extra support to be successful. Once students have been identified to receive small-group support at the tier 2 level, monthly meetings to examine their progress must become part of the ongoing agenda of the PLC team. If a strong learning trajectory does not become apparent, the team will need to consider other tier 2 approaches or a more intense, tier 3 intervention (Burns and Gibbons 2008).

A Data-Focused Instructional PLC Meeting As outlined in the previous section, there are several ways that PLC and RTI meetings can be integrated. The integrated team meetings may involve inquiries into which teaching practices are producing the best student learning; which students are meeting or not meeting benchmark achievement goals, and what supports might be put in place for those who are struggling; or the PLC meeting may focus on assessing the progress of students who are receiving tier 2 support and making decisions about adaptations or next steps. No matter what the focus of a team meeting is, it is essential for each session to review and make connections to student learning, either by examining artifacts of student work, informal assessment data, or assessments of progress on academic benchmarks collected through regular progress monitoring (e.g., an established data collection tool such as *AIMSWeb* or *FAST*). Given the hectic nature of busy schools, a clear schedule that outlines the topics and goals of each PLC team meeting is essential to their efficiency and productivity. Regularized procedures and note-taking forms will help each member of the team stay organized and contribute to the learning of the group.

A variety of formats for team meetings have been created, many sharing very similar procedures and goals. These protocols have been created by personnel at individual schools, districts, state departments of education, PLC and RTI consultants, and institutions of higher education. Some resources for conducting data-focused PLC meetings are shared in the next section, and this section shares several typical formats, and then takes the reader into what a data-focused PLC meeting might look like in practice.

The goal of an instruction-focused data PLC meeting is to analyze student data to improve the quality of core instruction. One structure proposed for these team meetings by the *Leadership and Learning Center* involves a five-step process. After a pre-assessment has been given to students, the team meets and (1) displays the data, (2) analyzes the data and prioritizes needs, (3) sets a measurable goal and growth target, (4) determines instructional strategies to raise student proficiency, and (5) determines indicators of implementation strength (Peery 2011). The

process is cyclical; after implementation, a new round of data is examined to investigate student learning. In a similar manner, the *Whole Faculty Study Group Approach* involves educators in (a) understanding the learning need, (b) collecting and analyzing baseline data, (c) establishing improvement targets, (d) selecting and implementing teacher interventions, and (e) collecting and analyzing post-intervention data (Clauset et al. 2008). The *using data project* provides intensive support to data coaches to set the groundwork for a collaborative inquiry group that drills down into data from local and state sources to identify student learning problems, causes, and potential solutions. Next, the team implements, monitors, and reviews results for achievement progress (Love et al. 2008). Key to all of these approaches are: the use of informal assessments of student learning, analyzing and setting goals, collaboratively selecting instructional best practices, and reevaluating student learning after implementation.

In the following vignette of a fifth-grade data-focused PLC meeting, the authors provide an example of how the structures identified above can be put into practice. The meeting is facilitated by a grade-level lead teacher (T1). Participants include the other three 5th grade teachers and the school reading specialist.

> The group sits down and the lead teacher reviews the group-developed norms (each meeting starts this way). Next, student work is displayed on the Smartboard and student progress is discussed child by child. On this day, the topic was a review of a formative assessment of main idea. The assessment was a short reading passage followed by five multiple-choice questions written to assess the mastery of main idea in this passage. The data are displayed by class, student, and item number.
>
> T1 starts the conversation, "So who wants to start? Does anyone notice anything about the data?"
>
> T2: "I notice that [T1]'s students as a whole did better than mine. Can you tell us what you did to prepare the students for the test? How much time have you been spending on main idea?"
>
> T1: "I work on main idea a lot! I think one reason why my students did well is that I just did a lesson on determining importance from our language arts curriculum. I love those concrete lessons, especially for my EL students. This is the one where I told my students I was going to basketball practice after school today, and showed them what was in my gym bag. I asked which items were important for helping me at basketball practice. I had some funny things in the bag, too, so we had fun with the lesson."
>
> T4: "Those are great, engaging lessons. They really seem to make sense for my students too. My question is—how did you get your students from that lesson to the paper-pencil multiple choice formative assessment that we just took? My students have trouble connecting the dots, and apparently, based on my test scores, I have trouble helping them do it."
>
> T1: "From my gym bag lesson, we had follow-up discussions on how the lesson could be applied to reading. Productive talk is really important. In the book there are also ideas for posters that I put up after teaching a lesson. The posters stay up the rest of the year and serve as a reference to students. We also review them periodically. I ask the students to use these in their reading response journals for both their assigned and free choice reading until I have evidence that they are understanding and mastering the concept. For determining importance, I use thinking stems such as—What's important here? I want to remember that…, One thing we should notice is… So we are talking, writing, reading, talking, writing, and reading all the time."
>
> T3: "Do you know if there are more copies of that book in the building?"
>
> Reading Specialist: "Yes, there are several copies in our professional library. I agree with you—it is a great resource. The students love the lessons because they are so engaging and fun to teach. They serve as concrete bridges to strategic reading and I think we have evidence that they have had an impact on [T1]'s students."
>
> T2: "Changing the subject a bit, but I noticed something in even how the answers were circled on one of my student's tests. This is the student that [reading specialist] just did more diagnostic testing on after he did so poorly on the standardized reading test. I think this student doesn't see value in these assessments and speeds through to get it done. See how the answers are circled neatly on the first 3 questions, and the last 2 are sloppily drawn? This makes me think, he rushed answering the last two questions once the other students started to hand them in. This kid thinks faster is smarter." (T2 shows the team the test).
>
> The reading specialist discusses her recent assessment with the student. She notes that earlier in the week she gave the student an informal reading inventory and saw the student struggle in reading multisyllabic words. He often made little attempt to decode an unknown word-saying the beginning of the word and then putting anything at the end "just to finish it." He made many careless errors, including skipping a whole line without noticing. She noticed no evidence of him reading for meaning. The reading specialist describes how she and the student chatted about the results and devised a

> plan of things he would work on this week such as: checking for understanding and slowing down to make certain the words make sense. She shared her plan to do some word work with him taking apart longer words, separating base words from endings, and figuring out meanings of words from context. As the meeting time is nearly over, the team agrees to try a concrete lesson on determining the main idea and give another formative assessment to review the following week. T1 also commits to contacting the gifted support teacher to request ideas for expanding the lessons for accelerated students.

In the previous vignette, several characteristics of an instructionally focused PLC are evident. The teachers, with the support of the reading specialist, compare student work samples and discuss what each teacher did to support student learning. Teachers share their instructional practices and ask questions to each other. In addition, the artifacts of particular students who are not successful with the activity are analyzed, and the reading specialist contributes her advanced knowledge of how to support students who struggle in particular areas. Because the teachers are discussing the grade-level goals they have set—in this case understanding the main idea—and analyzing their own students' work, they are deeply invested in learning together.

A Benchmark Data PLC Meeting The RTI framework recommends universal screening of all students periodically (approximately three times per year) to make sure they are on track to meet grade level and content area goals (Burns and Gibbons 2008). After each benchmarking assessment, it is critical for school personnel to use their PLC meeting time to review the screening data and make sure that students are receiving the appropriate level of tiered support in the content area. VanDerHeyden and Burns (2010) propose a structure for the grade-level team meeting that includes the following questions:

1. Are there any class-wide problems?
2. If there are no class-wide problems, which students need a tier 2 intervention?
3. What data are needed to decide which tier 2 intervention to use with each student?
4. Is the tier 2 intervention working for each individual student receiving one?
5. Should we refer any students to the problem-solving team?
6. Is the tier 3 intervention working for each individual student receiving one?
7. Are there any students whom we should refer for a special education evaluation? (p. 130)

The benchmark data PLC meeting takes place on a regular basis following school-wide screening assessments and for regular progress monitoring of students in tier 2 and tier 3 interventions. The goal is to ensure that students are receiving a focused intervention that puts them on track to catch up to curricular benchmarks. If the intervention is not working, it is important to select and measure another instructional approach for supplemental intervention. This type of data-based PLC meeting can be efficiently handled in 20–45 min, depending on the quantity of benchmark data to be examined. It provides an excellent opportunity for classroom teachers to meet with those specialists in the school who provide intervention services to students, and to check that each student is receiving cohesive instruction in and outside of the classroom setting.

A school-wide literacy improvement project underway in a large urban district in the Midwest is one example of the use of data PLC meetings for both instructional and benchmark data purposes. The project is a partnership among a research university, an urban school district, a nonprofit organization, and a corporate sponsor. It is built on four key principles: quality core instruction, data-based decision-making, tiered interventions, and embedded professional development (PRESS 2011). All four of the core principles are realized through data-based PLC meetings. At least twice a month, teachers have opportunities to meet their PLC grade-level groups to analyze student work and informal assessments and collaboratively select instructional practices to address student needs. Once a month, the data-based PLC meets to review benchmark data for all students or progress monitoring data for students receiving tier 2 or tier 3 interventions, and make recommendation for instructional adaptations or changes in the level of intensity of the intervention. In this project, data-based decision-making is no longer in the hands of a

few specialists; rather, instructional staff, specialists, and administration work together to inquire, propose, test, and validate what is working for student achievement, and how this instruction can be continuously improved.

Implications for Practice

Throughout this chapter, a number of important practices for implementing PLCs within an RTI framework are identified. Table 2 below summarizes these suggestions.

At the heart of these practical implications is the knowledge that it is up to whole faculties, along with their administrators, to work collaboratively to find ways to increase students' achievement. Teaching is no longer a "deliver-and-move-on" activity that it is hoped students internalize; rather, it involves providing quality core instruction for all, with frequent assessment and prompt assistance to catch students if they fall behind, and working relentlessly to address learning problems early (DuFour and Marzano 2011).

Resources for Implementing PLCs

A variety of print and electronic resources are available for schools to use as they implement PLCs with a focus on data-based decision-making. The following resources are not intended as an exhaustive list, but as a starting point for opening doors to the literature.

All Things PLC. http://www.allthingsplc.info/. Provides research, articles, data, and tools to educators who seek information about the *Professional Learning Communities at Work*™ process. An affiliate of Solution Tree, Inc., this information is provided so schools and districts have relevant, practical knowledge and tools as they create and sustain their PLCs.

The Center for Comprehensive School Reform and Improvement. http://www.centerforcsri.org/plc/. Provides an extensive bibliography and links to background information, research,

Table 2 Implementing PLCs within an RTI framework

Implication for practice	Explanation
Engaging in data-based PLC meetings requires that a set of prerequisites are in place at the school including shared vision, collaboration, inquiry, commitment to continuous improvement, and the appropriate physical and psychological support systems	Without these foundational characteristics, PLCs have not been found to be critical to school improvement
The work of the PLC must be based on improvements in teaching and learning that are measurable. Artifacts of instruction and student work need to be a part of each collegial meeting	The products of teaching and learning take group discussions from the realm of the theoretical to the possibility of replication in multiple settings
Integrating RTI and PLC frameworks allow schools to focus their efforts for maximum professional learning and instructional effect	Time and resources in schools are limited and valuable; initiatives must be focused and efficient
A schedule for data-based PLC meetings should consist of at least one opportunity a month to discuss benchmarking and progress monitoring data to review the achievement of students who need extra support to meet grade-level standards	Students need early and targeted support before they fall too far behind
Data-based PLC meetings should also include one or more opportunities a month for staff to examine student learning, and select and evaluate promising teaching practices to use in class. A cycle is developed for each new practice to be evaluated by the team in an upcoming PLC meeting	Professional development is most powerful when it is connected to student learning and brings together the expertise of a group of professionals

PLC professional learning community, *RTI* response to intervention

necessary supports, and numerous articles on implementation of PLCs.

Corwin Publishing Company. http://www.corwin.com/topics/C89. One of the leading publishers on the topic of PLCs, they also offer webinars related to the topic.

Educational Testing Service: Keeping Learning on Track. www.ets.org/kit. *Keeping Learning on Track* is a sustained, interactive professional development program that helps teachers adopt minute-to-minute and day-by-day assessment-for-learning strategies. It is the result of a 3-year research and development process led by the author and ETS's *Learning and Teaching Research Center*.

Learning Forward. http://www.learningforward.org/standards/learning-communities#.UMVbVoVD-Hk. Formerly the National Staff Development Council, this professional development organization outlines standards for learning communities, resources, webinars, and guides to implementation.

Pearson Learning Teams: Professional Learning Communities Guided for Results. http://www.pearsonlt.com/about/implementation. Provides an overview and resources related to PLCs—their five core elements, research base, successes, and how they are implemented.

SEDL: Advancing Research, Improving Education. http://www.sedl.org/pubs/change34/. Provides links to research articles, books, professional development, surveys, and case studies on the work of PLCs for continuous school improvement.

Areas for Future Research

This chapter describes the work of PLCs and their connection to an RTI framework. The use of PLCs in staff development and school improvement is prolific, although many questions about how to ensure that PLCs are productively used to advance student learning remain unanswered. This section highlights areas for future research that will fortify the implementation of data-based PLC meetings.

To begin, there are significant variations in terminology as to what constitutes a PLC. It is imperative that defining characteristics of PLCs are clearly explicated so that these criteria can be replicated to increase the possibility of success in other sites. A consensus from major investigators, followed up with documentation and testing in the field, will be critical to move practice forward.

Next, as previously noted, there is little evidence that working in PLCs has an impact on student achievement. Most data on PLCs involve measurement of changes in teaching beliefs and practices, and these are typically self-report data. The few studies noted in this chapter that examine student outcomes must be augmented by well-conceived and methodologically-rigorous investigations in schools. Saunders et al.'s (2009) quasi-experimental study using experimental and control schools provides an excellent example of the kind of research that is needed before scaling up takes place. Much of the research on the benefits of PLCs took place after schools were identified as successful and school improvement was progressing. Future research should look to schools that are yet to implement these procedures, so that baseline data are available and can be compared to nonparticipating schools.

Another important area for future research involves the information that practitioners—teacher leaders, principals, coaches, and others—need to know in order to successfully implement data-based PLCs. Some of the questions that research might address include: What is the most effective role for a content specialist as a member of a PLC? What strategies are best introduced when the team does not have the expertise to address a challenge in student learning that it confronts? How can teachers be supported to provide the differentiation that students need? What types of data are the most important to be collected and analyzed at data-based PLC meetings? These and similar questions are the nuts and bolts of successful teamwork and student-focused action.

Finally, another critical research area involves developing team expertise in issues of cultural and linguistic variation relating to student achievement. Professional capacity to understand

difference, as opposed to deficiency, is a key component for PLCs (Lindsey et al. 2009). The field will profit greatly from those who can situate learning about teaching and student achievement within a multicultural and multilingual perspective.

Conclusion

This chapter examines the evolution of PLCs and the research literature on their effectiveness for improving teaching, student learning, and school productivity. Characteristics of PLCs are outlined and how they fit into the RTI structure for addressing all students' needs is illustrated. A data team meeting that merges principles from the PLC and RTI literature is provided, and resources to call upon for implementing data-based PLCs are shared. In many settings, PLCs have created synergy among staff and school leadership to tackle pressing school-wide instructional and achievement issues. Building on what one knows to date, collaborative teams that are focused on data analysis and action research may be a powerful force to support increased student learning.

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