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The University of San Francisco

PROFESSIONAL LEARNING COMMUNITIES
IN ELEMENTARY SCHOOLS AND
HOW TECHNOLOGIES ARE UTILIZED

A Dissertation Presented
to

The Faculty of the School of Education
Organization and Leadership Department

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

By
Sarah Heare Zykanov
San Francisco
December 2010

THE UNIVERSITY OF SAN FRANCISCO
Dissertation Abstract

PROFESSIONAL LEARNING COMMUNITIES
IN ELEMENTARY SCHOOLS AND
HOW TECHNOLOGIES ARE UTILIZED

Professional Learning Communities (PLC) are being developed by many K – 12 public schools, in the year 2010. PLC consist of collaborative teacher teams that focus on evidence of student learning to guide a cycle of instructional improvement. Information and Communications Technologies (ICT) such as those used for assessment, communications and collaboration can facilitate the time consuming work of PLC, and help leaders monitor and support the work of PLC teams. However, educators underutilize ICT. This is the problem examined in the current study. A descriptive and exploratory case study method (Yin, 2009) was used, guided by the conceptual framework of Artifact Analysis (Halverson, 2004). Through interviews, observations and examination of archival data, the research documented how PLC have been enacted in two elementary schools and how technology is used in PLC work.

Participants in the study found PLC work to be valuable, stating that it helped them better meet the instructional needs of students and improved their sense of confidence as teachers. Interviews and observations revealed that PLC work is time consuming, adding to an already demanding work schedule. Creative strategies were used to make time for teachers to meet. Participants found assessment data collection and management especially challenging and expressed interest in learning how to make better

use of assessment technologies. Participants also expressed an interest in use of ICT to find and share targeted learning activities.

The study suggests that communication; assessment and sharing are the areas in which ICT can best facilitate PLC work at this time. Communication technologies can help leaders coordinate the day to day running of the school. Assessment technologies can facilitate the creation, scoring, sharing and analysis of student assessments. Sharing technologies can help teachers find targeted learning activities, and share resources created by team members. The study suggests that ICT tools might be better used if developers seek input from practicing teachers and principals to assess current needs and understand how products will be used in practice. ICT tools should be easy to use in a busy classroom and school environment. Job-embedded professional development is essential when new programs are implemented.

This dissertation, written under the direction of the candidate's dissertation committee and approved by the members of the committee, has been presented to and approved by the Faculty of the School of Education in partial fulfillment of the requirements for the degree of Doctor of Education. The content and research methodologies presented in this work represent the work of the candidate alone.

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Dedication

I dedicate this dissertation to my mother, Margaret Wilson Heare, who taught me that everyone has something positive to share and will do so if given opportunity and encouragement. Though she passed away before I began my graduate studies, her spirit has guided and inspired me along the way.

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I would like to thank the following individuals for their contributions and support of this project.

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Judy Collier who was my first role model for graciously supporting teachers and believed I had "talent" long before I considered pursuing graduate studies.

Rebecca Rosales and her dedicated team of school leaders and teachers who have embraced my research project and me

Thinking of these practitioners reminds me of the great wisdom they have to share with each other, and inspires me to help them articulate and share that wisdom.

Most importantly, I would like to thank my husband, Sasha, and my son, Nikolai, who have sacrificed much to allow for my adventures in higher education.

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CHAPTER I - INTRODUCTION

In the year 2010, many public schools in the United States are developing a model of school organization that has come to be called, Professional Learning Communities (PLC). PLC involve teachers, principals and support staff in examining evidence of student learning to guide instructional improvement. Teacher teams work in a cycle of inquiry, collaboratively reflecting on current practice and assessment results. Next they choose, and experiment with research based instructional strategies to address the assessed learning needs of students. Finally, they evaluate whether the new strategies were effective and begin the cycle again. PLC reduce teacher isolation, build a support system for teachers and develop a sense of mutual accountability for the success of all students in the school (Schmoker, 2006; Hargreaves & Shirley, 2009).

Challenges to developing the model include: time, changing roles and relationships for teachers and principal, and guidance. Inadequate time is allotted in school schedules and teachers' contracted hours for collaborative reflection, planning, and preparation of activities and interventions (Hargreaves, 1994). Changing roles and relationships for teachers and principals refers to the higher levels of communication and trust needed as teams develop interdependence and shared goals (Rosenholtz, 1991). Guidance refers to the structured support needed as PLC are implemented, followed by a gradual release of control to teachers as teams begin to exhibit successful outcomes (Elmore, 2000).

In the existing research, there has been only passing mention of the role of Information and Communications Technologies (ICT) in PLC work. ICT is mentioned as a tool for facilitating the collection and analysis of assessment data (Boudett, City &

Murnane, 2005) and a potential tool for sharing lesson plans (Schmoker, 1999). As of fall 2009, no studies were found that explored how practitioners use ICT to facilitate PLC work in local schools. Given appropriate training and implementation, ICT could help PLC teams be more efficient as they research and share best practices, find or plan activities, and coordinate the day to day running of the school. More efficient practices could open up time in the school schedule for collaborative reflection, research, planning and preparation. The current study examined how the PLC model has been implemented in two elementary schools and how technologies are currently being used in the PLC.

Illustration

It's 2:30 on Wednesday afternoon, time to gather the essays her fourth grade students wrote during the past week, and head over to Becky's room to meet with her grade level team. Sophie remembers when she gave up on teaching writing in her third year in the classroom. Sophie majored in English in college and won awards for her essays in high school. But in her first years at Washington Elementary she found it hard to get the students to write a full sentence, let alone an essay. She decided she had to let writing go, focusing instead on grammar and spelling worksheets. Though all the teachers at Washington agreed that teaching writing was hopeless with their students, Sophie still felt like a failure. That is, until Mrs. Franco started as the new principal and introduced the staff to working in collaborative teaching teams that she called, Professional Learning Communities.

In her collaborative teaching team, Sophie and the three other fourth grade teachers met twice a month following a meeting protocol provided by Mrs. Franco. They were asked to reflect together on the various academic challenges they needed to address

with their students, and choose one area they would focus on as a team. It took most of the first semester to discuss the grade level standards their students most needed to address and reach agreement on just one area they chose writing as their focus. Sophie wondered if they could ever have come to agreement without Mrs. Franco, facilitating their meetings whenever possible, and her firm yet kind insistence that the team write up the notes from their group meetings, including their inquiry goals and action steps, using the protocol she provided. The notes were posted in a private group forum on the school website that allowed the team members and Mrs. Franco to refer back to their goals and action plan.

Mrs. Franco suggested that the fourth grade team research models and strategies for writing instruction that have been successful with students like those at Washington school, and try some of the strategies with students. Sophie talked to one of her college professors, who recommended a guided writing model that the team may want to try out. The team used Internet databases to review the research on that and other models, and talked about how each model might address their students' needs. Group progress was reported to Mrs. Franco after each group meeting. It was not until late spring that the team finally agreed on an approach and started planning how they would implement the new writing curriculum in the following school year. The group members became co-authors of a private wiki on the Internet where each team member could add the lessons and activities he or she had agreed to write. On the wiki, teachers posted links to websites with resources created by other teachers implementing the same program and links to grade level appropriate Internet based activities they found that fit with the new program.

Mrs. Franco facilitated the initial meetings of the school's grade level professional learning community teams herself as the teachers learned to work together. She taught them how to use the structured protocols that provided focus to their group work. In discussions, Mrs. Franco asked questions that helped them set learning goals for students that were measurable and achievable. Mrs. Franco taught the teachers how to read reports from state standardized tests to find areas of student strength and weakness in writing. Mrs. Franco always made sure that each of the team members shared his or her expertise in discussions. When it came time for brainstorming new ideas to engage students, or teach difficult concepts, she encouraged each team member to be creative and share his or her talents. Sophie got the impression that once the team began to work well together, Mrs. Franco spent more time listening and encouraging, and less time talking and guiding.

Sophie looks back at the time and effort it took to learn how to work productively with her team and shakes her head in disbelief. But she is sure that without all that time discussing, researching, planning and practicing as a team she would not be holding these student essays in her hands. She and her team will review the essays together and evaluate them based on a common rubric Mrs. Franco asked them to create in the second year. The team used a web-based rubric creation program to help them design a rubric that measured the writing goals they set for students. The team will record the students' rubric scores in a student data management program so that their teachers in the fifth grade next year can see how their students have developed as writers.

Sophie remembers how some of her team members initially resented having to meet more frequently and report to the principal. But Mrs. Franco began to use the

private area of the school website for communication and online discussion, which reduced the need for traditional staff meetings. As the teachers found that Mrs. Franco allowed them to adapt the meeting protocols to reflect their own goals, listened and responded to issues they presented to her, they began to trust that she respected their knowledge and expertise. This made them more willing to research, consider and try out new instructional strategies. Now the team was doing well, and though the student essays still had plenty of room for improvement, Sophie felt confident that the team would find creative strategies to help more students reach the writing goals the teachers had set for them.

The illustration presents a model of a shared approach to instructional leadership on the part of Mrs. Franco. Instructional leadership involves problem setting, problem solving and decision making about curriculum, instruction and professional development, a role traditionally assigned to the principal (Elmore, 2000). Schools that are effective in raising the academic achievement of traditionally underperforming students encourage collaborative decision making by teams of educators under guidance and support of the principal (Darling-Hammond, 2010). Shared leadership encourages and empowers teachers to make decisions about instructional focus, goal setting, and action planning (Lezotte, 2005).

Principals seeking to develop the PLC model learn to build the capacity of teacher leaders and let them share instructional leadership. Principals in successful PLC guide and structure teachers' collaborative work to ensure it is productive (Halverson, 2003). Principals need to monitor progress, and may need to facilitate team meetings, but learn to do so without overly controlling the process (Hargreaves, 1994; Spillane, Halverson, &

Diamond, 2004; Davis, LaPointe, Meyerson and Darling-Hammond, 2005). ICT can help leaders monitor and support the work of teacher teams (Sharkey & Murnane, 2005).



Figure 1 – Professional Learning Community Teams Model: Adapted from Childress, Elmore, Grossman & King’s Public Education Leadership (PELP) Coherence Frameworks presented at Harvard University, first adaptation by Beaverton School District, Oregon (2007)

Schmoker (2006) describes the Professional Learning Communities (PLC) model, illustrated in Figure 1, as a school organized into small collaborative teaching teams that meet in regular, focused meetings. Teams are often organized by grade level at the elementary level and curriculum department at the high school level. Small schools may combine grade levels to ensure that three - four teachers are working together. Depending on the meeting agenda, the teams may be joined by a principal, or other support staff.

The first step in these meetings is to choose a clear, concise set of essential standards that students need to master, and agree to teach to these standards on a roughly common schedule (Schmoker, 2006). Teachers take an inquiry stance, asking essential questions about what student work will provide evidence of learning (Ronka, Lachat, Slaughter, & Meltzer, 2008), and choose or create formative assessments to measure student progress toward the essential standards (Black & Wiliam, 1998). Teacher teams plan instructional strategies to address gaps in student learning (Schmoker, 2006). PLC work involves teachers in collaborative inquiry, using ongoing, formative assessments to determine student learning needs, and encourages teachers to adapt instruction to address gaps in student learning (City, Kagle, & Keoh, 2005).

Teachers often work in isolation from each other and need support and guidance to learn how to work with colleagues (Elmore, 2000). PLC provides a structure for collaboration that helps teachers build interdependence. Teacher interdependence means that teachers come to value working together with colleagues, and the norm of teacher isolation in the classroom is reduced or eliminated (Ball & Cohen, 1999). Teacher interdependence can improve the quality of instruction because teachers help each other learn new skills and reflect on instructional practice. Teacher interdependence better supports and prepares new teachers (Rosenholtz, 1989). The presence of well prepared teachers has been linked to increased levels of student achievement (Darling-Hammond & Richardson, 2009; WestEd, 2000; Yoon, Duncan, Lee, & Scarloss, 2007). Well-prepared teachers are more likely to stay in the profession, and well supported teachers are less likely to change schools, decreasing the ongoing costs of recruiting and training new teachers (Darling-Hammond, 2003; Olson, 2003; Perie & Baker, 1997). PLC work

is founded on the belief that teachers can learn to be more effective if guided by structured work in a community of colleagues (Elmore, 2000).

The major challenges to developing Professional Learning Communities relate to time, new roles and relationships for teachers and principals, and guidance. PLC require adequate time for teams to meet and plan (Boudett & Moody, 2005). Principals must institutionalize time for this work and provide structure so the time is used well (Halverson, 2003). Teachers must learn to work collaboratively and develop interdependence, a process that may need to be facilitated by the principal or other school leaders (Boudett & Moody, 2005; Halverson, 2003). Principals must learn to share responsibility for instructional decision making with teacher teams (Spillane, Halverson, & Diamond, 2004). Principals must also find ways to efficiently guide, monitor and support multiple teacher teams (Elmore, 2000).

Coordinating the time consuming work of fostering and maintaining Professional Learning Communities can be facilitated by information and communications technologies (ICT). Email is a common tool, often used for coordination of group work, and resource sharing (Koku & Wellman, 2004). Scheduling meetings can be facilitated using shared online calendars (Spicer & Dede, 2006). Wikis are simple web pages that can be used to share lessons, and activities (Sheehy, 2008). Social networking sites could also be used for teacher discussion and resource sharing.

In the research literature one can find studies of projects that used information and communications technologies (ICT) to facilitate collaborative teacher work, often referred to as online learning communities, in the context of professional development programs sponsored by universities, and a major school district web portal (Barab, Kling,

& Gray, 2004; Dede, 2006). These studies describe how ICT can provide a forum for group reflection and discussion (Makinster, Barab, Harwood, & Andersen, 2006; Whipp, 2003; Hawkes & Romiszowski, 2001,), as well as collaborative curriculum creation (Wiske, Perkins, & Spicer, 2006). ICT can be used to facilitate communication and resource sharing by teachers (Selwyn, 2000; Koku & Wellman, 2004; Sheehy, 2008). ICT can ease the process of assessing student learning (Steele & King, 2005), and the process of maintaining, accessing and analyzing student assessment data (Hodge & Willett, 2005). But as of fall 2009, no studies were found that examined the use of such technologies to support the work of PLC in schools.

School web communications utilities, such as School Loop® and School Wires®, allow educators to share resources on a school's public web site, and also in password protected areas of the website. Group forums in the private area of the website, can be used by PLC teams to share activities and lessons, and even post meeting notes with goals and action plans. Use of this kind of resource would facilitate resource sharing and communication while also helping school leaders stay informed of PLC team progress (Wiske et al., 2006).

PLC work focuses teams on examining evidence of student learning through formative assessments. Creating, scoring and analyzing the results of formative assessments for an entire class and grade level can be time consuming. Technologies for assessment creation and analysis can ease the management of the formative assessment process (Steele & Boudett, 2008). Programs such as Edusoft™ or Data Director™, allow teacher teams to create standards based assessments, and ease the process of scoring and

creating analysis reports. Teachers can view overall class performance and easily sort students into groups for extra support in mastering specific standards.

Technologies for communications, sharing and data management are underutilized, in part because practitioners are not adequately trained. Under use is also related to a lack of awareness of how ICT tools could enhance collaboration (Ketelhut, McCloskey, Dede, Breit, & Whitehouse, 2006). Research has focused on the development of online learning communities, usually in the context of university sponsored professional development programs, that include participants from a broad geographical area. Schlager & Fusco (2004) suggest that this focus puts the cart of online learning communities for teacher professional development ahead of the horse of supporting the work of local school learning communities. Schlager and Fusco (2004) suggest that more research should be done to examine how practitioners doing collaborative work in schools might use online learning technologies. The background and need section that follows will provide an overview of the research and a statement of why the proposed study is needed to expand the existing literature.

Background and Need

Professional Learning Communities (PLC) are being promoted in the United States public education system as a way to organize schools and guide instructional improvement (McLaughlin & Talbert, 2006, DuFour, Eaker & DuFour, 2005; Schmoker, 2006, Hargreaves & Shirley, 2009). The PLC model incorporates many strategies found to correlate with increased student achievement in effective schools research (Marzano, 2003). Strategies of effective schools include teacher collaboration (Little, 1999), teacher empowerment in the form of shared instructional leadership (Spillane, Halverson, &

Diamond, 2004; Rosenholtz, 1991), a focus on a consistent set of standards (Marzano, 2003), and using evidence of student learning to guide instructional improvement (Little, Gearhart, Curry and Kafka, 2003).

Effective schools research began in the late 1960s in response to the Coleman report that suggested schools had little effect on student achievement as compared to other factors such as family background and language (Coleman, Hobson, McPartland, Mood, Weinfeld & York, 1966; Lezotte, 2005; Marzano, 2003). Effective schools researchers have studied schools in which students achieve at higher academic levels than schools with similar student demographics.

Effective schools research has found a variety of factors that correlate with increased student achievement in effective schools, those embedded in the PLC model include new teacher support and training, ongoing, practice-based professional development, instruction guided by agreed upon standards and frequent use of common formative assessments, norms of teacher interdependence to analyze assessment results and address student needs, productive collaboration and shared instructional leadership (Little, 1999; Marzano, 2003; Danielson, 2002).

Effective schools research studies revealed that successful schools often had norms of productive teacher collegiality, in the form of collaborative curriculum development and willingness to learn from each other (Little, 1990). Teachers in these schools shared a common vision for school and instructional improvement, used common language about curriculum and instruction, set goals for student learning, designed or chose common formative assessments to measure student progress and held each other accountable for reaching those goals (Little, Gearhart, Curry, & Kafka, 2003; Rosenholtz,

1991, McLaughlin & Talbert, 2006). Teacher interdependence, teacher commitment and professional efficacy were higher in schools where teachers felt they had a voice in instructional decision making (Rosenholtz, 1991). PLC have emerged as a way to combine research based elements of effective school organization into one model for schools to emulate (Schmoker, 2006).

Principals play an active role in fostering teacher interdependence in effective schools (Halverson, 2003). School leaders must create opportunities for teachers to work together and introduce protocols for group work that guide and support but avoid mandating or controlling (Halverson, Prichett, & Watson, 2007; Schwen & Hara, 2004). If collaborative work with fellow teachers is unguided, teachers do not find it valuable, and if school leaders overly control it, it is also not effective (Hargreaves, 1994, Hargreaves & Shirley, 2009). Principals who support teachers, as they establish norms for collaborative reflection, data analysis, assessment and curriculum development, are able to guide teachers to greater interdependence (Halverson, 2003; Hargreaves, 1994). School leaders can use technologies to facilitate, monitor and support the work of multiple teacher teams (Holland, Dede & Onarheim, 2006).

ICT that can facilitate the work of PLC include use of email and web portals for communication, sharing files and coordinating events or projects (Koku & Wellman, 2004). Data systems, such as Data Director™ and EduSoft™, can be used to disaggregate and make sense of student assessment data and create common assessments (Boudett & Steele, 2007). Collaborative planning tools facilitate the development of standards based units and lessons (Holland et al., 2006; Wiske, Franz & Breit, 2005). Knowledge banks created in a wiki, or website, provide a way to share units and lessons

(Sheehy, 2008; Carroll Choo & Dunlap, 2003). But these technologies will be underused if the needs and interests of teachers and school leaders are not addressed in the design, selection and implementation of these resources (Ketelhut et al., 2006; Makinster, Barab, Harwood, & Andersen, 2006; Schwen & Hara, 2004).

The PLC model incorporates strategies that have been identified in research as important for the organization of effective schools (Lezotte, 2005). However, research into how technology can be used to facilitate PLC work is limited. The importance of data management systems in making it easier to analyze the results of formative assessments is acknowledged, but research into the use of data in PLC work has focused how teacher teams analyze and interpret assessment results to guide instruction (Boudett & Steele, 2007). Scholarly studies that examined best practices for preparing teachers to use data management technologies independently in schools were not found. A better understanding of how and why Professional Learning Communities are enacted in schools and how technologies are utilized in PLC work will add to the existing research. One goal of the current research project was to improve understanding of what kinds of ICT would be most helpful to principals and teachers as they sought to improve instruction. Another goal was to identify and increase practitioner awareness of existing technologies that could facilitate the time consuming, complex work of PLC.

Conceptual Framework

In the current study, the conceptual framework that was applied is called *artifact analysis* (Halverson, 2003, 2004, 2005). Halverson (2004) examined how school leaders frame and solve the problems of practice. Halverson suggested that researchers can better understand the thought processes and practical wisdom of school leaders by

examining the artifacts they create to improve instructional practice. Halverson described artifacts as policies, procedures, and programs that contribute to a local system of practice that shapes school context and opportunities for change.

The Design Cycle Analysis Model (DCAM) shown in Figure 2 illustrates the questions and focus areas of artifact analysis. At the top of the DCAM, the analysis begins by documenting the context: what the artifact is, how it developed, who was involved in its development and how long it has functioned. The next section documents the goals, strategies and resources used in development of the artifact. Problem setting documents how the documented goals of the artifact led to the framing or setting of the problem. The problem solving section documents the phases in the problem solving process and the timeline of that process.

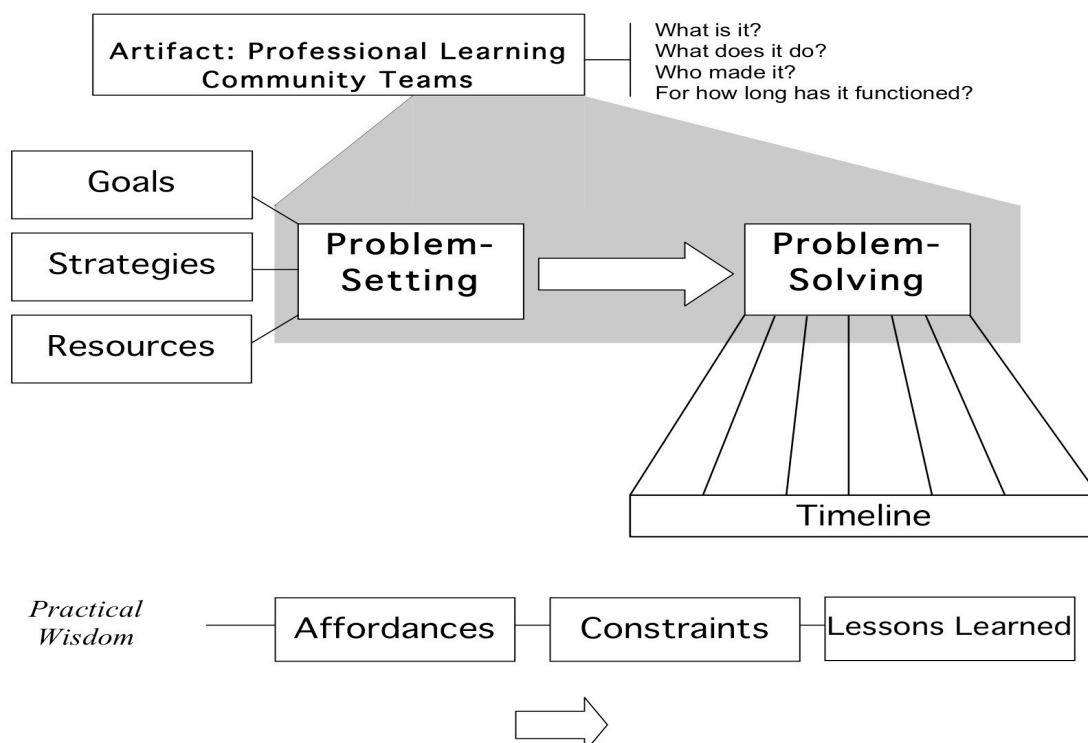


Figure 2 - Design Cycle Analysis Model for Artifact Analysis - Adapted from Halverson (2004)

The bottom of the DCAM, examines the practical wisdom gained as the artifact was implemented. Affordances documents factors in the school environment that aided the development of the artifact. Constraints documents factors that made it difficult to implement the artifact. The Lessons Learned section documents the new practical wisdom gained in implementing the artifact.

In the DCAM, it might appear that the Goals, Strategies and Resources, shown in boxes on the left, all lead to the problem setting phase. Instead the goals are the foundation of problem setting. Once the goals have been articulated, the problem can be set, framed or defined. The DCAM includes a timeline under the problem-solving element, this acknowledges that problem solving is a process that takes time, and the researcher documents the timeframe involved in the problem solving process.

In the current study the Professional Learning Communities model is the artifact that was analyzed. The development of the PLC model can be used to illustrate how researchers might use this section of the DCAM to document how school leaders frame and solve the problems of practice. School leaders began with the goal of improving academic achievement for all students. Leaders decided the problem was that students needed more differentiated instructional strategies to achieve learning goals.

Strategies to improve instruction included the collaborative use of assessment data to guide instructional improvement. This involved creating time for teachers to meet for collaborative examination of data and action planning during the school day. Resources used included strategic use of support personnel to provide teachers with release time for meetings and coordinating and providing data for those meetings as needed by teachers. The problem solving timeline for PLC in the current study should be viewed as cyclical

rather than linear; as learning goals for students are achieved, teacher teams review assessment data and set new goals and action steps in a process of continuous inquiry and improvement of instruction.

After the context of the artifact's design, the goals, strategies, resources, problem setting and problem solving phases were documented, the affordances, constraints and lessons learned were examined. In the two schools studied affordances included the preexisting norms of collaboration and the leaderships understanding and support for PLC. Constraints included the complex reorganization of school schedules to provide time and the challenges of managing formative assessment data. Lessons learned in the process of developing PLC included the idea that practitioners valued the work, but hoped to find ways to do it more efficiently in the future.

As the Design Cycle Analysis Model above shows, Artifact Analysis examines the practical wisdom of school leaders and practitioners. This is done by asking practitioners to describe the factors in the school environment they perceive to be affordances, that made it easier to implement reforms, and the constraints, factors that limited the capacity of the school community to implement reforms. The model also asks practitioners to articulate the lessons they have learned when implementing the artifact. This final phase of artifact analysis encourages reflection on the process of designing and implementing the artifact. Reflecting on the process can build practical wisdom, and can inform readers who seek to implement reforms in their own institutions. In the current study artifact analysis was used to examine how and for what purpose Professional Learning Communities were developed and also to examine how information and

communications technologies (ICT) are utilized in PLC work, and how that use has changed over time.

Statement of the Problem

Assessment, communications and collaboration technologies can facilitate the time consuming work of PLC (Boudett & Steele, 2007), and help leaders monitor and support the work of PLC teams. However, these technologies are underutilized (Holland et al., 2006).

Purpose of the Study

Professional Learning Communities (PLC) in the context of the current study consist of grade level teams of teachers who work together, focus on evidence of student learning and analyze the results of formative assessments to guide instructional improvement (Schmoker, 2006). The purpose of the study was to articulate how and why PLC are being enacted in elementary schools, and to examine how technologies were utilized in that work. The goals of the research were to improve understanding of how ICT can help principals and teachers as they seek to improve instruction; as well as identify, and increase practitioner awareness of technologies that can facilitate the time consuming, complex work of PLC.

Research questions

1. How is the Professional Learning Communities model enacted in elementary schools?
2. How are technologies utilized in the work of Professional Learning Communities?

Significance of the Study

The current study has implications for local school and district administrators seeking to build norms of productive collegiality and collaborative problem solving using

PLC or similar systems of practice. This study may be instructive for schools with existing norms of collaborative problem solving that are interested in exploring the potential uses of information and communications technologies (ICT) to facilitate their work. This research is useful for developers of technologies for student assessment, collaboration and communications tools for schools, reminding them to seek input from teachers when designing teaching and learning tools. Policy makers can use this research to guide decision making related to development of state data management systems and other online tools for public school teachers, and be reminded to include funding for ongoing professional development. This research can help designers of hardware, software and other technology tools better serve the needs of the growing number of schools and school districts that are building and nurturing a culture of collaboration to improve instruction and student learning. It can also provide insights for school and district administrators seeking to implement new technologies in schools.

Summary

This chapter examined effective schools research that has contributed to the development of the PLC model of school organization and leadership. The role of the principal in PLC as guide and supporter of teacher collaboration for instructional improvement was contrasted with the traditional principal role of instructional expert. Major challenges to PLC work were identified including the fact that PLC work is time consuming, involving teacher collaboration that must be monitored, supported and possibly facilitated by the principal, or an outside consultant. Furthermore this chapter suggested that these challenges can be addressed with the aid of various information and communication technologies. The chapter presented a brief look at research on

technologies used for facilitating teacher learning and data analysis. The researcher posits that these technologies are underutilized. The current study examined how and why two successful elementary schools enacted the PLC model and how technologies are utilized in the PLC work at those two schools. The goals of the research were to improve understanding of how ICT can help principals and teachers as they seek to improve instruction; and to identify, and increase practitioner awareness of, technologies that can best facilitate the time consuming, complex work of PLC.

Definition of Terms

Affordances: In this study, affordance refers to things in the school environment that helped the school implement a school reform artifact such as a protocol, program or procedure (Halverson, 2003).

Artifact: In this study, an artifact is a major school organization intervention that has been developed to help the staff increase student academic achievement. In this study the artifact studied is the Professional Learning Communities (PLC) model. In the sample schools, PLC consist of grade level teams of teachers working together with school leaders to increase student academic achievement (Halverson, 2004).

Collaborative lesson planning tools: A network or web-based software program that provides templates to guide a teaching team as they select key standards and plan a unit of study. The program allows for multiple authors of the same template from different Internet connected computers, making collaborative work easier and less time consuming. Examples include the Collaborative Curriculum Design Tool (Wiske et al., 2006; Wiske et al., 2005), the Curriculum Design Assistant (Holland et al., 2006), or the Universal builder from My-eCoach® (See Figure 9).

Collaborative teaching teams: Schmoker (1999) referred to small groups of teachers working together to improve and refine instruction as *collaborative teaching teams*. In 2006, he referred to these groups as Professional Learning Communities, but emphasized that although a Professional Learning Communities model can be adopted throughout a school or district, the small collaborative grade level or department team is still the most important unit that works together to refine and improve instruction.

Computer-mediated communication: In this study, computer-mediated communication (CMC) refers to multiple modes of online communication including: e-mail, list-serv, chat, online discussion boards, web portals, shared calendars, audio and video-conferencing (Barab et al., 2004).

Constraints: In this study, constraints refer to things in the school environment that made development of the artifact (PLC) difficult (Halverson, 2005).

Data systems: In the current study, a data system refers to software, also referred to as data warehousing software, used to manage data from state tests, local district benchmark tests and common assessments created by collaborative teaching teams. Student demographic data is also included that allows educators to disaggregate and analyze student assessment results by subgroups (Boudett, City, & Murnane, 2005). Examples of Data Systems used for assessments and assessment analysis include Scholastic Reading Inventory™, Data Director™ and EduSoft™.

Face-to-face: In this study, face-to-face (F2F) refers to meetings and collaboration sessions between participants in an professional development program, or PLC members that take place in the same location at the same time, in contrast to a text based discussion in an online discussion forum (Barab et al., 2004).

Forum: (See also Online Discussion Forum) In this study a forum refers to a place for discussion among colleagues. The forum could be regularly scheduled face-to-face meetings in which teachers can discuss issues of practice (Halverson, 2003) or part of a password protected web portal that includes a discussion board for a text based discussion among colleagues (Holland et al., 2006).

Knowledge Bank: In this study, knowledge banks are open, or password protected, web portals where teachers can upload and share teaching units and lessons with colleagues. For example: the Milwaukee Service Portal (MSP) for teachers includes a knowledge bank that allows teachers to search for lessons or units created by their colleagues by standard and grade level. A panel of educators reviews each teacher created submission and rates it on an established rubric before it is posted to share with other teachers (Holland et al., 2006).

Online Discussion Forum: In this study an online discussion forum is part of a password protected web portal. It is an area of the web portal in which participants can post messages with topics for discussion and reply to each other's messages. It could also provide a place for sharing resources and best practices (Wiske, 2009, Sheehy, 2008).

Posting: In this study, posting refers to the act of publishing something in a web portal or forum. A post may be a message, a calendar event, a document or other electronically created media that is shared with other users in the online discussion forum (Barab, MaKinster, Scheckler, 2004).

Practice-Based Professional Learning: In this study, practice based teacher learning refers to teacher professional learning that involves teachers in trying out new instructional strategies in their own classrooms, with their own students. Support for implementing new strategies may be assisted by staff developers from outside the school, but the model encourages teachers to work with colleagues to refine new strategies they seek to implement (Ball & Cohen, 1999).

Professional Development: In this study, professional development (PD) refers to teacher learning experiences in the form of workshops or trainings that take place away

from the school, that are guided by staff development experts outside the local school. PD is contrasted with practice-based professional learning as defined above.

Web Portal: In this study a web portal is a type of website that allows users to access resources related to an area of interest. A web portal will usually allow some level of user personalization such as setting up links for easy access to preferred resources. Many web portals are at least partially password protected, requiring users to log in before viewing more private areas of the site. School teams can use these portals to post group events such as meeting dates and times, and shared assessment timelines; they can post announcements of upcoming activities. Group members can log in and view these calendars and events when needed (Dede, 2006).

Web-supported learning community: For this study a web-supported learning community refers to a group that meets face-to-face, for example teachers in a staff development program, that also uses a web portal or password protected web portal to provide a place for ongoing access to resources, and tools for communication and collaboration (Barab et al., 2004).

CHAPTER II - REVIEW OF THE LITERATURE

This literature review begins with a synthesis of the research that has informed the development of the Professional Learning Communities (PLC) model in elementary and secondary schools. The chapter reviews research and scholarship that suggests the role school leaders play in establishing systems of practice that nurture and maintain effective PLC. Next, research into technologies that could facilitate the work of PLC is reviewed. These technologies, studied in the context of university sponsored professional development programs for practicing and pre-service teachers, were found to facilitate the understanding and use of student assessment data, collaborative reflection on practice, and knowledge sharing. The chapter concludes with a look at the case study research methods that were used in the current study.

Professional Learning Communities

Empirical research has led to the development of the PLC model. Hord (1997) was perhaps the first educational researcher to use the exact term, Professional Learning Community (PLC). In a literature review, Hord (1997) examined the research that supports the development of collaborative teacher teams, or PLC in schools. Teacher teams reflect on evidence of student learning and examine how to adapt instructional practice to meet the learning needs of students. Citing Rosenholtz, 1989, McLaughlin & Talbert, 1993 and others, Hord describes how these teams support ongoing teacher learning, increase teacher capacity to implement new strategies, and enhance teacher self efficacy, commitment and effectiveness.

Professional Learning Communities (PLC) are defined in this study as teams of teachers that work together to improve instruction and increase student academic

achievement (Schmoker, 2006). The PLC model addresses many factors found to correlate with increased student achievement in effective schools research. Effective schools research refers to studies of schools in which students achieve at higher academic levels than schools with similar student demographics. Effective schools research began in the late 1960s in response to the Coleman report that suggested schools had little effect on student achievement as compared to other factors such as family background and home language (Coleman et al., 1966; Lezotte, 2005; Marzano, 2003). Effective schools research found a variety of factors that correlated with increased student achievement in effective schools, those embedded in the PLC model include teacher support and training, on-going, job embedded professional learning, and a school organization with norms of teacher interdependence, productive teacher collaboration and shared instructional leadership (Little, 1999; Marzano, 2003; Schmoker, 2006).

Little (1982) studied schools exhibiting varied levels of effectiveness and how adaptable teachers in those schools were to a new professional development model. The study was based on a model of Action Research (Little, 1982) with researchers working as participant observers implementing a new professional development model. Data was collected from interviews, and observations. Academic assessment data, school demographic information, attendance and retention data was also included in the study. Effectiveness of schools was determined based on factors such as student academic achievement, attendance and retention of students.

Little and her team of researchers (1982) found two norms of staff interaction they concluded were most important in effective schools. The first was a norm of shared work, and shared language about practice, or “collegiality” and the second was a norm of

analyzing, and evaluating instructional practice, and openness to experimentation, or “continuous improvement”. Researchers found that teachers, support staff and administrators in more successful and adaptable schools worked together regularly to plan, research, evaluate and design teaching materials and lessons, had developed and shared, concrete language about practice, regularly observed each other and provided feedback focused on practice, and were open to learning from each other. All of these practices are now embedded in the PLC model as defined by Schmoker (2006).

Rosenholtz (1991) led a three year, mixed methods study of the social organization of schools that included data collection from teacher surveys, interviews with principals, teachers and students and school demographic and achievement indicators. The goal of the research was to uncover workplace factors that had the greatest impact on teacher quality, commitment, and sense of professional efficacy. The study took a social organization approach examining four measures of organizational effectiveness. These included: problem solving and renewal described as teachers’ opportunities to learn; teachers’ certainty about their practice; workplace commitment or maintaining the values of the school and school productivity as measured by student learning outcomes.

Professional efficacy was found to be a key factor in teacher commitment, retention and effectiveness (Rosenholtz, 1991). Professional efficacy can be described as a teacher’s belief that he or she is capable of doing good work. Teachers’ sense of professional efficacy was greater when teachers worked in a supportive environment with norms of positive collegiality. Positive collegiality was defined as teachers working together to examine and refine curriculum and instruction collaboratively. Rosenholtz

also found that norms of negative collegiality existed in some schools and this correlated with low teacher effectiveness and a low sense of professional efficacy. Negative collegiality in schools was described in part as a teaching staff that blames low student achievement on factors outside teacher control, such as family and community issues (Rosenholtz, 1991).

Rosenholtz (1991) found that teachers felt greater professional efficacy when principals were intentional about giving them opportunities to expand their professional knowledge and leadership roles in the school community. Teachers felt supported when their ideas and expertise were considered in the decision making of leaders. Rosenholtz (1991) encourages principals to intentionally involve teachers in setting shared school goals. Teachers who felt they had a voice in selecting new curriculum, and developing school programs were more likely to implement the new curriculum and programs in their classrooms and schools. Rosenholtz (1991) examined how workplace factors contribute to or detract from teachers' sense of professional efficacy, commitment to school goals and teaching effectiveness. The PLC model guides leaders as they nurture and support the development of positive collegiality between teachers, allow teachers to share and develop their ideas and expertise, and involve teachers in deciding grade level and school goals, curriculum and programs.

McLaughlin and Talbert (1993) led the Stanford University Center for Research on the Context of Secondary School Teaching conducting extensive research with the goal of assessing factors that constrain or enable the best work of teachers and students. An extensive database was created that included longitudinal data from teacher surveys, teacher and student interviews, classroom and school observations. Data from 13 public

and three independent high schools in California and Michigan were included. Multiple research projects were conducted by the Center within the context of this study.

In McLaughlin and Talbert (1993) a key finding related to how the professional community of a school mediated a teacher's capacity to implement sustainable, successful improvements in classroom practice. Three types of professional communities were generalized from the data. Professional Communities that enforced traditional standards without adapting teaching methods to meet the needs of students, fostered burnout and cynicism among teachers and failure among students. Professional communities that engendered a lowering of standards for student learning fostered disengagement among teachers and students. Professional Communities that supported teachers in trying out new approaches to teaching standards and engaging students fostered teacher commitment and work satisfaction, while also increasing student success. This study confirms the findings of Rosenholtz that the context of teachers' workplace can increase or decrease teacher effectiveness.

The studies led and described by Little (1982), Rosenholtz (1991) and McLaughlin and Talbert (1993) suggest the need for more intentional development of school environments that support teacher collaborative work, and guide teachers away from norms of isolation and negative collegiality. This led to research by Hargreaves (1994) who contributed some key insights used in the development of the PLC model.

Hargreaves (1994) found that school leaders can foster collegiality, however, if teacher compliance is forced it creates an environment that he calls, "contrived collegiality." Teachers forced to do collaborative work with colleagues, often with goals established by others, the principal, district, or state, treat the work cynically at best,

which works against the goals of instructional improvement. This finding suggests that school leaders should work more as facilitators than enforcers of PLC work. It suggests that school leaders should support teachers to serve as team leaders and role models for other teachers.

Hargreaves (1994) found that teachers did not wish to engage in collaborative work if they believed it was not a productive use of their time. Teachers only wanted to do collaborative work with colleagues when it helped them meet the learning goals they had established for their students. This research supports three of the key factors of PLC work: allow teachers to determine student learning goals and team action plans; facilitate teams as needed until they develop norms of productive teamwork and provide sufficient structure for the work of teacher teams without becoming overly involved in the work.

The structure of the PLC model supports leaders in the development of positive, sustainable professional community in schools. The model supports teachers as they develop a focus on student learning, teams of teachers agree on common student learning goals, work collaboratively to choose or create common assessments to measure student progress and redesign instruction as needed to better meet student learning goals (DuFour, 2004). (The PLC teams model is illustrated in Figure 1.) Schools using the PLC model establish and maintain a culture of collegiality and continuous improvement (Little, 1982; Rosenholtz, 1989; Schmoker, 1999). Collegiality refers to norms and expectations for teachers to work together constructively in ways that are focused on improving student learning outcomes (Hargreaves, 1994; Little et al., 2003; Rosenholtz, 1989). Continuous improvement is defined as a culture of inquiry in which teachers reflect collaboratively on student performance, set goals for improvement, research and

implement new strategies, evaluate progress by gathering and analyzing various kinds of data and then repeat the cycle of inquiry and goal setting (Little, 1982; Ronka et al., 2008). Establishing norms of collegiality and continuous improvement break through the teacher isolation that is common in many schools, and guides teachers to work together to improve instructional practice and meet the diverse learning needs of students (Elmore, 2000).

Schmoker (2006) describes PLC as small collaborative teaching teams that meet in regular, focused meetings. The first step in these meetings is to choose a clear, concise set of essential standards that students need to master and agree to teach to these standards on a roughly common schedule (Schmoker, 2006). Teachers take an inquiry stance, asking essential questions about what student work will provide evidence of learning (Ronka et al., 2008). Teams then choose or create formative assessments to measure student progress toward the essential standards (Schmoker, 2006). Teacher teams analyze student work samples and assessment data, brainstorm to plan instruction to address gaps in student learning and reflect on the relative effectiveness of those instructional strategies (Schmoker, 2006).

PLC work is founded on the belief that teachers can learn to be more effective, if guided by structured work in a community of colleagues (Elmore, 2000). PLC work is practice-based learning, this means learning embedded in the complex day to day practice of teaching supported by colleagues (Ball & Cohen, 1999). A practice-based approach to professional learning for teachers builds teachers' capacity to "think on their feet" and try new instructional strategies in their daily practice (Guskey, 2000). PLC work is an inquiry approach to examining student learning and teaching practice that involves school

personnel in an ongoing process of collaborative problem solving (Hawley & Valli, 1999). PLC work involves teachers in reflection on practice, self-assessment and professional conversation about practice with colleagues that can lead to instructional improvement (Danielson, 2009).

As mentioned in chapter one, the major challenges to developing PLC relate to time, new roles and relationships for teachers and the principal, and guidance. PLC require adequate time for teams to meet, and plan (Boudett & Moody, 2005; Ronka et al., 2008). Principals must institutionalize time for this work and provide structure so the time is used well (Halverson, 2003). Each teacher must build trust in colleagues and leaders that he or she will be given support to improve teaching practice rather than judged or blamed for poor student progress (DuFour & DuFour, 2008). Teachers learn to work collaboratively and develop interdependence, a process that may need to be facilitated by the principal or other school leaders (Boudett & Moody, 2005; Halverson, 2003). Once teachers have developed interdependence, they often express that they want more time to work together with their teams (Darling-Hammond & Richardson, 2009; Hord & Hirsh, 2009; WestEd, 2000). Principals must learn to share responsibility for instructional leadership with teacher teams (Spillane et al., 2004). Principals must also find ways to guide, monitor and support multiple teacher teams without interfering in their work (Elmore, 2000; Halverson, 2003).

Time and guidance are required to overcome norms of teacher isolation and establish productive teacher interdependence (Halverson, 2005). Studies by Rosenholtz (1989), Little (1994), and Hargreaves (1994) reveal some of the causes of teacher privacy and isolation. Rosenholtz (1991) suggests that some teachers become isolated due to

competitiveness that leads them to protect their work, and others fear having their work subject to peer scrutiny. Rosenholtz (1991) and Little (1982) found that some teachers viewed offering assistance as negative interference in a colleagues work and some teachers considered seeking help to be admitting their own incompetence. Hargreaves (1994) found that productivity of collaborative time was most important for some teachers. These teachers valued collaboration with colleagues only if it was focused, and helped them reach the instructional goals they held for their students, otherwise they chose to remain isolated. Principals who wish to establish effective PLC in their schools must surmount these potential challenges to build new norms of teacher support, trust and interdependence. Leaders should guide PLC work but increase and decrease direction as teams demonstrate the ability to set and accomplish objectives collaboratively (Elmore, 2000).

Professional Learning Communities are organized to facilitate teacher learning and instructional improvement as PLC teams participate in collaborative inquiry and a systematic study of student learning (Little, 1999). Teachers who feel empowered to make instructional decisions within a structured system show increased workplace commitment and professional confidence (Rosenholtz, 1991). Hargreaves (1994) maintains that teacher collaboration is ineffective if it is mandated and regulated by administration, with goals set for teams by forces external to schools with no attention to local teachers' talents, skills and creativity. Principals following these suggestions from research, seek to guide, monitor and support PLC work without undue mandates or interference in teachers' efforts. Additional research and scholarship into the role of school leaders in fostering PLC will be considered next.

The Role of School Leaders in PLC

Elmore (2000) describes the unrealistic yet common expectation that principals will be visionary leaders, community builders, masters of public relations, and facilities managers while also being the professional development expert who drives instructional improvement in schools. Elmore (2000) observes that principals are seldom selected or promoted for being experts in instruction. Elmore suggests that the principal's role should focus on establishing organizational structures that allow teacher teams to plan and implement instructional improvement. In a study of successful school leadership, Davis, LaPointe, Meyerson and Darling-Hammond (2005) assert that the two key roles of an effective principal are: "supporting and developing effective teachers; and implementing effective organizational processes" (p. 1). PLC team members support each other with practice-based professional learning and determine as a team what kind of externally provided professional development they need to help them meet assessed student learning needs (Schmoker, 2006).

Barth sets the stage for shifting the role of the principal from instructional expert to "Head Learner" in his book, *Improving Schools from Within* (1990). Barth asserts that principals and teachers learn best from examining their own practice, developing and sharing their own talents, skills and interests in the school community (Barth, 1990). Principals support PLC by institutionalizing times for collaborative teacher learning to take place (Halverson, 2003; Hargreaves, 1994; Schmoker, 2006). Leaders provide or have teams develop protocols such as: structured meeting agenda; curriculum development guides; assessment and intervention plans (Boudett & Steele, 2007; Halverson, 2005). Protocols allow teams to make the most of their time by focusing

discussions on evidence of student learning and helping teachers develop a shared language about practice (Boudett & Steele, 2007; Little, 1982). Principals monitor and support PLC teams, increasing their involvement when teacher teams are not working well together or meeting goals, and decreasing involvement when teacher teams are achieving goals (Elmore, 2000).

Halverson (2003) uses a case study from an inner city school that had begun to see improvement in student behavior and achievement to illustrate how a principal might begin shifting teachers towards interdependence for professional learning. The principal wanted to create a forum in which teachers would come together to discuss issues affecting student achievement and behavior at the school. The principal provided a hot breakfast for staff once a month, before school, and invited teachers to attend. In the “Breakfast Club,” as it came to be called, the principal acted as a facilitator rather than an expert or staff developer. Teachers discussed school issues and the principal encouraged them to read research related to how other schools were handling the same issues and report back to the group. Teachers soon began experimenting with the research-based strategies in their own classrooms, and returned to the “Breakfast Club” to report on progress and seek further ideas from the group. Attendance was optional, but over time, more teachers chose to attend.

Another outcome of the morning “Breakfast Club” meetings was the decision to implement a formative assessment program every five weeks that would allow teachers to measure how the new strategies were working, and allow them to refine instruction to better meet student needs. Halverson (2003) supports the theme running through the research that school leaders foster Professional Learning Communities by establishing

practices that allow teachers to build their capacity to take on greater responsibility for instructional improvement. Leaders encourage teachers to inquire and research best practices, and share their talents, skills and creativity to develop strategies that address gaps in student learning (Boudett et al., 2005; Hargreaves, 1994).

Elmore (2000) and Halverson (2003) describe the role of the principal and district leadership in developing professional community and teacher interdependence through the development of institutionalized meeting times, protocols and practices that help teachers build positive norms of professional community. Developing artifacts like PLC takes time and guidance from the principal. This work can be facilitated by the use of ICT that allow leaders to monitor and support PLC work (Boudett & Moody, 2005). The next section of this literature review explores research into the use of assessment data systems and technologies that facilitate collaborative reflection, joint work, and sharing of resources for teachers working in Professional Learning Communities.

Technologies to facilitate PLC work

Earlier sections of this literature review argue that major challenges to developing Professional Learning Communities (PLC), are lack of time, new roles and relationships for teachers and principals, and guidance (City et al., 2005; Schmoker, 2006). PLC work involves teachers in reflective discussions about practice, assessment of student learning, and collaborative development of activities and lessons. This group work takes time and can be facilitated using communications technologies (Wiske et al., 2005).

This section of the review examines technologies that can increase the efficiency of communication, resource sharing, knowledge management, and task coordination (Dede, 2006; Hewitt, 2004) for PLC. This section of the literature review also examines

studies of schools using data systems for creating student learning assessments and analyzing assessment results (Boudett & Moody, 2005; Price & Koretz, 2005) to guide teacher collaborative inquiry in a process similar to PLC work.

One challenge for PLC is lack of time. Greater efficiency in communication, and resource sharing could increase time available for more reflective, higher level discussions. Selwyn (2000) studied teacher interactions in an email list-serv for special education coordinators in the United Kingdom. Selwyn (2000) concluded that though teacher interchanges in the email list-serv did not exhibit high levels of reflective discourse; the messages served a valuable knowledge sharing purpose. In a similar study of email list-serv communications by professors in multiple departments of the same university, Koku and Wellman (2004) suggest that use of the email list-serv simplified the coordination of meetings, increased communication within and between departments and provided an easy way to share drafts of articles or reports for comment or revision. Implementation of the email list-serv led to more innovative, multi-disciplinary, collaborative work between departments, because it facilitated communication and sharing which allowed the professors to have higher-level conversations during face-to-face meetings and social events.

Password protected web portals can provide a place to share curriculum resources (Sheehy, 2008), create curriculum in collaboration with others (Wiske et al., 2006), coordinate tasks (Hewitt, 2004; Koku & Wellman, 2004) and participate in online discussions of practice (Barab, Makinster, & Scheckler, 2004; Whipp, 2003). Web portals can include a mixture of learning experiences for teacher professional development, such as video based modeling of best practices, or challenging classroom

situations (Barab et al., 2004). Teachers can use a web portal to access or create assessments and assessment data (Boudett & Steele, 2007). These portals could be created and maintained at the district office level as a way to support and encourage sharing of resources and best practices between school sites (Schmoker, 1999; Barth, 1990, Holland et al., 2006; Ketelhut et al., 2006; Spicer & Dede, 2006).

One example of such a portal is the Milwaukee Support Portal (MSP) developed and maintained by Milwaukee Public Schools (Holland et al., 2006; Ketelhut et al., 2006; Spicer & Dede, 2006) the portal is a private part of the district website in which district and school personnel can access district information, share documents, coordinate calendars, and participate in professional development courses that include online discussions. MSP also provides access to advanced collaboration tools such as the Curriculum Design Assistant (CDA) and the Knowledge Directory (KD).

The Curriculum Design Assistant guides teachers through a process of selecting grade level standards and other elements of a lesson or unit of study, and includes an online discussion forum in which collaborators can discuss the unit they are creating. The Knowledge Directory is a searchable online knowledge bank. Units and lessons are submitted to the Knowledge Directory for peer review, rated on a rubric and shared with teachers throughout the district if they meet a set standard.

A common theme in the research literature on web portals; is that designers should seek input from teachers and consider their needs and goals in the design process (Dede, 2006). The success, in terms of participation and reports of changed practice, of the “Math Forum” web portal, that is described as an online learning community, have been credited to the collaborative approach that is taken to developing and maintaining

the web portal (Renninger & Shumar, 2004). Designers of web portals for teacher professional learning should work together with the intended users, allowing them to co-design the “intention as well as the intervention” (Schwen & Hara, 2004, p. 170).

Schwen and Hara (2004) assert that a web portal, created for the purpose of building an online learning community, designed for users, instead of by users, will be resisted, neglected or used “cynically” by participants. Teachers are more receptive to changes in practice when they have been allowed a role in the discussion, design, selection and implementation of new practices (Hargreaves, 1994). Designers of web portals for teacher professional development should work with existing local school learning communities to determine how a web portal might “strengthen, grow, sustain or change an extant educational community’s membership, culture, structures and processes” (Schlager & Fusco, 2004, p. 127).

Another challenge faced by PLC is developing capacity to analyze and use assessment data to set goals for student learning (Price & Koretz, 2005). As of fall 2009, the research found has focused on how to help practitioners make sense of assessment data. Teachers improve understanding of data when they first discuss and determine essential questions about student learning and instruction (Ronka et al., 2008). These essential questions guide the PLC as they choose the data to analyze and build capacity to use software for data disaggregation and analysis (Steele & Boudett, 2008). Questions also determine the data to be collected (Steele & Boudett, 2008). After teachers have selected the learning goals on which to focus, assessment software can be used to administer or create common formative assessments, or benchmark assessments that measure student progress (Steele & King, 2005). As of fall 2009, no research was found

on how to support teachers' use of the assessment creation and management technologies available. Examples of these include: pre-made assessment programs, programs for creating standards based assessments and rubrics, and data analysis software to help teachers determine which standards need to be targeted or revisited.

It is a challenge for PLC teams to find adequate time for collaborating to create common assessments (Steele & King, 2005), and develop lessons and activities to address assessed gaps in student learning (Hartnell-Young, 2006). This collaboration can be facilitated using technologies as simple as word processing that allows teachers to share and edit documents as they create lessons and units (Wiske, 2005). Teacher teams can use spreadsheet software to record and manage student assessment data (Hodge & Willett, 2005) or more advanced data warehousing programs that track multiple forms of assessment data for each student. Teachers can use an online knowledge bank, or wiki, a website that makes it simple to post teacher created curriculum and assessment resources and make them accessible to all PLC members (Holland et al., 2006; Sheehy, 2008).

This section has examined technologies that can facilitate the work of PLC. Communications tools can help coordinate the day-to-day running of the school. Data systems can facilitate the creation, management and analysis of student assessment data. Online collaboration tools, web portals, social networks and wikis can facilitate resource and knowledge sharing. A theme running through the research in this area was that it is important for program designers to seek teacher input to guide design of technologies for schools through all phases: from choosing the intention of the program through design and implementation. Another theme was the importance of focusing research on

applications of technologies to support teachers in local school PLC, as opposed to further research of distance online learning models for teachers.

The final section of this literature review will consider the research method selected for the study. Case study methodology is appropriate when the purpose of the study and research questions seek to determine the how and why of a given social phenomenon (Yin, 2009). Yin (2009) states that since case study research is not an experimental method, the researcher must be especially rigorous in following formal and explicit procedures for data collection and analysis. This will increase the validity and trustworthiness of the study findings.

In order to increase the validity of the findings the researcher should begin with a thorough review of the literature on the topic. The literature review allows the researcher to examine the phenomenon and refine the research questions to ensure that the case study methodology is appropriate. Next the researcher should maintain what Yin (2009) calls a “Chain of Evidence” (p. 3) documenting findings from multiple sources of evidence such as archival records, interviews and observations. Yin (2009) recommends that the researcher investigate and document possible “rival explanations” (p. 3) of the findings. Yin suggests that the researcher be open in acknowledging the potential weaknesses of the method, and describe how the researcher intends to maximize the validity of the study. Examples of strategies Yin (2009) suggests for increasing the validity and trustworthiness of data collection and analysis include the following: defining a protocol for collecting data, creating a case study database, and closely following a conceptual framework for data collection and analysis.

Once data has been collected and analyzed, the researcher can check the validity of the analysis in a process called member checking (Lincoln & Guba, 1985). Member checking refers to the process of having participants read over researcher reports of interviews and analysis of archival documents to provide correction, clarification and elaboration. Member checking increased the internal validity of the study and enhanced the credibility of the findings (Lincoln & Guba, 1985).

Another strategy recommended by Yin (2009) for increasing the trustworthiness of the research findings is writing “Thick descriptions” (Geertz, 1973). “Thick descriptions” refers to writing a thoroughly detailed description of contextual elements such as the study setting, and participant relationships. “Thick descriptions” enhance the external validity of the study by allowing the reader to determine whether the project findings can be transferred, or applied, to different contexts that are similar (Geertz, 1973). Yin warns that it is important for the researcher to stay focused on the research questions and the conceptual framework of the study when analyzing data. Yin (2009) refers to this as writing a “complete report” of the case.

Summary

In effective schools studies, researchers found a culture, or organizational norms, in which teachers worked together collaboratively and shared a commitment to ongoing instructional improvement. Researchers referred to these schools as learning communities. Professional Learning Communities (PLC) are a variation of these, and consist of small groups of teachers that discuss and agree on essential learning standards for students, agree to teach to those standards on a common schedule, design common assessments of student progress towards those standards, use various forms of data to

provide evidence of student learning and collaboratively design instruction that will help students reach the essential standards. Challenges to the work include time, new roles and relationships for teachers and the principal and the need for guidance. PLC work requires teachers to overcome norms of teacher isolation and privacy that are prevalent in schools. School leaders establish systems of practice such as institutionalized meeting times to provide a forum and protocols and facilitation to guide teachers as they learn to work in collaboration.

Barth (1990), Elmore (2003) and Halverson (2005) conceptualize the role of principals and district leadership in PLC as leaders who establish practices that provide structure and support to foster PLC. Principals in these schools also encourage teachers to share their knowledge and expertise. Leaders in successful schools establish practices and protocols that build teacher interdependence and embed teacher learning in practice. They require PLC teams to establish clear, achievable student learning goals, and work collaboratively to assess and address student progress towards those goals. Leaders gradually release control as teacher teams develop mastery of the process and demonstrate success in improving student learning.

Recognizing that development of PLC is a time consuming process that is difficult to guide and maintain, research that explored the use of online communications tools to increase communication, resource and knowledge sharing was examined. Next, research into the role of data systems for analyzing and creating student assessments was considered. A key finding was a need for teachers and administrators to develop assessment literacy, a better understanding of assessments and how to use data to guide and plan instruction. Existing research as of fall 2009 focused on developing assessment

literacy and did not examine how to support practitioner understanding and increase use of available ICT tools for assessment, data management and progress monitoring.

The literature shows that Professional Learning Communities (PLC) is a model of school organization that can create an environment of continuous instructional improvement. The literature demonstrates that the collaborative work of PLC is time consuming and requires the guidance of a principal who establishes practices and procedures that encourage teacher collaboration and instructional leadership. Literature that explored use of email and web portals for knowledge sharing and teacher collaboration were reviewed. Studies that pertained to local schools practicing a collaborative teaching model mentioned the usefulness of disaggregated student performance data, and suggested the potential for creating a searchable database of quality lesson plans model however, these studies did not articulate how teachers are best supported in learning to use technologies that can facilitate PLC work.

As of fall 2009, there was a lack of research into the use of ICT in PLC work. The current research project will add to the literature by improving understanding of how Professional Learning Communities are enacted in elementary schools and how technologies are utilized in that work. One goal of this research was to improve understanding of what kinds of ICT would be most helpful to principals and teachers as they seek to improve instruction. Another goal was to identify and increase practitioner awareness of existing technologies that could facilitate the time consuming, complex work of PLC.

CHAPTER III - METHODOLOGY

The purpose of this chapter is to explain the research methods that were used in this case study and why these methods were suited to the project. The chapter describes the sample schools, participants, and the primary researcher's relationship to the sample group. Next the chapter describes the data sources that were collected and how those data were analyzed. The chapter concludes with the procedures followed in the research project.

The purpose of this study was to articulate how PLC are being enacted in elementary schools, and to examine how technologies are utilized in that work. One goal of the research was to improve understanding of how ICT can help principals and teachers as they seek to improve instruction. Another goal was to identify, and increase practitioner awareness of, technologies that can facilitate the time consuming, complex work of PLC. The researcher therefore chose a descriptive and exploratory case study model (Yin, 2009) in order to examine practitioner perspectives on the implementation of the PLC model and to better understand the challenges, and tasks of the work that might be facilitated using ICT.

Research questions

1. How is the Professional Learning Communities model enacted in elementary schools?
2. How are technologies utilized in the work of Professional Learning Communities?

Research Design

This research project was a descriptive and exploratory case study (Yin, 2009). This design suited the purpose of the study because the research sought to reveal how and why PLC were implemented and how technologies are currently being used in that work.

A closer look at the work of PLC can improve understanding of the goals and tasks of PLC work that might be facilitated by various forms of ICT. A closer look at how technologies are currently used can provide information about principal and teacher awareness and use of available technologies. This information may be useful to software designers, professional development designers, ICT support professionals for education, and education administrators and policy makers at the district, state and national level.

Artifact analysis (Halverson, 2004) served as the conceptual framework that guided data collection and analysis in the research project. The framework is illustrated in the Design Cycle Analysis Model (DCAM) in Figure 2, chapter one. The framework was used to guide an exploration of PLC, beginning with documentation of what the artifact was and how it came to be. Artifact analysis next guided the researcher to document the goals of the school community that led teachers and school leaders to frame the problems of practice, in a process called problem setting, and choose to implement the PLC model to help them solve those problems. The resources and strategies used in implementing PLC were documented next. Next the researcher documents the problem solving that is made possible through implementation of PLC including a timeline of the problem solving activity. Finally, artifact analysis documents the affordances and constraints of implementing the PLC model and the lessons learned through the process.

Data collection included: field observations, archival analysis and in-depth semi-structured interviews with selected participants (Yin, 2009). Using three sources of data allowed the researcher to triangulate, or compare the findings suggested by each of the sources to check the consistency of the findings. For example, did the description of Professional Learning Communities work in the school plan match what was actually

happening in practice? In the data analysis and reporting phase, the project used methods that included: member checking (Lincoln & Guba, 1985), and writing “thick descriptions” (Geertz, 1973). Member checking refers to the process of having participants read over researcher reports of interviews and analysis of archival documents to provide correction, clarification and elaboration. Member checking increased the internal validity of the study and enhanced the credibility of the findings (Lincoln & Guba, 1985). “Thick descriptions” refers to writing a thoroughly detailed description of contextual elements such as the study setting, and participant relationships. “Thick descriptions” enhance the external validity of the study by allowing the reader to determine whether the project findings can be transferred, or applied, to different contexts that are similar (Geertz, 1973). Yin (2009) refers to this as writing a “complete report” of the case.

Viewpoint

Access to each of the schools was gained by virtue of the employment of the researcher. The primary researcher in this project was a curriculum and technology integration specialist and technology mentor teacher in the school district for eight years, including the year of the study. The researcher had developed working relationships and a high level of trust with the principals and teachers in the two schools. This familiarity presented both benefits and challenges to the research project. One benefit was that the close relationship between researcher and participants enhanced participation and in most cases seemed to increase participants’ openness in interviews and in providing access to archival data. Another benefit was the researchers’ familiarity with school programs and practices, and the history of their development. One challenge was that a few participants

seemed a bit guarded in their responses, perhaps because they viewed the researcher as a school district representative. That may have inhibited their openness to express alternative points of view. Other challenges were caused by familiarity with school programs that may have made it more challenging to ask probing questions of the participants, picture alternative analyses of the data, and maintain objectivity in interpreting results.

Sample

Schools chosen for the study were strongly recommended for the study by the Superintendent and Deputy Superintendent of the Pacific school district. In the year of the study Seaside served 509 students and Pleasantdale served 450. Criteria for selection were as follows:

- Use of PLC model similar to Schmoker (2006) definition (See chapter one)
- Schools identified by district as strong users of technology
- Evidence of sustained increases in student achievement

The schools, Seaside and Pleasantdale (pseudonyms), are located in a suburban city on the west coast of the U.S. and are both a part of the Pacific (pseudonym) school district. Though the schools are located in the same school district, and the same city, the two schools serve students from very different socio economic, home language and parent education backgrounds. The demographic data paint a picture of the population of students and families served by each school.

School Sample Demographic Data

Seaside School is a K-5 elementary school. In spring of 2009, it served 509 students. At Seaside, 96% of the students qualified for free or reduced-price lunch, 95%

were English Language Learners, and 16% qualified for special education and related services. Seaside served an ethnic population consisting of 6% Asian, 1% African-American, 92% Hispanic, and 1% White students. At Seaside, based on parent reported information, 53% of parents had not completed high school, 31% were high school graduates and 3% of parents were college graduates, 94% of parents responded to requests for this information. All the teachers at Seaside held full teaching credentials (CDE, 2009). These demographic data are based on students in grades 2 – 5 who were tested in the STAR program as reported on the California State Accountability Progress Reporting web site, Dataquest.

Pleasantdale is a K – 5 elementary school. In spring of 2009 it served 450 students. At Pleasantdale, 18% of the students qualified for free or reduced-price lunch, 22% were English Learners (up from 13% in 2004) and 11% qualified for special education and related services. Pleasantdale served an ethnic population consisting of: 2% African American, 5% Asian, 1% Filipino, 23% Hispanic or Latino, 64% White, and 4% two or more races. At Pleasantdale, based on parent reported information, 7% of parents had not completed high school, 14 % were high school graduates, 36% of parents were college graduates, and 31% completed college and graduate school. 98% of parents responded to requests for this information. 100% of teachers at Pleasantdale had full teaching credentials (CDE, 2009). These demographic data are based on students in grades 2 – 5 who were tested in the STAR program as reported on the California State Accountability Progress Reporting web site, Dataquest.

The California Academic Performance Index (API) is one measure of school progress towards raising the academic achievement of all students. The Index ranges

from 1 – 1000, schools that reach 800 are considered to be doing well. The formula for calculating the Index includes: test scores, growth in student scores from year to year, demographics, achievement of subgroups considered at-risk for school failure and student participation rates. The schools, Seaside and Pleasantdale, have both steadily improved their ratings in the API, between the spring 2004 and spring 2009.

| | Spring 2004 | Spring 2009 |
|--------------|-------------|-------------|
| Seaside | 686 | 749 |
| Pleasantdale | 862 | 894 |

Table 1- California Academic Performance Index Rankings Spring 2004 and 2009

Seaside has demonstrated ongoing improvement in student performance on state achievement tests. Data analysis programs show growth in student performance on the CST for English Language Arts with the percentage of students scoring proficient or advanced growing from about 28% in spring 2005 to almost 41% in spring of 2009. The number of students scoring proficient and advanced in math has also grown. At Pleasantdale, the English Language Arts (ELA) scores show a consistent high percentage of students scoring proficient or advanced in ELA, despite the increase in ELL students during the same time period. Math achievement has also grown, with a higher number of students scoring proficient or advanced, and reductions in students scoring below basic and far below basic.

Participants

The sample schools were recommended in consultation with school district leadership. At each school site, the principal and the second and fourth grade teams were interviewed and observed. These teams were selected by recommendation of the

principals at each school. Principals considered these teams to be strong models of PLC collaborative work. The choice of one lower grade level and one upper grade level team helped the researcher better document the concerns of the PLC teams at different grade levels, and compare and contrast those concerns at the two schools.

| Interviews at Seaside | | | |
|----------------------------|--|--------------------|---|
| | Position/ grade level | Years in Education | Years in Current Position/grade level |
| Jairo Ramirez | Principal | 17 | 9 |
| Karen Ellis | Literacy Coach | 4 | 1 |
| Cynthia Cox | 2 nd grade | 14 | 2 |
| Marisol Ruiz | 2 nd grade | 8 | 7 |
| Leslie Morris | 1 st /2 nd grade Combined | 13 | 12 in 1 st , 1st year in 1 st /2 nd combo |
| Madeleine De Leon | 2 nd Grade | 13 | 3 |
| Mindy Gonzalez | 4 th Grade | 5 | 4 |
| Casey Jones | 4 th Grade | 4 | 1 |
| Marla Dennis Kelly | 4 th Grade | 14 | 3 |
| Daniel Laurence | 5th Grade - recommended for technology ideas | 2 | 2 |
| Interviews at Pleasantdale | | | |
| Janet Hill | Principal | 15 | 5 |
| Sandra Ramsey | 2 nd Grade | 16 | 9 |
| Margot Anderson | 2 nd Grade | 24 | 3 |
| Ann Dillon | 2 nd Grade | 2 | 2 |
| Juliette Winston | 4 th Grade | 8 | 3 |
| Emily Garnett | 4 th Grade | 6 | 5 |
| Milana Corbett | 1 st Grade | 21 | 7 |

Table 2 - Study participants interviewed - Pseudonyms

Participant identities were kept confidential through the use of pseudonyms. The Table 2 shows the pseudonyms of the participants interviewed in the sample schools, the number of years they have been in the field of education and how long they have been teaching at their current grade level, or in their current position.

Approval from the Internal Review Board for Protection of Human Subjects at the University of San Francisco was obtained for the project prior to the beginning of data collection, IRBPHS #10-009. Participants were given a copy of the USF Research subject's bill of rights, adapted for this project, and each participant signed a letter of consent to be a research subject prior to his or her interview.

Procedures

The first phase of this project involved securing permission to perform the study from district leadership. A meeting with the Superintendent and the Deputy Superintendent of Curriculum and Instruction was held to review the purpose of the project and research questions. At this time, the district leadership recommended Pleasantdale and Seaside as sites for study. The Superintendent signed a letter of support for the project. After this, informal conversations with each principal led to the recommendation of the two grade level teams and the principals each signed a letter of agreement to participate in the study. A rough timeline of when observations and interviews would take place at each site was shared with the principals.

Yin (2009) suggests that when more than one case study is being included in a project, the researcher should complete one study before beginning the next. Therefore the researcher chose to begin with a full case study of Seaside. Interviews and observations were completed in March of 2010. The school plan was reviewed prior to

conducting interviews and observations. Demographic and academic performance data for each school was collected in the dissertation proposal phase of this study. These data were gathered from state data resources and the district's Data Director™ program.

At Seaside, the principal and literacy coach were interviewed together, a follow up interview was done with the principal at a later date. Interviews with the second and fourth grade teachers at Seaside were completed over a two-week period. The researcher observed one PLC meeting for each grade level, both second and fourth, at Seaside during the same time period. The researcher collected all handouts, reports, agendas and protocols provided to the teachers. Other archival data collected for inclusion in the study was a schedule of a typical PLC day at Seaside, and the PLC data binder of the fourth grade team leader as a sample of what each PLC member had available to refer to in meetings.

Each interview and observation was recorded using an mp3 Audio recording device and the researcher also took notes. In observations of PLC meetings these notes included a list of participants and facilitator, time, location, the purpose set for the meeting, a sketch of the seating arrangements and notes on the setting of the meeting (Merriam, 2009). Following each interview and observation, the interviewer audio recorded a brief reflection while reviewing the notes taken. Included in these reflections were researcher thoughts on themes that had surfaced that were common with the research reviewed or other interviews and observations. Reflections included thoughts on the researcher's position and how it might have affected the responses of the interviewee or the researcher's interpretation of themes. This process of reflecting on potential researcher bias is referred to by Yin (2009) as an objectivity audit.

Following data collection at Seaside, the researcher transcribed each interview and observation to aid in the process of data analysis. Each participant received a copy of his or her interview transcript for review. Only two of nine participants replied that they received and approved the transcript. Therefore the researcher created a report of the key themes and quotes from each interview and sent it to the participants. Six participants sent responses that they read and agreed with the interview reports. In cases where the researcher was unsure about an interpretation of participants' comments, the researcher sent copies of the section of the interview and specifically asked the participant if he or she agreed with the researcher's interpretation.

The exact same procedures were followed in the case study of Pleasantdale School. The principal was interviewed first, followed by interviews with the second and fourth grade teachers. Interviews took place between April and June of 2010. Whereas the interviews and observations at Seaside were done about a month prior to the CST tests, these tests had been completed for the school year when the Pleasantdale staff was interviewed and observed. There was a difference in observations of PLC meetings because at Pleasantdale, there is an all staff PLC meeting. The researcher was able to observe two all staff PLC meetings, sitting with the fourth grade team at one of those meetings, but did not observe any PLC meetings of the grade level teams working on their own. The researcher collected all handouts, reports, agendas and protocols provided to the teachers. Other archival data collected included the school plan, the daily schedule, and the PLC data binder for Pleasantdale.

Following data collection at Pleasantdale, the researcher transcribed each interview and observation to aid in the process of data analysis. Each participant

received a copy of his or her interview transcript for review. At Pleasantdale, no participants responded to the transcript receipt. The researcher again created a report of the key themes and quotes from each interview and sent it to the participants. Six of seven participants sent responses that they had read and agreed with the interview reports. In cases where the researcher was unsure about an interpretation of participants' comments, the researcher sent copies of the section of the interview in question and specifically asked the participant if he or she agreed with the researcher's interpretation.

Each participant was asked to recommend teachers with alternative or potentially interesting points of view regarding the PLC model or the use of technologies in PLC. This is referred to as discrepant case analysis (Merriam, 2009) or seeking "rival explanations" (Yin, 2009, p.3). At Seaside, this led to an interview with a fifth grade teacher, Daniel Laurence, who had additional ideas for ways that technologies could be useful in PLC work. At Pleasantdale, it led to an interview with a teacher, Milana Corbett, who was vocal when PLC was initiated in her concerns that teacher contracted meeting times should be honored and PLC goals should be selected by teacher teams and not prescribed by administration.

Interview transcripts were examined and major themes were identified. Themes were grouped under headings related to each section of the artifact analysis, Design Cycle Analysis Model (DCAM). Headings for themes included: How and Why PLC were implemented; What supported PLC development; Challenges to PLC work; and the Technologies that support PLC work or could support PLC work. These themes were added to a spreadsheet for analysis, see Appendix A. The spreadsheet shows the themes on the left vertical axis and participant names on the top horizontal axis. Check marks

were used to note which participant referred to each theme. This spreadsheet was used to document how many participants mentioned common themes and to help find quotes to document each theme when preparing the case study reports.

Data Analysis

Analysis of the data was on-going throughout the dissertation (Yin, 2009). The researcher kept notes during each interview and observation. These notes included comments related to themes that emerged similar to those found in other interviews as well as notes of observations and participant comments that were anomalies, different from any other interviews. After each interview and observation, the researchers reviewed the notes and audio recorded a reflection on the interview or observation. The audio recordings of interviews and observations were used to make transcripts. The interview transcripts were analyzed to find themes that may have been missed in the interview notes.

Using artifact analysis, illustrated in the Design Cycle Analysis Model (Halverson, 2004) Figure 2, chapter one, the researcher describes, in chapters four and five, how PLC work is articulated and made evident in school plans and other school archival documents. The researcher sought evidence in archival documents of articulated goals and practices of PLC work that were evident in field observations and articulated in interviews. In analyzing transcripts of the interviews or studying an archived document, decisions were made about what was most noteworthy. While the researcher made every effort to be as unbiased as possible in data collection and analysis, what the researcher considered to be important was influenced by the perceptions brought to the study by the researcher (Yin, 2009). The researcher tried to stay conscious of the possibility of bias

by making notes of potential areas of bias in the research journal; this can be referred to as an objectivity audit (Yin, 2009). The researcher tried to counterbalance any possible bias by seeking out alternative opinions and by carefully maintaining a focus on the conceptual framework of the study (Yin, 2009).

At various points in the interpretive process the researcher consulted with available staff at Seaside and Pleasantdale, and provided them with copies of reports from interviews, observations and archival analysis. This allowed participants to check the accuracy of the researcher's interpretations of the data to increase the trustworthiness, or credibility, of the analysis, a case study process called member checking (Yin, 2009). Using this combination of data sources and collection methods provided the researcher with a sense of how and why each school is enacting PLC work, and how technologies are utilized in the PLC work.

In order to best present the data collected, in a format that would be valuable to other practitioners, the researcher wrote a "thick description" of the findings that includes detailed description of the context (Geertz, 1973). Findings from interviews, observations and archival analysis are woven together into this case study report (Yin, 2009). The artifact analysis model was used as a framework for structuring the case study reports. These findings are presented in chapters four and five.

Chapter IV - Seaside Elementary School Case Study

In this chapter, the case study report from Seaside Elementary School is presented. This case study examines how the Professional Learning Community (PLC) model has been enacted at Seaside and how technology is used in PLC work. In order to establish the context of the local school, the case study begins with a description of Seaside school, including a description of available technologies, and the principal's vision of creating a consistent learning program with high expectations for the achievement of all students. The remainder of the case study presents an artifact analysis of PLC and how technology is used in PLC work at Seaside. The final piece of the case study presents participants' thoughts on how technologies are currently used in PLC work and participant thoughts on how technologies could be useful to enhance PLC and the work of instructional improvement in the future.


The purpose of the study was to articulate how and why PLC are being enacted in elementary schools, and to examine how technologies are utilized in that work. The goals of the research were to improve understanding of how ICT can help principals and teachers as they seek to improve instruction; as well as identify ways to increase practitioner awareness of technologies that can facilitate the time consuming, complex work of PLC. The study is based on the premise that assessment, communications and collaboration technologies can facilitate the time consuming work of PLC (Boudett & Steele, 2007), and help leaders monitor and support the work of PLC teams.

Seaside Description


The demographics of the school population presented in chapter three reveal that a large population of students had low socio-economic status, as shown by the number of

students qualified for free and reduced lunch. There was also a large population of students with English Language Learner (ELL) status and low parent education levels. These statistics often correlate with low achievement in school. Only a small percentage of students scored in the advanced range of the state STAR tests. Students need to learn academic use of the English language while also mastering standards in the content areas. It is within this context that PLC were introduced and developed at Seaside.

Technologies available at Seaside include hardware: Internet connected computers for all participants; mounted LCD projectors in second – fifth grade classrooms, document camera in one participant’s classroom, shared printers for most teachers. Available software and web based applications include: district email, district student information system accessed via web browser for attendance, report cards, with grade book option; district web communications utility, School Loop® for teacher websites, posting assignments, grade book, seating charts, and option to create online groups for discussion and resource sharing. Data warehousing tool Data Director™ for accessing and storing student assessment data: CST reports, district English Language Arts and Math benchmark tests, manual input of Dynamic Indicators of Basic Early Literacy Skills (DIBELS) assessment with progress monitoring reports; users can also create assessments. Scholastic Management System (SAM) for access to class and individual reports of student performance on the Scholastic Reading Inventory (SRI) assessment. A sample of one kind of whole class report is shown in Figure 3. DynEd – Let’s Go and First English, two leveled programs for English Language Development with a pre assessment for placement in the program and ongoing assessment of student progress were also available for students.



Intervention Grouping Report



Time Period: 08/26/09 - 06/18/10
Apply Demographic Filter: Off

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| Intervention Level (Based on Performance Standard) | Student | Grade | Lexile® | Date | Normative Data | | |
|--|----------------|-------|---------|----------|-----------------|-----|---------|
| | | | | | Percentile Rank | NCE | Stanine |
| Advanced | Bl [REDACTED] | 3 | 786 | 09/16/09 | 79 | 67 | 7 |
| | Fr [REDACTED] | 3 | 838 | 09/16/09 | 86 | 73 | 7 |
| | Y [REDACTED] | 3 | 925 | 09/16/09 | 93 | 81 | 8 |
| | Ja [REDACTED] | 3 | 979 | 09/16/09 | 95 | 85 | 8 |
| Proficient | Gar [REDACTED] | 3 | 586 | 09/16/09 | 49 | 49 | 5 |
| | Mc [REDACTED] | 3 | 604 | 09/16/09 | 52 | 51 | 5 |
| | De [REDACTED] | 3 | 738 | 09/16/09 | 73 | 63 | 6 |
| Basic | Lin [REDACTED] | 3 | 411 | 09/16/09 | 27 | 37 | 4 |
| | Ro [REDACTED] | 3 | 423 | 09/16/09 | 28 | 38 | 4 |
| | Or [REDACTED] | 3 | 429 | 09/16/09 | 29 | 38 | 4 |
| | Sm [REDACTED] | 3 | 513 | 09/16/09 | 39 | 44 | 4 |
| | Ma [REDACTED] | 3 | 564 | 09/16/09 | 47 | 48 | 5 |
| Below Basic | Da [REDACTED] | 3 | 329 | 09/16/09 | 19 | 32 | 3 |
| | Bu [REDACTED] | 3 | 340 | 09/16/09 | 20 | 32 | 3 |
| Far Below Basic | Ag [REDACTED] | 3 | BR (0) | 09/16/09 | 1 | 1 | 1 |
| | Mo [REDACTED] | 3 | BR (28) | 09/16/09 | 1 | 1 | 1 |

Figure 3 - Scholastic Reading Inventory Class Report

Principal's vision – "Getting on the same page"

Nine years prior to the study, when Seaside's principal, Jairo Ramirez, took his position, Seaside was in the third year of implementing the Success for All (SFA) reading program, a highly structured curriculum that involves grouping students by reading ability level, based on regular assessments embedded in the program. Students are regrouped based on assessments every eight weeks. A few of the support staff teach SFA groups, which allows for smaller, more targeted reading groups. Students often go to a different teacher or support teacher for SFA. A 13 year veteran teacher pointed to the implementation of Success for All 12 years prior as the start of school-wide teacher collaboration at the school, "My second year here was the first year of Success for All,

and that required a lot of collaboration” (Madalienne De Leon, Personal Communication, March 18, 2010).

Jairo Ramirez talked about how he began to step up the process, nine years prior, requiring teachers to collaborate more regularly on grade level curriculum in all areas.

He said that he told the teachers:

While we are all doing good work in our classrooms and everyone is setting different targets and meeting those targets, there isn't a big picture target that we are all meeting...even before PLC...we were trying to get on the same page.

(Personal Communication, March 4, 2010)

Jairo Ramirez applauded teacher's individual efforts in their classrooms, but insisted that attaining the goal of high student achievement would require greater consistency of focus. The goal was to develop a consistent learning program, within each grade level and also articulating learning from grade to grade. He described his vision of developing high standards for student achievement at Seaside, “I tell everyone that the students here are: deserving, intelligent, and very capable of achieving high standards...so that has always been consistent” (Personal Communication, June 2, 2010). Jairo expresses how he holds high expectations for the students, and also for himself, the teachers and the support staff.

He explains why he feels so strongly about maintaining this vision of consistency, high standards and “no excuses,” while acknowledging that it may sound “cliché” to some:

For our kids it could be a life or death situation. They are not inheriting anything, any monetary things, from their parents. They are not going to get a house; they

are not going to get their parents' cars. They don't have anything to fall back on other than the education that we provide. (Personal Communication, June 2, 2010)

Since the education the students at Seaside receive may be the one thing they have that allows them to achieve a good standard of living as adults, Jairo believes strongly that his high expectations are worth maintaining.

Teachers interviewed expressed that they appreciate the support and guidance they receive from Jairo and the literacy coach, Karen Ellis. When asked if his leadership style has changed through the years, Jairo said:

My leadership has changed from me trying to be the gatekeeper of all of this...I always thought that I had to bring everybody along, but what I've done is find those people who are really, really behind this 110% and given them the power to work within their grade level, and then people start to emulate those things.

(Personal Communication, June 23, 2010)

Jairo's leadership style has maintained high standards, but he no longer feels solely responsible for bringing teachers up to meet those standards. Jairo finds it is more effective to support teachers who are meeting, and even exceeding, his high standards and have them serve as role models for the rest of the staff.

Initial efforts to develop a more consistent program at Seaside began prior to Jairo's arrival at the school. Success for All, is a highly prescriptive instructional program for reading and language arts that came to Seaside about twelve years prior to the current study. The entire school does SFA reading first thing in the morning for 90 minutes. Students are grouped by reading level, and often leave their homeroom teacher for SFA. Every group follows a consistent, structured lesson plan, every day. The SFA

program requires the staff to regroup students into new, leveled reading groups every eight weeks. Students are regrouped based on data from assessments that measure reading comprehension, and a variety of reading comprehension skills. The SFA program introduced the staff to the idea of consistency in a curriculum program. It also made collaboration more common place since teachers were sharing students and using the same reading program, it became easier to share ideas based on common practices.

In school year 2003 – 2004, teachers at Seaside learned and practiced collaborative curriculum planning with the help of a district math coach. At that time, there was a new math adoption and teachers believed the existing pacing calendar was not appropriate for their students. Teachers worked with the coach to decide when they would teach each unit in the math curriculum, then planned lessons and learning activities together, and met regularly to discuss how the lessons and activities were going in their classes. This experience added to the consistency of the program and helped the teachers learn how to discuss focus areas, based on student learning needs. They also practiced how to develop a common pacing guide and design instructional strategies. It is within this school context, with a consistent learning program in all classes already a norm, and with a shared vision of high standards for student achievement that the Professional Learning Communities Model was introduced and developed at Seaside.

Artifact Analysis

In order to better understand the PLC model, and its place in the program at Seaside, Artifact analysis begins with an exploration of the following questions.

- What is PLC at Seaside?
- What does it do?

- Who is involved in PLC?

At Seaside, all teachers participate in a PLC with the other teachers in their grade level team. Meetings are facilitated by the literacy coach or the team leader, and are often attended by the principal. Leslie Morris, a second grade teacher, describes the work teachers do in PLC:

We spend a lot of time addressing areas of the curriculum in which students are not doing well and how we're going to address that...sometimes Jairo or Karen have the agenda set, and sometimes we have the agenda set. (Personal Communication, March 17, 2010)

PLC meetings are the time in which the teachers look at evidence of student learning and use that information to decide the areas of the curriculum they need to revisit. The team may also find an area of student learning weakness in which they need to revise instruction. PLC meetings are not a time for planning instruction, lessons or activities. Grade level teams meet at other times to plan implementation strategies such as units of study with lessons and activities together. PLC stays focused on diagnosing student learning needs based on assessment results. Each grade level team has a leader who meets monthly with the principal, literacy coach and the other grade level team leaders to review PLC progress and plan next steps.

In PLC, the teachers first choose essential standards they will address with their students. At Seaside, the following list of criteria for identifying essential standards is included in the PLC data binder:

- Endurance: Are students expected to retain the skills/knowledge long after the test is completed?

- Leverage: Is this skill/knowledge applicable to many academic disciplines?
- Readiness for the next level of learning: Is this skill/knowledge preparing the students for success in the next grade/ course?

These criteria were included in the county presentation on PLC (DuFour & DuFour, 2008).

Teachers next choose or create common formative assessments, or other evidence of student learning to monitor student progress towards mastering the essential standards. At Seaside, for second grade the district benchmark tests were often used as a progress monitoring assessment, the fourth grade team used district benchmark tests and they designed their own follow up assessments based on targeted areas of weakness found on the benchmark tests. The teachers would provide targeted instruction in areas of weakness during the College Prep Intervention Block, then follow up with a common assessment they created as a team. The analysis of the assessment results takes place in the regularly scheduled PLC meetings.

At Seaside teams meet for PLC twice per month for 45 minutes. The time for PLC meetings is embedded in the school day. The agenda is based on the essential standards and goals the team has set for student learning for the year and includes a chance to follow up on the action steps teachers planned to take at the prior meeting. The literacy coach often prepares assessment data, such as the results of district benchmark tests to show teachers how students performed in targeted areas. The team leader fills out a protocol designed to document how the team has followed up on action steps from the past meeting, and set goals and action steps to work on before the next meeting.

The focus in PLC meetings is to look at data from common formative assessments and use that information to guide instructional improvement. Karen Ellis put it this way, “It’s really about improving not just student performance, but also the teacher’s performance. So, if you don’t have good data, then the teachers really don’t know what they need to go back...and rework” (Personal Communication, March 4, 2010).

Karen describes how teachers look at student performance on common assessments to get feedback on their instructional strategies. Teachers can then talk with their colleagues to find approaches to instruction that may be more effective.

Grade level teams meet twice a month for PLC meetings, focused on English language arts, for 45 minutes embedded in the school day. The principal supports PLC embedded in the school day by hiring four – five substitute teachers who come to Seaside on a regular basis, to cover teachers while they meet as PLC and to help make Success for All and intervention groups smaller. Having these substitute teachers available on a regular basis means students are accustomed to working with them. This makes it less disruptive when they come to take the class to an enrichment activity. Or, when teachers create small targeted learning groups at different grade levels. The site literacy coach coordinates the school schedule, to ensure that each class has an activity during PLC time, such as going to work with the garden expert, going to physical education, or going to the school library. Teachers do not need to do any preparation or make any plans for what their students will do while they attend the PLC meeting.

The grade level teams meet twice a month for PLC work, to diagnose student learning needs, consider possible interventions for students, and consider areas in which instruction may need to be refined. PLC meetings are not the only time grade level teams

work together at Seaside. The grade level teacher teams also meet less formally about twice a month after school, usually on Wednesdays, a day when students are released earlier from school than the rest of the week. Leslie Morris said, “On Wednesdays, it's covering more, like, lesson plans and how we're going to do it, GLAD (Guided Language Acquisition Design) strategies, and things like that” (Personal Communication, March 17, 2010). So the meetings on Wednesdays focus more on the practical lesson planning to address the needs teachers uncovered in their PLC meetings. GLAD refers to the Guided Language Acquisition Design strategies that teachers have been learning to implement. These are instructional strategies to help students, especially English Language Learners acquire and use English language throughout the day, including higher level academic vocabulary. Grade level teamwork is such a regular part of teachers work at Seaside that the teachers can be observed having brief planning conversations at lunch and during breaks.

Observation and interviews revealed that though each grade level team has similar organization, each team has developed a unique approach to the use of their Wednesday afternoon planning time. In the second grade team, the team leader takes on the bulk of the preparation work for the team. In the fourth and fifth grade teams, teachers plan and prepare for the twice a week College Prep intervention program, for their own groups and for one or two of the other small student intervention groups that are taught by the regular substitute teachers, the resource specialist and the speech teacher.

How did PLC develop at Seaside?

This question was used to explore the artifact analysis questions:

- Who made it?

- How long has it functioned?

At Seaside, teacher collaboration in grade level teams has been a common school practice developed over the past twelve years. But, use of the term, Professional Learning Community, as a model that increased focus on using assessment data to plan interventions, monitor student progress and guide instructional improvement began with the staff in the 2007 -2008 school year. An effort to train principals and teachers in the PLC model included a series of workshops and a Conference for every public school teacher in the county in January of 2008.

The principal and all but one teacher at Seaside referred to the Sunset County Schools Professional Learning Communities Conference led by Richard and Rebecca DuFour in January of 2008 as a pivotal event in the development of Professional Learning Communities at Seaside. In addition, everyone who had been at Seaside for two years or more, also referred to the Turnaround Schools conference that several staff members attended in Summer of 2008 as another event that gave them a deeper understanding of both the why and how of PLC. Teachers expressed that the Turnaround Schools conference and the DuFour's PLC conference presented very complimentary models. Both models involve school staff working as grade level teams, looking at student assessment data from state tests, choosing focus areas for the year, designing and using common formative assessments, monitoring progress towards learning goals and planning ways to re-teach skills and provide targeted intervention for students as needed.

The principal and many teachers at Seaside noted that what was presented at the conference was easy to assimilate because the staff had already been working collaboratively in grade level teams, to create a more consistent curriculum. Jairo said:

I think the PLC [model] has validated some of the work we had done and formalized it. [I have] to say that it wasn't a radical idea, a lot of it was just common sense, it just gave us the theory and more formal procedures and protocols...Where I think intuitively it made sense, the practical piece is not an easy thing to do. (Personal Communication, March 4, 2010)

The principal found that learning about how to do PLC from the DuFour conference and the Turnaround Schools conference was not completely new to him or to the staff. PLC gave them tools to formalize the work and validated what they had already been trying to do.

Madalienne De Leon, a teacher who has worked at Seaside for thirteen years commented, "I feel like we've always collaborated quite a bit here...But it really seemed to solidify a few years ago when we went to the countywide professional development. (Personal Communication, March 17, 2010). Madalienne comments that PLC was not a completely new concept to the staff, but she found that learning about PLC at the conference made the collaborative work of the staff become more regular.

Marla Dennis Kelly, a teacher with fourteen years experience, finishing her third year at Seaside put it this way:

We, really focused in on the concept after going to the No Excuses University (NEU) program (Turnaround Schools Conference, Summer of 2008)...They talked a lot about making sure that you are using best teaching practices, and that best teaching practices have to do with communication and sharing data... That also had to do with targeting leveled skills. (Personal Communication, March 24, 2010)

Marla emphasized three important elements of best practice teaching that the PLC model brought out for the staff: communication, sharing data and targeting leveled skills.

In summary, PLC is a more formal approach to the existing grade level team work, that developed at Seaside following a series of professional development (PD) workshops for principals, teachers and teacher leaders. The county office of education coordinated these PD opportunities. The main event was a countywide workshop day for all K – 12 public school teachers led by Richard and Rebecca DuFour, in January of 2008. Several teachers from Seaside attended a conference by the Turnaround Schools Project in Summer of 2008 that they said helped them understand the goals and practical application of PLC work. Teachers referred to these trainings as key to taking the work they were doing in collaborative grade level teaching teams to a higher level, focused on evidence of student learning. The goals of PLC work, strategies used to develop PLC and resources used to develop PLC will be examined in the following section.

Goals, Strategies and Resources

Artifact Analysis next considers the following questions about the Professional Learning Community model and how it has been enacted at Seaside:

- What were the goals?
- What strategies were used in developing PLC?
- What resources were needed for PLC?

What were the goals of PLC?

The question that explored the goals of PLC was: People develop models like PLC to address problems, what problems did or does PLC address at Seaside? The staff interviewed at Seaside all stated that the goal behind PLC work for their school was to

build the academic achievement of their English language learners or, as is commonly heard in education to, “close the achievement gap.” Jairo Ramirez put it this way:

I don't want to get caught up on educational terms, because I want to keep it real for us. We are trying to close the achievement gap. That's what everybody wants to hear that we are doing, but when you get to the nitty – gritty. We are trying to identify what that means, and what does that look like at every grade level.

(Personal Communication, March 4, 2010)

The principal stresses that there is more to instructional improvement than educational jargon, the important thing is the practical application, which begins with practitioners defining what it is that students need to learn at each grade level. Teachers look at essential standards to prepare students to be successful going from one grade level to the next and to have continued success both in school and in life.

Marisol Ruiz, who has been teaching for eight years, expressed that the ultimate goal of PLC work is to help every child succeed in school, and this involves working together to brainstorm ways to accomplish that:

We talk about the [state] test all the time and we know they have to perform for the test, but overall I think we need to prepare them for the next grade, so they will succeed...it's not just about the tests and academic goals...(Personal

Communication, March 18, 2010)

Marisol points out that though increasing student achievement scores on the state tests is important to the school, teachers are primarily interested in each student's readiness to learn at the next grade level. She adds:

I think it is a very positive approach, because it is not limited to academics, it is for the well being of the whole school. It is part of the mindset of our school; we are preparing our students to go to college and have a bright future. (Personal Communication, March 18, 2010)

She calls this approach a whole school “mindset” that is preparing students for future success in school and life.

When asked about the goals Seaside has that are addressed through PLC work, Madalienne De Leon commented, “Mainly language arts and test scores and kids falling through the cracks, keeping kids from falling through the cracks” (Personal Communication, March 2010) Madalienne describes the focus of PLC as one, which will keep kids from “falling through the cracks”, or having their learning needs go unnoticed and unaddressed by teachers. She goes on to note that they are, “really watching trends and watching data.” So Madalienne sees the work of PLC as one that keeps track of assessment trends so that teachers can address any need to refine instruction or target student learning needs.

Madalienne goes on to describe how they want to prepare their students to be successful in the next grade level. She notes that it is easier to do this when they have someone like Karen:

...who is looking at what we are doing in second grade...She also gives us a long-term view to look at how kids do once they are getting to fourth and fifth grade, so we can say, “Can we try to work on this a little bit younger?” (Personal Communication, March 17, 2010)

Like Marisol, Madalienne emphasizes the long term view, which means that teachers in the lower grades are mindful of what students will need to know and be able to do in upper grades, and adapt their curriculum focus if needed to meet those needs.

People interviewed spoke about how PLC work allows teachers time and gives them tools to focus in on the learning gaps of individual students. Karen Ellis put it this way:

What I saw, even as a teacher in the classroom, is that you look at something and say, “oh overall, my class was this successful”...then not really addressing those kids who were not successful. I think that’s what we are really trying to do in PLC work. Highlight those students who really didn’t achieve the standard and say, “What are we going to do now? Is it okay for us to move on?” (Personal Communication, March 4, 2010)

Karen points out how PLC work helps teachers recognize when students have gaps in their learning. If the skill or content is foundational to learning at the next level, teachers can create small groups, or focus on these skills during the College Prep Intervention block with students from multiple classes, so the skill or content can be taught again, or in a new way.

The goal for PLC work at Seaside is closing the achievement gap for the students they serve. PLC work helps the staff quantify what the academic learning gaps are for their students. PLC work helps Seaside build on their consistent learning program that aligns learning from class to class at each grade level and from grade to grade. Seaside students continue to perform well on the state standardized tests, showing slow and

steady growth towards state learning targets. The next section describes the strategies used as the school developed PLC.

What strategies were used in developing PLC?

Strategies used by school personnel when implementing PLC included embedding PLC meeting time in the school day, using support staff to coordinate and facilitate the program and use of data to inform PLC planning. All the staff interviewed mentioned the importance of having meeting time embedded in the school day. Most of those interviewed also mentioned the various support staff. They valued the work of the literacy coach, who coordinates the schedule and meeting agendas, facilitates meetings and provides data reports, and the enrichment teachers who work with students while teachers meet. Participants said it was a helpful strategy to have the literacy coach prepare the data reports for them prior to meetings, Casey Jones said: “They provide us with a lot of the data ...so that we as individual teachers don't have to hunt and peck and find the data” (Personal Communication, March 2010). Casey found this was useful so that the teachers don't have to spend time looking for the reports they need, their discussions can focus on analyzing assessment data and planning strategies to address student learning needs.

At Seaside all the staff interviewed stated that having PLC meeting time embedded in the school day was a crucial element in the success of the program. The literacy coach coordinates the school schedule to allow each PLC team a chance to meet during the school day twice a month for 45 minutes. In the first year of implementation the teams met once a month for 45 minutes, but this year, teachers asked for more time and so the schedule was adapted to allow them to meet twice a month. Marisol Ruiz said,

“It gives us more time to really check in with each other and follow the agenda that we have” (Personal Communication, March 18, 2010). Marisol noted that now that the grade level teams meet for PLC work twice a month it is easier for them to really get something done.

The DuFour conference promoted the reorganization of the school schedule as a way to support PLC work in some key ways. First of all, the ideal schedule allows time for teachers to collaborate during the school day, while their students receive enrichment or intervention learning from other school professionals. Second, the school schedule is arranged so that students are not pulled out of core instruction to receive intervention or work with other school specialists. Third, the school schedule has all the classes in the same grade level working on the same core subject learning at the same time. If this schedule is possible it is easier for teachers to break students up in groups for targeted instruction, to avoid having students miss core instruction and to visit each other’s classrooms for peer observations.

Leslie Morris described how Karen’s work with the schedule has helped the implementation of PLC:

The schedule is pretty difficult, especially when you have a set time in which they all need to be doing reading, you can't pull a teacher out at that time. And a set time for math.... she has to figure out how to place all these different teachers together at the same time. (Personal Communication, March 17, 2010)

Leslie points out how difficult it is to organize the schedule to allow for PLC meetings to be embedded in the school day. Especially given the Seaside use of the SFA program

that means all grade levels are doing Reading and English Language Arts at the same time.

She further elaborates how Karen also has to, “keep the kids occupied with a substitute...and have something structured for them to do so it's not a waste of time for the kids” (Personal Communication, March 2010). Karen coordinates substitutes and enrichment teachers to work with students and plans activities for the substitutes so students have something meaningful to do while teachers meet. See Appendix B for a sample schedule for a PLC day at Seaside and Appendix C for the instructional minutes the schools are required to monitor because they are part of a program improvement school district, though the school is not in program improvement.

Another strategy is having the principal and literacy coach facilitate PLC meetings. Many teachers mentioned this especially those new to teaching, or new to their grade level. As Casey Jones puts it:

Jairo sometimes comes to the meetings, most of the time, as a matter of fact. And Karen will come to the meetings. So we have facilitation, a huge part, because then you have somebody who's got a greater level of expertise...they're going from PLC group to PLC group... And they're looking at what's working in one group and helping facilitate another group to accomplish more as well. (Personal Communication, March 18, 2010)

Casey expresses how he values the guidance, or facilitation, provided by the principal and literacy coach because they share what is working for other PLC teams. They also provide protocols to document the work, and help with planning action steps.

Most teachers specifically mentioned that they value the data binder prepared by Karen Ellis, the school literacy coach. See Appendix D for a list of the contents of the Seaside data binder. During observations of second and fourth grade PLC meetings, in spring of 2010, teachers referred to the information provided in the data binder two or more times during meetings. They referred to items such as: grade level standards, past assessment results and the CST blueprints for the upcoming STAR tests. Teachers noted that having data reports already created allows teachers to go directly into a discussion of what the data reveal about student learning and how teachers should respond instructionally to meet student learning needs.

Strategies participants felt were most important in implementing PLC included embedding PLC meeting time in the school day, using support staff to coordinate and facilitate the program and use of data to inform PLC planning. All the staff interviewed mentioned the importance of having meeting time embedded in the school day. They mentioned the importance of the support staff, such as the literacy coach, who coordinates the schedule and meeting agendas, facilitates meetings and provides data, and the enrichment teachers who work with students while teachers meet. Participants also found the binder of resources Karen created for them to help them as they do PLC work was a helpful strategy.

What resources were used in developing PLC?

Time, support staff and “good data” are resources used in developing PLC. The strategy of creating blocks of time embedded in the daily schedule is needed because time is a valuable resource for successful implementation of PLC. The time embedded in the school day allows teachers to meet without distractions to discuss evidence of student

learning, brainstorm best practice strategies, as well as plan and prepare units of study in core instruction. Support staff is a resource used. The support staff includes the literacy coach who coordinates the program and provides important data reports, and also the garden and nutrition teacher, and extra substitute teachers who work with students while teachers meet. “Good Data” is another resource mentioned in interviews. Data analysis software programs provide reports and analysis tools that make it easier to use assessments to guide instruction and plan interventions.

Teachers need time to meet collaboratively to discuss student learning and plan strategies to address student needs. They need time to plan and prepare lessons for both core instruction and intervention programs. Teachers design, administer, grade and record the assessments they use in PLC work, which is a time consuming task that they are doing manually. Though teachers value the work done in PLC and share the vision of academic achievement for their students, the action plans created by the PLC teams take extra time to implement that adds to the teacher’s already busy schedule. Therefore, time is a resource in PLC work and good use of time and time management is important.

Implementing the instructional improvements and interventions that PLC teams determine are needed is intense work, a fact that was also evident in observations. Marla explained:

I’m working with Alice and Sue, Casey is working with Nelda, and Mindy is working with Lucy; and so not only do we need to pull our own material, we need to get material to them. And then we need to somehow get what they have assessed. And then we are supposed to keep track of it somehow. Today I was thinking, “Why don’t I have a sheet where *they* list the pre and post (assessment

scores)? Why am *I* gathering all this information?” (Personal communication, March 24, 2010)

This quote emphasizes how Marla and her teammates prepare instructional materials for their own groups and for the support staff who teach the College Prep intervention block. She notes that she also needs to collect and track assessment data from her own group and for the intervention groups. This led to a discussion of the need for a more efficient way to collect and manage assessment data and share the results.

The second resource most commonly referred to in interviews is a human resource, the support staff. The literacy coach role handles scheduling, assessment coordination and data management, support for grouping and regrouping of students for the SFA reading and the College Prep Intervention block. Support staff include the PE teacher, the library assistant, the Nutritionist and Garden Expert, and other support teachers who are on site and available to do tutoring and small group intervention, or work with a class while the teachers do one on one assessments and small group intervention work.

The third resource referred to by those interviewed was “good data.” The Principal and literacy coach value the student assessment data reports that can be generated using Scholastic Management System and Data Director™. Scholastic Management System gives them access to the results of the Scholastic Reading Inventory, a reading comprehension test. Data Director™ provides access to California Standards Test (CST) results as well as the district benchmark assessment results for Math and English Language Arts. These programs make it easier for the literacy coach to create reports for teacher teams to analyze.

Data resources mentioned by the teachers included the data binders put together by the literacy coach, as well as the reports from both Scholastic Reading Inventory and Data Director™. (See Appendix D for contents of the Seaside data binder) It is worth noting that reports were usually prepared for teachers, not by teachers, though teachers have access to both Data Director™ and Scholastic Management System and can access these reports on their own. Fourth grade teachers expressed the desire for more training in how to use existing data management systems to create assessments and analyze results.

Teachers in the fourth grade team shared that data management for their formative pre and post assessments had become so daunting that they did not have time to use the data for grouping and regrouping students, as they planned to do. They were doing all their assessment creation, marking and analysis manually for both for their homeroom classes and the intervention classes. They were clearly overwhelmed trying to manage the data. “Right now, we are just making all of these by hand” (Marla Dennis Kelly, Personal Communication, March 2010). They expressed a desire to learn how to use technologies that would help them to create, mark, analyze and share the results of these assessments in the coming year. Teachers were especially interested in how the program will generate reports of student performance that would make it easier to gauge progress and group students based on assessed areas of need.

This section provided an overview of the goals, strategies and resources used by the staff at Seaside as they have implemented the PLC model. The PLC model is a way for the teachers and administrators to support each other as they develop a consistent learning program throughout the school and evaluate the effectiveness of the program in

meeting the learning needs of each student. The PLC model establishes the time, resources, and structure for the work and also sets an expectation or norm that all teachers and staff will work together to improve instruction. The next section will look at problem setting, or how the school staff decided to implement this model.

Problem Setting

The PLC model as an artifact of the school program at Seaside was implemented for two primary reasons: first, to focus and target their efforts to raise student achievement and second, to participate in the program of countywide focus on PLC. The county office of education decided to focus on PLC, primarily to address the growing population of English Language Learners (ELL) throughout the county. In schools with small percentages of ELL students, it was easy for students to fall through the cracks. PLC work encourages schools and teachers to look at evidence of student learning and pay attention to the needs of students who are not meeting the standards.

For Seaside, with over 95% English Language learners, the staff had already been focusing more carefully on improving instruction and building a consistent program. Though Seaside had seen solid improvement in student achievement, there had been a leveling off of growth for a few years prior to the implementation of PLC. PLC work helps teachers focus on a limited number of essential standards and plan common formative assessments to help them measure student growth towards the essential standards at regular intervals. Teachers use assessment data to regroup students and address areas of weakness. Data allows them to reflect on the effectiveness of their teaching strategies and share strategies that are more effective, as measured by common assessments.

This first reason also relates to federal mandates for increasing the number of students scoring proficient on California Standards Tests. The No Child Left Behind act of 2001, established the requirement that all students should be proficient in state curriculum standards by the year 2014. Schools have Annual Yearly Progress (AYP) goals that they must reach or the school will be placed in program improvement (PI). A school in PI, has limitations set on how it can spend its federal funded budgets. Seaside is not a PI school, but the Pacific School district is in Program Improvement. A district commitment to the work done in PLC is evident in the School Board adopted Strategic Initiatives, shown in Appendix E.

The second reason was an initiative of the Sunset County Office of Education, funded by a local Education Foundation. This initiative paid for training for principals and staff in the PLC model. The County Office of Education held a series of workshops for principals, district administrators and teacher leaders, and sponsored a full day workshop for all K – 12 public school teachers in the county. Teachers gathered together to hear from Richard DuFour, a former high school principal, and Rebecca DuFour, a former elementary school principal, who successfully implemented the PLC model in their schools and saw dramatic growth in student achievement as a result.

The county training brought new clarity of purpose about the collaborative work teachers had already been doing in their grade level teams. “But then it really...seemed to solidify...when we went to the countywide professional development...” (Madalienne De Leon, Personal Communication, March 2010) The county PLC conference provided a structure for teacher teamwork that brought them to a new level of effectiveness.

Problem Solving

Asking the question, “How is PLC work useful to you?” revealed problem-solving themes. Participants expressed that working collaboratively in PLC allowed them the benefits of group problem solving and idea generation. The first step was “getting on the same page” by agreeing on essential standards, the consistent program allows teachers to get support from colleagues, if they are weak or want help in some area of instruction. Teachers find PLC work is useful in helping them focus on specific student learning goals and needs, then measure student progress. This allows the teachers greater capacity to solve problems as a group.

Jairo Ramirez spoke to the benefit of collaborative idea generation and problem solving in teacher teamwork:

As teams there can be a whole new idea that none of us could have come up with alone, or we might come up with an idea about how to tackle a problem or how to address the challenges that we have with kids learning the materials or in teaching the materials. (Personal Communication, March 4, 2010)

Solving problems in a team environment allows the staff at Seaside to come up with ideas one person probably could not have come up with on his or her own, these may be solutions to whole school problems or problems teachers face with meeting the individual learning or behavioral needs of students.

PLC has increased the capacity for problem solving by improving communication and alignment between the academic and the school to community initiatives Seaside has in place. The time for coordination in PLC, focus on key standards, and work with support staff and after school personnel has benefited the school

program. The principal believes that PLC work has helped the staff build a collaborative problem solving approach that will serve them every time a new program begins or a challenge arises, Jairo Ramirez said:

You know, no matter what reading program comes, no matter what math strategy or new way of teaching something. PLC work can still be embedded in whatever comes to our school and even long after I'm gone, hopefully there is this culture of how to address challenges. (Personal Communication, March 4, 2010)

PLC work has built staff capacity for focused, collaborative problem solving, and it is becoming an accepted, even expected, element in the school culture.

This level of problem solving is accomplished by creating an environment for teachers that is mutually supportive, allowing teachers to learn and grow as practitioners. Problem solving in a PLC environment respects teachers' experience, talent and creativity, encouraging teachers to diagnose learning needs and design instructional strategies to address them. The timeline for problem solving at Seaside is cyclical rather than linear with regular opportunities to examine evidence of student learning, plan strategies, assess the effectiveness of new strategies and adapt as needed.

As Seaside began to develop the more structured PLC model, there were affordances and constraints to implementation. Affordance refers to conditions in the school environment that helped, or made it easier for the staff to implement the model. A constraint refers to the conditions present in the school environment that presented challenges to implementing the artifact at the school. The following sections will describe these in more detail.

Affordances

The pre existing collaborative environment among the staff was perhaps the most important affordance that supported implementation of PLC. Since teachers were already working collaboratively on a consistent learning program, the structure of the PLC model was easier for them to adopt. The model increased the structure of their meetings, but it also provided them with time, and focused support from the school's leadership to do their work. The trainings provided by the County Office of Education for leaders and teachers were very helpful, because they fit into the system of grade level teacher teams, that were already in place at Seaside.

The principal's unwavering commitment to high learning standards and support for teachers and students to achieve those standards was an affordance. This commitment created the support teachers needed to make the PLC model work. Jairo's commitment to provide time and support for PLC work was an affordance.

Casey Jones felt very strongly that having PLC meeting time embedded in the school day was an affordance that supported PLC development:

Jairo has substitutes that take over our class time and we arrange our schedules so that we can have this common time to meet as a professional learning community at grade level...I think that is the biggest single hurdle to getting [PLC] implemented on a higher level, because if you don't give people the time, and the tools, then it's hard. (Personal Communication, March 18, 2010)

Casey finds it important that the schedule is arranged so that the teachers can meet for PLC during the day, he believes this allows them to reach a "higher level" with the work. Casey's fellow fourth grade teacher Marla Dennis Kelly said:

What's helped us develop our PLC's has been the management's attitude towards finding the time to help us and finding a way to help us squeeze that into the day. We are already balancing and juggling so many...programs. It is difficult to find a moment to meet. (Personal Communication, March 24, 2010)

Marla believes that the effort the principal and literacy coach take to coordinate time for PLC teams to meet demonstrates to teachers that it is important. She notes that they have so many different programs that it is difficult to make the time to coordinate their efforts.

Observations and a look at the school plan and budgets reveal that the principals understanding of budgets allowed him to fund the staff positions needed, this was an affordance that supported PLC. These budgets fund the literacy coach role, enrichment teachers and other support staff. This funding is an affordance because the support teachers and staff play an important role in providing teachers with time to meet that is embedded in the school day, support to decrease the size of intervention groups and the literacy coach creates the data reports PLC use to guide discussions and planning. The Seaside budgets and elements of the school plan relating to PLC can be seen in Appendix F. Marisol Ruiz said, "The school is very resourceful, the administration. If you need anything, just ask and they try to get it for you" (Personal Communication, March 2010). Marisol commented on how the principal helps teachers find funding to pay for resources needed to implement new strategies or programs.

The key affordances to implementing the PLC model as an artifact for instructional improvement at Seaside included the following: the preexistent norms that of grade level team collaboration and past efforts to create a consistent learning program. Another affordance was the commitment of the principal to provide time and support for

PLC work by embedding time and providing facilitation. Another affordance was the principal's keen understanding of budgets that allowed him to find funding to hire staff members to support the implementation of the PLC model, and funding to support teacher initiatives to improve instruction.

Constraints

Constraints to implementing PLC included: time, teacher initiated agenda vs. administration initiated agenda, and data management. Time in the study was both a resource, as creative scheduling was implemented, but also a constraint, as participants always expressed a desire for more time to work with their teams, or work with their students to address learning needs. At Seaside, Marisol and Madalienne, both veteran teachers suggested that they would like more control of setting the goals and agendas of the PLC meetings. Fourth grade teachers noted that PLC work was constrained because they did not have time to manage and use the results of common assessments to group students.

Variations on the theme of time as a constraint emerged in interviews. These included: not enough time, time away from students, need for time to process formative assessment results, and the lack of compensation for extra time teachers spend coordinating and preparing for interventions. On the topic of wanting more time to meet with the PLC teams, Madalienne De Leon said, "I know it's kind of hard, but I wish that our meetings were actually able to be a little bit longer in time...sometimes it feels like we start getting into a topic and then it's time to go" (Personal Communication, March 18, 2010). Madalienne feels that the work with her teammates is very valuable and often they are just starting to "get into a topic" when their time ends. She adds, "It's such a gift

to have time within the school day, because we all get busy in the afternoons. You need time to prep.” (Personal Communication, March 18, 2010). She notes that after school it is harder to meet because of work that needs to be done to prepare for the coming school day.

Marla Dennis Kelley agrees saying, “...It would be great if we could do it even more...I think it has almost got to be the wave of the future” (Personal Communication, March 24, 2010). Marla expressed that she would like more time to work with her team, and believes that it should become more common in schools because it allows teachers time to support each other as they seek to improve instruction.

Leslie Morris said “The only problem is it takes you out of the classroom.”

Marisol Ruiz said, “I miss the time in the classroom when I’m gone and we have all these other programs that the kids do, whether it is PE or nutrition or other things.” Leslie Morris put it this way:

It's like it's a double-edged sword, because I appreciate being given the time, but by the same token, it takes me away from my kids. And...I'm supposed to be doing all this GLAD stuff, it's one more day in which I can't do it. (Personal Communication, March 17, 2010)

Teachers value the time they spend with their colleagues in PLC, but they sometimes worry that it’s taking away from time when they should be working with students.

Another constraint theme that emerged, centered on the question of who sets the agenda for the meetings, two teachers in the second grade team felt that they would like more opportunity to set the agenda for their group. Marisol Ruiz stated:

I feel it is good to have a structure and a goal and a focus; but I think it also could, should, come from the teachers... “What are your needs as far as a focus for today’s meeting, or for next month’s meeting?” (Personal Communication, March 18, 2010)

Though Marisol values the focus and structure of being given an agenda, she thinks that she and her teammates could prepare a valuable agenda for PLC meetings. Madalienne De Leon stated:

So much of our time outside of the classroom, the time that is allowed for us, has to be documented, and accounted for. [But] if you just put us in a room together, you can trust us. We will get done what we need to get done, because we care. (Personal Communication, March 18, 2010)

Madalienne expressed the sense that the reason the agenda is so prescribed is because the administration needs to document how teachers are using their time away from students. She feels the teachers could plan an agenda for themselves that is relevant and useful.

In contrast, members of the fourth grade team expressed a high level of satisfaction with the agenda and facilitation provided. Casey Jones stated:

The embedded time and the facilitation make for an experience that can lead to positive outcomes. I think without those two things you're kind of just throwing people in a room and expecting them to do it on their own. You could have success, but your likelihood is much lower. (Personal communication, March 18, 2010)

Casey believes that facilitation is very important to having good progress towards the team goals. He says that it would not be impossible, but it would be less likely for teachers to be successful in their collaborative work if they were working on their own.

Another constraint that emerged was management of assessment data for the common assessments created by teachers at the school. The teachers sought to use regular formative assessments to place students in their College Prep intervention groups, Casey Jones said: “We don't have great tools for inputting and then comparing data of the before-and-after assessments on the specific skill.” (Personal Communication, March 18, 2010). This quote from Casey emphasizes how the team does not have a good system to make this process easier.

Lessons Learned

Karen Ellis addressed how PLC work has helped the teachers learn how to look at standards more closely: “We’ve really, really gotten to know the standards better... that has changed the work that teachers do, because they are starting to think, ‘what do [the students] have to be able to do?’” (Personal Communication, March 4, 2010).

Karen speaks to how PLC work has made everyone more familiar with the standards. She notes how the teachers look at the standards not only for their own grade level but also at standards for grade levels above, to see what students need to learn to be successful in the next grades.

Madalienne De Leon addressed how collaborating in PLC has helped teachers focus in on essential standards:

...there are so many topics...so many standards to teach, that PLC keeps us focused...I think if you're just out there on your own, you can get kind of lost in

this ocean of standards, and you can be all over the place. (Personal Communication, March 17, 2010)

Madalienne has found that PLC helps her team choose and focus on essential standards. She goes on to say, “If your teaching has some sort of scope and sequence and you're strategically going through standards and trying to build on them, then that's better for the kids...otherwise, it's very overwhelming” (Personal Communication, March 17, 2010). She believes in a strategic approach to a consistent, standards based learning program is better for student learning and less overwhelming for teachers.

Another lesson learned in implementing PLC is that it creates an environment in which teachers can get the support of their colleagues when facing a teaching challenge. As Cynthia Cox who has been teaching for 14 years put it, “It's been helpful to me because last year was my first year in second grade. So, it was a first exposure to everything” (Personal Communication, March 17, 2010). Cynthia's situation illustrates how even a veteran teacher can benefit from help learning a new curriculum when they change grade levels, and a grade level PLC team can provide that support.

Marisol Ruiz speaks to the lesson she has learned that being consistent doesn't mean teachers have to have the same teaching style, but it does mean they can share ideas since they are following a common curriculum plan:

We are not all over the place. And “you do your thing, I do my thing.” We are all doing the same things. We all have different teaching styles, but being on the same page is going to impact student learning. If somebody had something that was successful, we share, and then we learn from that. (Personal Communication, March 18, 2010)

Marisol emphasizes how “being on the same page” allows teachers to share successes and learn from each other, but doesn’t require them to standardize their teaching style.

Jairo talked about how he believes in supporting teachers and will find a way to give them the training and materials they need to do their work. He finds that since beginning their work in PLC, more teacher teams have come to him suggesting creative ways to address gaps in student learning. Jairo said, “I have been giving teachers the freedom to say: ‘Jairo, I believe this is going to work. Can we try something different?’ and I can say, ‘Go for it, because you are getting results’” (Personal Communication, June 2, 2010). Jairo feels confident supporting these teachers when they experiment, because they are part of PLC teams that are successful in raising achievement. Jairo adds, “[If the new idea works] I say, ‘Let’s bring it to the teams and let’s share.’” Jairo encourages teachers who have been getting results to share new strategies with other teams.

How are Technologies used in PLC work?

The following section looks at the question, “How are technologies used in PLC work at Seaside?” Participants mentioned the following as primary uses of technologies specifically for PLC work: assessment data management, and communication via email. Teachers in interviews did not talk strictly about the uses of technology that support the tasks specific to PLC meetings. PLC meetings were viewed as the coordinating part of a web of instructional activities that teachers undertake when implementing the PLC model.

Teachers often spoke to the use technology in whole class and individualized instruction. “We use it a lot in our lessons” (Madalienne DeLeon, Personal

Communication, March 2010). Teachers use web based technologies to help them teach the essential standards for student learning that they have targeted. Using the classroom projectors, teachers use interactive lessons and video to enhance lessons. Teachers referred to these uses of technology as something they currently do or would like to do to address the essential skills and standards they have targeted in PLC work. “My second-graders are using (the computers) for part of their college-prep time” (Leslie Morris, Personal Communication, March 2010). Leslie notes that her second grade students are using a computer program, during the college prep intervention block, to work on targeted needs.

When asked about how technologies were used in PLC meetings, most participants immediately mentioned the use of assessment data reports. “We use Data Director™ for [district] benchmark results and CST results. We have started to use the Item Bank in Data Director™, to look for items that we would want to use on a common assessment” (Karen Ellis, personal communication, March 4, 2010). Karen noted how she currently uses Data Director™ to access district benchmark assessment results, and how she had begun to use the tool to create common assessments. Teacher interest in assessment creation, and results analysis using a technology tool was mentioned by all the fourth grade teachers interviewed who saw their current system of dealing with assessment results as the biggest constraint to PLC work.

The researcher observed how the district benchmark assessment results were used in second and fourth grade PLC meetings at Seaside. Teachers were provided with a printed copy of assessment reports created in Data Director™. Figure 4 shows how the

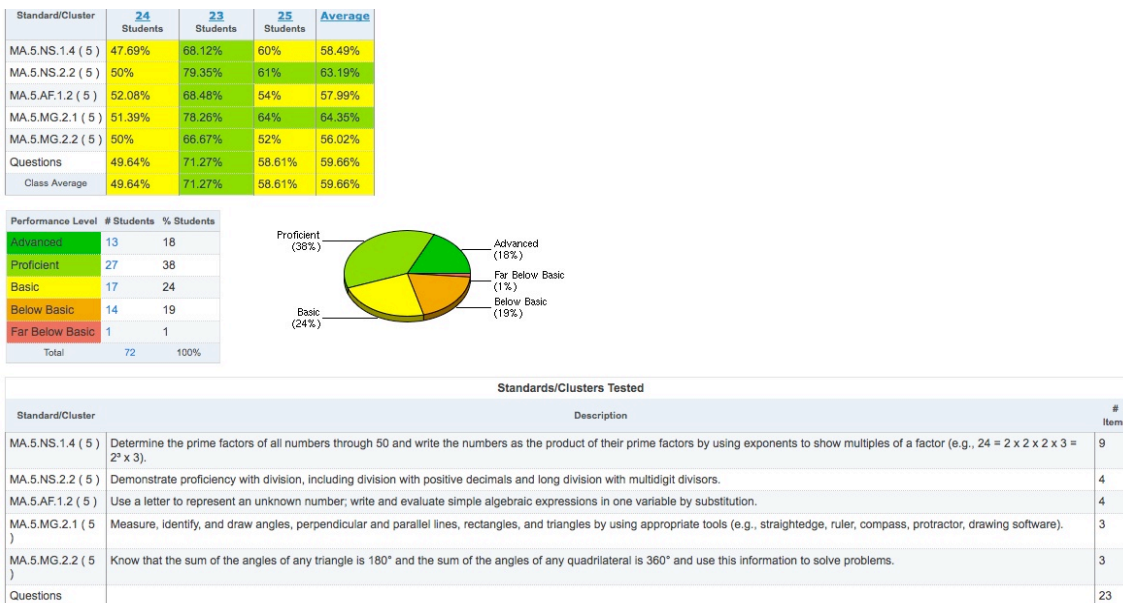


Figure 4 - Data Director™ Report - Grade Level Overview

three fourth grade classes did overall, and shows the standards assessed. Teachers used this report to consider whether one teacher’s teaching strategies might be a model for the

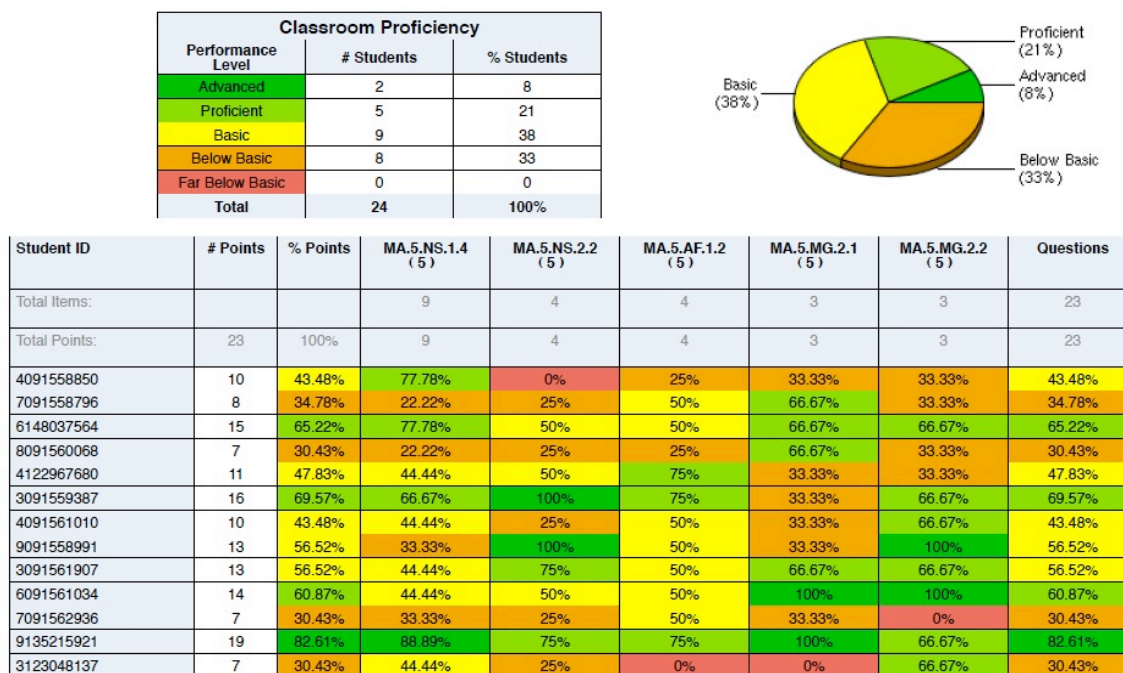


Figure 5 - Data Director™ District Benchmark Test Report

team and decide on areas of student learning that need to be targeted for instruction.

Figure 5 shows an example of an assessment data report that gives an overview of class

performance at the top, then shows each student's performance on questions that addressed a given standard. Teachers used this report to determine areas of strength or weakness they should target in future lessons.

In an observation of a PLC team meeting, teachers agreed to focus on the areas where students performed below 60%. Then they decided how to address some of the key areas. Marisol Ruiz said, "...they are low in complete sentences and nouns and verbs...maybe we could do more activities with the sentence patterning chart." (Group Observation, March 2010). Other reports not shown give teachers more detail such as the questions used to address each standard and how students answered each question. Teachers use this information to look for common student mistakes that could help them understand what students are misunderstanding. Teachers then use that information as they choose instructional strategies and areas of focus.

Though a few teachers were very confident in their technology use, most relied on the literacy coach to prepare the reports they needed for PLC work. In interviews, Madalienne DeLeon said, "Well, I don't do it, but... a lot of data is provided for us on spreadsheets." There was a sense that some teachers were not very confident in their technology use. Leslie Morris said, "We are pretty low tech" and Madalienne DeLeon said, "I'm not totally lost on a computer, but I tend to do things the old-fashioned way a lot" (Personal Communication, March, 2010).

One example of this lack of confidence in technology use was when an effort was made to have fourth and fifth grade teachers enter student scores on a shared Google Docs spreadsheet. This turned out to be too difficult or time consuming for all teachers to master, so the project stalled. "Different teams have done different things to share

their data for their common assessments. It was done in Excel last year, we looked into Google docs this year, but it never really got off the ground” (Karen Ellis, personal communication, March 4, 2010). Karen described how teams tried to share student assessment data in a Google documents, collaborative spreadsheet, but the teachers were not adequately prepared to use the tool seamlessly in their work.

One technology that teachers use confidently and frequently is email for communication. Email had become so common that teachers never mentioned it, yet when probed specifically about the use of technology for communication, all teachers spoke to the use of email as a regular part of their day. As Marisol Ruiz enthusiastically responded: “Email is such an important part of our daily schedule. You have to always check your email at lunchtime and at the end of the day...Our agendas are given to us through email too, our PLC agendas” (Personal Communication, March 18, 2010). Marisol speaks to the importance of email for communication about the day to day running of the school and for coordinating PLC work as well.

Two teachers mentioned the use of technology for creating materials and guides for use in their classroom and for sharing with their team. Marisol Ruiz mentioned how her team used Microsoft Word for: “...creating tables for planning our goals and creating maps, yearly maps, like we did for the Project GLAD units. [These outline] what we are going to teach in August, September, October, etc.” (Personal Communication, March 18, 2010). Marisol describes how the second grade team used a word processing document with tables to create and share a pacing guide for curriculum units. They appreciated how easy it was to share and add to the document collaboratively. They created it together, and then emailed it to each other for revisions. Teachers were not

aware of collaborative document creation programs such as Google Documents when asked.

Casey Jones described how he uses Internet resources to extend his own professional development as a teacher new to his grade level, trying to implement new instructional strategies in targeted learning areas. For example, he found a website for Board Math, an instructional strategy for reviewing key math concepts, that the staff had received training about, but he was trying to remember how to create a classroom wall chart. “I found a website that has them all, you press on a picture... [then you can say]...Oh, yeah, I remember that chart. Now I know how to make it.” (Personal Communication, March 18, 2010) Casey found a website that was useful to him as he reviewed how to create charts he had learned about in a training.

Casey has also found classroom best practice videos to help him remember how to implement lesson strategies. He recalled a training he attended:

Rather than a lady trying to model it, she showed us videos that were on the web...when I want to...see somebody model a lesson for me, I'll just watch the video. That's more helpful to me than somebody standing up trying to explain what to do. (Personal Communication, March 18, 2010)

In this example the workshop leader used video to show teachers how a lesson could be presented. These videos were also available on the Internet, so teachers could look at them again later, if they wanted to review what they had learned. Casey speaks to the use of the Internet to provide ongoing, on demand professional development for teachers in the form of visual aids and video.

The next section takes a look at technologies a few teachers suggested could be useful to teachers as they practice PLC work. Some teachers also suggest ways technology could help teachers address targeted student learning needs that have been diagnosed in PLC work.

How could technologies be used in PLC work?

Marisol Ruiz suggested the use of a document camera to project images of reports and documents in PLC meetings. Marisol said: "...I think we could use technology in meetings. All the data could be projected using a document camera. So we could all look at it at the same time." Marisol's suggestion is to have data reports and other things the PLC team is working on projected via a document camera, so it would be really clear what report they are looking at and the presenter could be pointing at the part of the report they are currently reviewing.

Casey Jones passionately expressed the feeling that teachers are too often "reinventing the wheel." He would like to see teachers sharing more resources that they have created and ideas for what works with a given group of students. "...technology can be used for best practices and collaboration, sharing of lesson plans, common lesson plans" (Personal Communication, March 18, 2010). Casey suggested that technology tools should be used for sharing resources and ideas between teachers. As a teacher new to the fourth grade in the current year, he found it daunting to search through staff resource room binders to find class activities and lesson plans. He suggested that it would be valuable to find or create a computer based system for sharing and finding lesson plans and teaching resources that is searchable by keywords, themes, skills and standards.

Casey felt that it would be beneficial to videotape more teachers teaching good lessons as models of best practices. “There's no reason we shouldn't use that technology of taping people and then [sharing it with each other]” (Personal Communication, March 18, 2010). Casey suggested that web based, short videos of best practices would be useful to teachers.

Several teachers mentioned that they currently use technology to teach whole class lessons in engaging ways and would like to learn how to do that even more. All but two of the teachers interviewed have mounted projectors in their classrooms and one has a document camera. Five of the teachers interviewed expressed the desire to have more classroom computers. Casey Jones put it this way:

I'd have as many computers in a classroom as kids...I'd have preprogrammed learning on each one of them, and I'd be the manager of each kid's learning program as they went at their own independent pace. I'm not saying it should be done all day, but maybe for a portion of every day. (Personal Communication, March 2010)

Casey expressed that if he had enough student computers he would use them to provide more personalized and engaging student learning activities on a regular basis.

The principal was asked if electronic student portfolios would be useful to PLC work. PLC is about monitoring evidence of student learning, and portfolios are often used to track evidence of growth in writing and mathematical thinking. Jairo reflected:

I worked in a school where we had traditionally done portfolios, just paper portfolios. I was a fifth grade teacher so I would get a folder [like this] (shows a folder filled with papers that is three inches thick) and so it

wasn't useful at all. There were probably some good things in there, that would provide me with some history, but honestly it wasn't a very efficient way of trying to get a snapshot of the kid. (Personal Communication, June 2010)

Jairo recalled the challenge of dealing with paper portfolios of student work that were common when he was a teacher. Portfolios would grow each and by the time he got them in fifth grade the portfolios would be bursting.

Jairo suggested that there would need to be a process for selecting appropriate pieces of student work, then after scanning and saving, the work samples would need to be organized in a way that makes it easy for teachers to pull them up and look at in the future. If that were an easy thing to do, that would be a useful tool for PLC teams. Jairo said:

I think it's very powerful, because then we can track what caused that behavior or outcome to change. At what point did it start getting better? ...we have so many strategies that we use in the classroom, but what is that one thing that (snaps his fingers) did it....We need to do a better job of looking at student work, probably the answers are in there. (Personal Communication, June 2010)

Jairo addresses the goal of looking at student work and monitoring progress, perhaps it will help teachers find strategies that are particularly effective with students. He also noted that it may be wise to begin with a small group of students first, such as monitoring a targeted group of potentially at risk students.

As a closing question to my interviews I asked participants if there was anyone I should speak with on campus about PLC or the use of technology in PLC, either a detractor or proponent of either. It was suggested that a young, second year fifth grade teacher, Daniel Laurence, may have some interesting ideas about how technology could support PLC work.

It was not possible to schedule an interview with Daniel but we had an email exchange. Like the fourth grade teachers' he mentioned the need for a better way to create, grade, analyze and share assessment data between teachers. As Daniel Laurence put it: "Our College Prep assessment data was rendered obsolete because we did not set up a centralized electronic bank where all teachers could access the assessment information" (Electronic communication, June 2010). The fact that the teachers had no way to easily share assessment data for their intervention program, made it difficult to use the data to regroup students regularly, and plan next instructional steps as they had planned to do.

Daniel went on to note that the team needed to plan out how these assessments would be managed. "Because College Prep is leveled and taught in small groups, there was a lot of confusion as to who assesses (the intervention teacher or homeroom teacher) and where to send the data once the students have been assessed" (Electronic Communication, June 2010). The teachers had not planned out who would administer the assessments and manage the results. Daniel believes that "Using an electronic bank for assessment data would be useful to all involved, and it would allow for more effective leveling strategies to be utilized" (Electronic Communication, June 2010). Like the fourth grade teachers in interviews Daniel also suggested that an electronic program would be

valuable to help them manage the assessment data, so that the data can be used to help them level students into groups.

Daniel wrote that the use of Skype, a simple, free, web based video conferencing program could: “increase the number of professional development and collaboration opportunities based solely on the sheer ease with which the technology can be facilitated” (Electronic communication, June 2010). Daniel suggested that Skype could be useful to connect teachers to teachers in the district or outside the district. PLC work in the Pacific School district is a district wide initiative; teachers expressed an interest in talking to and learning about how teachers in other district schools are implementing PLC. Skype conferences would save time because teachers could avoid travel time for such conversations and also for district level meetings, participating instead from their own classrooms via Skype.

His final note was similar to that expressed by Casey Jones, the idea of creating a shared database or searchable electronic resource with curriculum resources for teachers. These resources would be organized based on the common curriculum the teachers have already been teaching and would build over time as more teachers contribute to it. Daniel gave this example:

College Prep block has been used to teach specific ELA standards that are not normally addressed during SFA. The teachers have been creating their own work... and it would be nice to have an electronic copy of everything so that the work does not have to be [re]created every year. (Electronic Communication, June 24, 2010)

Daniel noted that teachers have been creating resources and it would be nice to have a systematic way to share those resources and make sure they are not lost so that teachers end up recreating resources that another teacher already spent time on in the past.

Summary

The case study reveals how PLC have been enacted at Seaside and how technologies are used in that work. Seaside is a school that had already begun a process of creating a consistent program through collaborative work among grade level teams of teachers. The introduction of the PLC model, formalized the protocols the teams would use and helped teachers better understand how to use data. PLC work increased the focus on choosing essential standards and using data from common assessments to monitor progress towards those standards. Assessment data was used to group students for targeted intervention. Assessment data was also used to help teachers examine the effectiveness of current instructional practices.

The PLC conference in January of 2008 helped the entire staff get a better picture of what it meant to use data to guide instructional improvement and also suggested creative ways to modify the school schedule, by rearranging existing enrichment blocks to allow teachers more time for collaboration during the school day (DuFour & DuFour, 2008). At Seaside, about twelve staff members went to a No Excuses University Conference by Turnaround schools, that emphasized the use of data in grade level teams, for targeting whole class instruction and intervention to address gaps in student learning.

The goals of PLC at Seaside were to close the achievement gap, which the principal said begins by defining what that is and determining the essential standards students need to be successful at the next grade level. Since 95% of students at Seaside

are English Language Learners, teachers work to assess and address the English Learning and academic learning gaps students have in order to prepare them for success through high school and into college and career.

The strategies used by the staff as they have implemented the program included embedding the PLC meeting time in the schedule of the school day, strategic use of the support staff, and use of data management tools to provide useful reports of student progress. The school made use of the literacy coach to coordinate the program, other full time support staff and a cadre of regular substitute teachers to work with students during PLC meeting times and to make the intervention groups smaller. Participants mentioned the use of assessment data reports prepared by the literacy coach as a strategy that was valuable.

Resources used by Seaside as they developed PLC included: time, support staff and technology tools for progress monitoring and reporting. Time was found by reorganizing the schedule; using the full time support staff such as the garden expert/nutritionist, the library aide and the PE teacher to work with students during the teachers PLC meetings. The literacy coach used existing progress monitoring software programs to help guide the work of the PLC.

The main uses of technology in PLC work at this time were seen as use of district benchmark test results and state assessment data reports to guide instructional focus and improvement, and use of email to coordinate the day to day running of the school. Future uses of technologies viewed by the staff at Seaside focused on use of technology programs with locally created common assessments to improve the ease of creating, administering and analyzing results. Teachers also spoke of a desire to increase the use

of computer based activities in whole class learning activities such as online learning games and Skype conversations with experts. Teachers also saw a strong role for computer based technology to provide targeted instruction for students, using interactive learning games and simulations that would support the desired learning outcomes in PLC team action plans.

Chapter V - Pleasantdale Elementary School Case Study

In this chapter, the case study report from Pleasantdale Elementary School is presented. This case study examines how the Professional Learning Community (PLC) model has been enacted and how technology is used in PLC work. In order to establish the context of the local school, the case study begins with a description of Pleasantdale school, and the principal's vision of supporting teachers as they try new strategies to increase student achievement. The remainder of the case study presents an artifact analysis of PLC and how technology is used in PLC work at Pleasantdale. The final piece of the case study presents participants' thoughts on how technologies are currently used in PLC work and participant thoughts on how technologies could be useful to enhance PLC and the work of instructional improvement in the future.

The purpose of the study was to articulate how and why PLC are being enacted in elementary schools, and to examine how technologies are utilized in that work. The goals of the research were to improve understanding of how ICT can help principals and teachers as they seek to improve instruction; as well as identify ways to increase practitioner awareness of technologies that can facilitate the time consuming, complex work of PLC. The study is based on the premise that assessment, communications and collaboration technologies can facilitate the time consuming work of PLC (Boudett & Steele, 2007), and help leaders monitor and support the work of PLC teams.

Pleasantdale Description

The demographics of the school population revealed that 18% of students had low socio-economic status, as shown by the number of students qualified for free and reduced lunch. There was a growing population, about 22%, of students with English Language

Learner (ELL) status. Teachers at Pleasantdale were working to build the English Proficiency and academics of each child to get them to grade level proficiency. Over 65% of parents at Pleasantdale have college degrees and 31% have graduate degrees. Students from families with high levels of parent education often demonstrate more readiness for success in school. Teachers felt a strong need to ensure that students already proficient or advanced in academic subjects and English received the challenges they needed to succeed in school. It is within this context that PLC were introduced and developed at Pleasantdale.

Technologies available at Pleasantdale include hardware: Internet connected laptop computers for all participants; shared printers for most teachers. Available software and web based applications include: district email, district student information system accessed via web browser for attendance, report cards, with grade book option; district web communications utility, School Loop® for teacher websites, posting assignments, grade book, seating charts, and option to create groups. Data warehousing tool Data Director™ for accessing and storing student assessment data: CST reports, district English Language Arts and Math benchmark tests, manual input of Dynamic Indicators of Basic Early Literacy Skills (DIBELS) assessment with progress monitoring reports; users can also create assessments. Scholastic Management System (SAM) for access to class and individual reports of student performance on the Scholastic Reading Inventory (SRI) assessment. A sample of one kind of whole class report is shown in Figure 3. DynEd – Let's Go and First English, two leveled programs for English Language Development with a pre assessment for placement in the program and ongoing assessment of student progress were also available for students.

Principal's Vision – "Teachers need to feel safe to try new things"

Janet Hill believes that school improvement will only be effective if teachers are leaders in the process. She said, "I believe in building consensus from the ground up" (Personal Communication, April 2010). Teachers describe Janet's role in PLC work in this way. "Janet really directs us where to go and even though we moan about what it is she is asking us to do (laughing). By having that [guidance], it's helped us figure out what to do" (Ann Dillon, Personal Communication, June 2010). Margot Anderson said, "The principal is backing it, but she also remembers what it is like to be in the classroom, and understands. Because there is the theory and then there is the practicality" (Personal Communication, May 2010). Teachers view Janet's expectation for them to continue with PLC work as "the driving force [behind PLC work]" but they also see her as a leader who listens to their concerns and is willing to adapt the work based on teacher input.

Janet credits her understanding of how to facilitate teacher teams for PLC work to coaching she received when she first became a principal. She said:

I had three years of coaching [in the Cycle of Inquiry process] I worked once a week with a coach...from that... I really got a lot of in depth experience in developing teams and looking at student assessment to drive instruction and the whole cycle [of inquiry]. (Personal Communication, April 2010)

Janet says that the coaching she received helped her understand the Cycle of Inquiry process and how to lead teams of teachers in using the Cycle as a process to guide them as they seek to improve instruction. The Cycle of Inquiry will be explained in greater detail in the artifact analysis section called strategies.

Janet thinks that in order for PLC teams to be effective, teachers must feel safe and respected. She believes that this sense of safety makes teachers more open to try new things and examine their own teaching practice. Part of this is ensuring that every teacher feels safe to express his or her ideas and opinions in meetings.

We instituted all sorts of procedures and protocols to help people in meetings have a voice, be collaborative, feel safe and build a trusting relationship in order to be able to look at student assessment...if you don't have that, people don't feel safe to share and they feel that they don't have a voice. (Personal Communication, April 2010)

The principal shared how she used protocols and procedures to help teachers express their opinions to the group. She believes that teachers need to feel safe and build trust before they can really look at student data, consider their own teaching practice, refine instruction, and implement interventions.

Trust in teacher teams is important; it allows teachers to ask for help from teammates. As second grade teacher and former Pleasantdale principal Margot Anderson put it:

Communication has allowed us to trust each other enough to say, "My kids do not get this, what are you doing?" The only way that we will move forward as a school, is if we have enough trust that someone is not going to come by and say, "Oh, she doesn't know how to teach." (Personal Communication, May 2010)

Margot expresses how important it is to have trust in order to admit when one needs help in improving instructional practices.

Janet described how past professional development at Pleasantdale was helpful in building teachers' capacity to work collaboratively on curriculum and lesson planning. These experiences helped them learn the Cycle of Inquiry process and how to use common assessments of student learning to guide instruction. Janet said:

All that work with the Math Matters program and the lesson study model really drove us through the cycle of inquiry... common training around all of these pieces has provided language so...it's all very organic, very little of it has been brought top down. (Janet Hill, Personal Communication, April 2010)

The principal spoke to the importance of professional development the staff has participated in that introduced the Cycle of Inquiry model and built norms of collaboration as well as shared language about curriculum and instructional practice. The fact that these were already present in the staff, made it easier to introduce the more structured teamwork of PLC.

Pleasantdale had also developed a fairly consistent learning program from class to class throughout most grade levels. Margot Anderson, a second grade teacher, and former principal of Pleasantdale, recalled how the initial motivation for grade level teamwork came about, "At each grade level we wanted to keep things similar so that parents wouldn't compare [teachers], there's the comparison issue. So we started working closely together...planning together, sharing [ideas], sharing the load kind of thing" (Personal Communication, May 2010). The staff at Pleasantdale found that parents were comparing teachers in ways that were not conducive to a healthy school environment. This motivated teachers to begin working together to make the learning program more consistent from class to class.

Pleasantdale's consistent learning program was a norm prior to the introduction of formal PLC work. The principal, who was extensively trained in coaching teacher teams in collaborative inquiry to improve instruction, facilitated the introduction of formal PLC work at Pleasantdale. The principal's emphasis has been on team building, helping teachers feel safe to share their ideas and examine student assessment data with their colleagues. Teachers also need to feel safe to ask for help from their team members when they need to improve instructional practice. It is within this school context of collaborative inquiry; with a principal committed to making sure teachers feel safe to share their ideas, and test out new instructional strategies that the Professional Learning Communities Model was introduced and developed at Pleasantdale. Artifact Analysis

In order to better understand the Professional Learning Communities (PLC) model and its place in the program at Pleasantdale, artifact analysis begins with an exploration of the following questions:

- What is PLC at Pleasantdale?
- What does it do?
- Who is involved in PLC?

When Pleasantdale began to implement the PLC model at a more structured level, teachers reviewed or were trained in the Cycles of Inquiry model and learned how to set SMART goals for students. SMART goals are learning goals that are "Strategic & Specific, Measureable, Attainable, Results-oriented and Timebound" (DuFour, DuFour, Eaker & Many, 2006, p. 127). The Cycle of Inquiry model will be described in greater detail in the strategies section of the artifact analysis. Teachers began with a look at key standards or curriculum areas that are important for students at their grade level. Then

they look at CST data or other evidence of student learning, discuss and agree on an area they want to focus on. Teachers decide how to assess student learning in that area. This process helped them, as teams, to focus in and examine areas of the curriculum, pooling their expertise to address areas that are most important for their students to master. The teams can also examine the effects of different teaching practices on student learning. At Pleasantdale, the teachers gather once a month for an all staff PLC meeting. In these all staff meetings, each team shares their current inquiry questions from the Cycle of Inquiry and their SMART goals for the month and tells how things have been going.

The principal has the expectation that each PLC team formulates a monthly inquiry question, and set a SMART goal that states what data the team will gather to measure student progress towards the learning goal. These three things must be communicated to her at a certain time each month. Each team is allowed to determine their own student learning goals. Initial efforts to guide the goals selected by teams and mandate extensive and regular meeting times met with resistance from teachers. The principal listened to teacher concerns and PLC work has been adapted to give teacher teams greater autonomy in choosing the monthly focus for student learning goals, and more choice about when and how the teams will gather to discuss and decide on these goals. Teachers have autonomy about how and when they will accomplish the PLC tasks, but they have agreed as a staff to complete them. There is a continued expectation that these goals will be shared with the principal who will communicate them to the rest of the staff and the parent community.

The goal at Pleasantdale is for grade level teacher teams to have 30 – 45 minutes four to five days every week, embedded in the school schedule, to allow them time to

collaborate for curriculum preparation, planning and PLC work. Teams set their own schedule for PLC focused meetings, and are required to submit their inquiry goals, and assessment plan on a monthly basis. The principal sometimes facilitates grade level team PLC meetings, usually to provide coaching in the Cycle of Inquiry. Embedded meeting time is made possible by scheduling each grade level to receive enrichment, or intervention instruction during the same block of time during the school day. This allows the teachers a chance to meet more regularly in a more focused meeting time. In the current study, the fourth grade team had 45 minutes daily when they could meet as needed to accomplish their shared goals. However, the second grade team leader acknowledged that this year, her team did not have a shared preparation and planning time embedded in the school day, “It hinders us from meeting when we don’t have block all at the same time” (Margot Anderson, Personal Communication, May 2010). Margot notes that the lack of this time embedded in the school day, makes it more difficult for the team to gather and do PLC work.

How did PLC develop at Pleasantdale?

This question explores the artifact analysis questions:

- Who made it?
- How long has it functioned?

At Pleasantdale, teacher collaboration in grade level teams has been a common school practice developed over the past fifteen years. But, use of the term, Professional Learning Communities, (PLC) as a model that increased the focus on using assessment data to plan interventions, monitor student progress and guide instructional improvement began with the staff only two years prior to the current study. An effort to train principals

and teachers in the PLC model included a series of workshops in the fall of 2007 and a conference for every public school teacher in the county in January of 2008. Richard and Rebecca DuFour led the conference.

Participants named this conference as a pivotal experience that gave them new tools and strategies they were able to adopt that brought their collaborative teamwork to a higher level. The staff referred to two important things they took away from the conference: how to use the results of common assessments to examine the effectiveness of instructional strategies and how to create time for meeting and collaboration during the school day by scheduling each grade level into the same time blocks for core instruction, enrichment and intervention classes. These are examined in the following section called, strategies used in developing PLC. The PLC conference played a big role in the development of PLC at Pleasantdale because the conference addressed two key areas in which they needed support: What to do with the results of the common assessments, and how to find enough time in a busy school schedule to do the work as a team.

PLC, as a more formal approach to the existing grade level teamwork, developed at Pleasantdale following a series of professional development workshops for principals, teachers and teacher leaders that were coordinated by the county office of education. A major event was a countywide workshop day for all K – 12 teachers led by Richard and Rebecca DuFour. Teachers referred to this training as a turning point that helped them take the work they were doing in grade level teaching teams to a higher level, focused on evidence of student learning. The goals of PLC work, strategies used to develop PLC and resources used to develop PLC will be examined in the following section.

Goals, Strategies and Resources

Artifact analysis next considers the following questions about the Professional learning community model and how it has been enacted at Pleasantdale.

- What were the goals?
- What strategies were used in developing PLC?
- What resources were needed for PLC?

What were the goals of PLC?

The interview question that explored the goals of PLC was: People develop models like PLC to address problems, what problems did or does PLC address at Pleasantdale? The staff interviewed at Pleasantdale had mixed answers to this question but they can be grouped into two themes: using data to diagnose student learning needs for differentiated instruction; and creating a more consistent learning program at each grade level with increased articulation of the learning program from grade to grade. Some noted that though the goal of differentiated instruction originally emerged when the school began to implement a multi-age classroom philosophy fifteen years prior, now using data would help them address the learning needs of both advanced learners and the growing ELL population that represented 22% of students at the time of the study. The other goal of PLC was formalizing the creation of a consistent curriculum at each grade level, and greater alignment of curriculum from grade to grade. Consistency in the learning program helps the school address the issue of teacher shopping, parents requesting specific teachers, which originally motivated collaboration in grade level teams at Pleasantdale.

The principal described the goal of developing PLC in this way: “We developed the model for differentiation, because we have always had a wide range of learners here, and when you add the (English Language) newcomer into the mix, that widens the gap” (Personal Communication, April 2010). The principal describes one goal of PLC as providing differentiated instruction to meet the needs of diverse learners, who might be English fluent or English learners. Margot Anderson spoke to the role of assessment results in PLC work:

If the students are not getting it we ask; “What do we need to do? What do we need to change, so that they do get it?” It was about taking that extra step and really using the assessments to inform our teaching. (Personal Communication, May 2010)

Margot describes how teachers in her grade level team look at assessment results to determine if students learned the material and then for students who didn't learn, the teachers work together to determine next steps. Teachers use data in various ways: If a class had greater success in learning a skill or standard, they can examine the instructional strategies the teacher used to teach the skill or standard so they can learn from his or her work; teachers can group students from multiple classes who need to revisit the skill if there are only a few students in each class who need help; they can brainstorm together to think of strategies for re-teaching a skill or standard to the whole class or a group of students if most of the students were not proficient in the standard.

Teachers at a grade level need to be working on the same curriculum standards with their students, in order to share and compare strategies for teaching similar skills and concepts, and group students for key instruction. Teachers must align their curriculum

and agree on a consistent set of standards they will address in their classrooms, on a roughly common schedule. Fortunately, this was already a norm for most grade level teams at Pleasantdale.

Margot Anderson spoke about how the implementation of Project GLAD (Guided Language Acquisition Design) aligned well with PLC work because it required the teachers to reexamine teaching units they have traditionally done and determine if they fit as they sought to align their curriculum with the state grade level curriculum standards:

The kindergartners always did butterflies, but lifecycles is a second grade standard. So, we all had to say...are we teaching it because we like it? ...or are we teaching it because at this grade level, this is what they need to learn?

(Personal Communication, May 2010)

Margot described how PLC combined well with the implementation of Project GLAD strategies that guided teachers to plan engaging units based on the California Science and Social Studies standards for their grade level. This required teachers to examine whether what they were teaching was really in line with what students needed to be learning in each grade level, or were they teaching units because they had always taught them, and it had become a tradition.

Juliette Winston spoke to the importance of developing consistency between classrooms so that children get a consistent curriculum throughout the grade levels in the following way: “It solves the problem of parents comparing teachers and parents getting completely different curriculum in two classes. Classes should address a shared set of grade level curriculum standards, with other classes in the same grade level” (Personal Communication, May 2010). Juliette felt that students in all classes at a grade level

should be working on the same grade level standards.

Some teachers noted that PLC, especially the sharing of grade level goals and inquiry questions in the weekly bulletin and the monthly PLC meetings in which they hear what other grade levels are doing, has opened their eyes to what students need to learn at other grade levels. Sandra Rawles said:

I feel like there are more conversations now, and there is more cohesion between the grade levels...we find out what each grade level is working on, and they come to us and ask, "Where do you see weakness when [the students] come?" (Personal Communication, June 2010)

Sandra felt that PLC work has increased teacher communication about student learning, not only between her own grade level team members, but also with other teams.

The goals for PLC work at Pleasantdale included creating a consistent program to align student learning from class to class at each grade level and from grade to grade. The second goal was to have teachers use evidence of student learning, such as common assessment data, to refine and differentiate instruction to meet student learning needs. Consistency and grade level collaboration has also reduced "teacher shopping" at Pleasantdale because parents can expect a consistent curriculum for their child in each class, because teachers have aligned their curriculum and are supporting each other to improve practice. Emily Garnett pointed out a goal and benefit of PLC work that no one else mentioned, "I think one of the greatest features of it is that we are modeling collaboration for our students" (Personal Communication, May 2010). The next section will describe the strategies used as the school developed PLC.

What strategies were used in developing PLC?

Strategies school personnel used when implementing PLC included: common assessments, creative scheduling, and protocols to guide PLC work. The PLC conference, presented by Richard and Rebecca DuFour in January of 2008, gave examples of how teachers could compare results of common assessments to see if some classes were having greater success mastering agreed upon standards. This conference was attended by all K -12 teachers in the Pacific School District, including the researcher and the teachers at Pleasantdale. In their presentations, both Richard and Rebecca DuFour emphasized that data from common formative assessments should be used as a “treasure hunt” to see if any teacher’s strategies were more effective, rather than using assessment data as “a witch hunt,” or a tool for judging a teacher’s competence (DuFour & DuFour 2008). The DuFours suggested that when a class performed better on a common assessment that teacher could be encouraged to share their instructional strategies with the team.

Both experienced and novice teachers at Pleasantdale expressed that they appreciated this clear guidance about how they could use the results of common assessments. Margot Anderson said, “This is the piece we were lacking, we had the common assessments in place, but we didn’t know what to do with the results” (Personal Communication, May 2010). Margot speaks to the fact that the teachers had already created common assessments, but they were not clear about what to do with the results. Sandra Rawles spoke to the advantages of using assessments and sharing strategies in PLC, “We are talking about, ‘What worked for you?’ or ‘This didn’t work;’ ‘They didn’t get this;’ and ‘What did you do?’” (Personal Communication, June 2010). Sandra

described how her team looks at the assessment results to see if there are differences in the results from class to class. Teachers then share strategies that they used when teaching the skill or concept.

Ann Dillon, a novice teacher, spoke about how her PLC team helps her, “I may look at assessment results and not really know where to go. So [in PLC] we were able to talk about what to do from that point” (Personal Communication, June 2010). Ann notes how her team works together to examine assessment results. Based on assessment results teachers share, or brainstorm new strategies to address student learning needs and examine areas of instruction that may need to be refined. Second grade teachers also said that they use data to group students for targeted instruction and decide which students need to participate in intervention classes and tutoring.

Another strategy the Pleasantdale staff took away from the PLC Conference related to how they could organize their school schedule. The DuFour’s suggested that the ideal schedule allows time for teachers to collaborate during the school day, while their students receive enrichment or intervention learning from other school professionals. Second, they suggest that the school schedule be arranged so that students are not pulled out of core instruction for intervention or work with other school specialists. Third, the school schedule has all the classes in the same grade level working on the same core subject learning at the same time. This third factor makes it easier for teachers to break students up into groups for targeted instruction or to visit each other’s classrooms for observations (DuFour & DuFour, 2008)

These scheduling strategies resonated strongly with the staff at Pleasantdale, because they already had enrichment blocks in their schedule. They began creating a

pilot schedule on the day of the conference. As the principal describes it, “We got our whole master schedule in alignment, so each grade level had intervention at the same time and enrichment at the same time...aligning those times allowed us to have more collaboration time” (Personal Communication, April 2010). The principal describes how the staff was able to rearrange existing enrichment and intervention blocks to create time for teachers to meet as grade level teams during the school day.

Juliette Winston spoke about the strategy of creative scheduling. The schedule in the 2009- 2010 school year allowed her to meet for up to 45 minutes with her fourth grade team mate, Emily Garnett, on a daily basis if needed. It also made sure that core subjects were taught at the same time and interventions for each grade level happened at the same time. This meant that students did not miss out on core instruction. “How we have restructured our schedule is great, because kids don’t get pulled out for resource or intervention while you are teaching” (Personal Communication, April 2010). The schedule is organized so that students don’t miss core instruction, and the teacher doesn’t have to keep track and teach the students what they missed.

Another strategy is the use of the Cycle of Inquiry model, shown in Figure 6. This a protocol used in the development of PLC at Pleasantdale. It guides teachers as they select focus areas for instructional improvement. After the teams examine data and select an area of focus as seen in steps one through three, they formulate an inquiry question

The Classroom Cycle of Inquiry

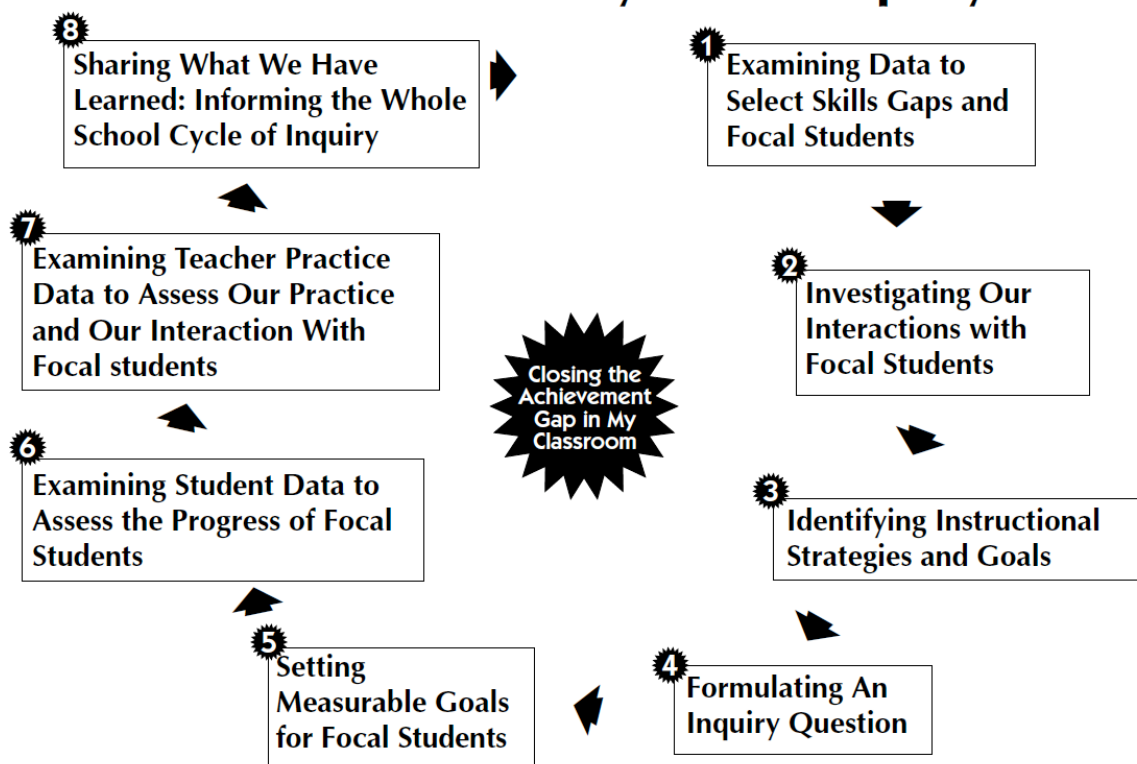


Figure 6 - *The Cycle of Inquiry Model - Springboard Schools (2005)*

and then set SMART goals for their students. SMART goals are learning goals that are “Strategic & Specific, Measureable, Attainable, Results-oriented and Time bound” (DuFour, DuFour, Eaker & Many, 2006, p. 127). In order to see how students progressed toward the goals, and responded to new instructional strategies, the teachers examined data from agreed upon assessments, or other evidence of student learning, such as writing samples. They may also choose to collect and examine teacher practice data to assess their own instructional practice and interactions with students.

At Pleasantdale, the final step comes in the monthly PLC meeting. In these meetings of the whole teaching staff, each team shares their inquiry questions from the

Cycle of Inquiry and their SMART goals for the month and tells how things have been going. The principal also publishes this information in the weekly bulletin to teachers and in the weekly parent newsletter to keep the parents informed about the current focus and successes of each grade level team.

Using common assessment data, creative scheduling and use of protocols such as the Cycle of Inquiry, are strategies that have helped the school staff as they developed PLC as a model to guide instructional improvement at Pleasantdale. Teachers use common assessments to help them group students and consider new teaching strategies. Creative scheduling has created time during the school day in which they can meet without taking away from student instructional time with teachers. Protocols have served to guide the work, make it more consistent between teams, and also help teams see when they have been successful in their efforts.

What resources were used in developing PLC?

Resources that participants referred to most often in interviews and that were revealed in observations are similar to the strategies above, these include: time, support staff, and progress monitoring software. As has already been discussed at length, it is very helpful to create time in the daily schedule for teachers to meet, discuss evidence of student learning, plan and prepare units of study to address student learning needs in core instruction and through small group or individual interventions. The work of PLC is time consuming, implementation requires time for discussion, planning and sharing of resources. Time is a resource that is very valuable in PLC work.

Support staff is a resource that is used to provide both enrichment and intervention teaching for students, at Pleasantdale the Parent Teacher Organization,

(PTO) has helped with funding these programs. Since there are fewer students of low socioeconomic status and fewer English Learners at Pleasantdale, the school receives less funding from federal and state sources than Seaside. Janet, the principal, decided to communicate and educate parents about the purpose and goals of PLC work, “All of the things I did with the staff I did with the PTO (Parent Teacher Organization). I brought them along into this whole notion of ...Cycle of Inquiry and PLC so... they [raise money to] pay for my intervention [teachers]” (Personal Communication, April 2010). Janet describes how she presented the work the staff was doing to the PTO, which has helped her gain their support for funding the support staff. Janet goes on to say:

They understand now, if you...bring up the low [students] you are bringing up the whole group. So there is not an argument about any kind of need. Whatever need there is, they pay for it, which is really outstanding. (Personal Communication, April 2010)

By explaining the purpose and goals of providing intervention support, the parents are willing to work to fundraise and support the work of the staff.

At Pleasantdale, the principal and many teachers point to the use of software to help them assess and monitor student progress. Progress monitoring software such as Scholastic Management System (SAM) is used to create reports of reading comprehension as measured by the Scholastic Reading Inventory (SRI) test. Data Director™ is used to save student scores on the Dynamic Indicators of Basic English Language (DIBELS) - Oral Reading Fluency (ORF) assessment. Teachers also referred to Data Director™ as the resource they use to access and analyze student performance on

district benchmark tests. Fourth grade teachers hoped to use Data Director™ more in the future to help them manage the common assessments that they frequently administer.

Resources referred to most often in interviews and revealed in observations included: time, support staff, and progress monitoring software. Time to meet during the school day was found through the strategy of creative scheduling. The PTO funded support staff for enrichment and intervention classes, after the principal educated them about how interventions would benefit all students. The use of progress monitoring software was a resource that teachers often mentioned that helps them diagnose student learning needs and determine if interventions and teaching strategies have been effective.

Problem Setting

The PLC model as an artifact of the school program at Pleasantdale was implemented for two primary reasons: first, to focus and target efforts to raise the achievement of EL students, while also serving the needs of proficient and advanced students and second, to participate in the program of county wide focus on PLC. The county office of education decided to focus on PLC, primarily to address the growing population of English Language Learners (ELL) throughout the county. In schools with small percentages of ELL students, it was easy for students' learning deficits to go unnoticed in school statistics when surrounded by many proficient and advanced students. PLC work encourages schools and teachers to look at evidence of student learning and pay attention to the needs of students who are not meeting essential standards.

For Pleasantdale, where the percentage of English Language learners has grown from 12% to 22% over the past five years, the staff had already begun focusing on

providing differentiated instruction. PLC work helps teachers focus on a limited number of essential standards and plan common formative assessments to help them measure student growth at regular intervals. Teachers use assessment data to regroup students, build on strengths and address areas of weakness. Data allows them to reflect on the effectiveness of their teaching strategies and share strategies that are more effective, as measured by common assessments.

Problem Solving

Janet expressed the belief that the staff at Pleasantdale was able to adopt the PLC model, and continue their work to refine instruction, because they felt safe to experiment, and they were leading the creative, problem solving process. She pointed out that, “It’s not going to be super successful, necessarily, when you first start something, so you need to be open to say, ‘Well, let’s evaluate this and see where we are’” (Personal Communication, April 2010). Janet described how the Cycle of Inquiry guided teachers as they chose focal students and interventions to try, and also helped them evaluate the effectiveness of those interventions and refine them, or try something different.

Pleasantdale established a model for problem solving that involved teachers in making decisions about instructional improvement based on student learning needs as revealed by assessment data. Janet Hill expressed the belief that the staff had “bought in” to the PLC model, she said: “Things come organically from the staff now... I will present data and they will derive their own conclusions” (Personal Communication, April 2010). Janet preferred to have ideas for improvements to instructional practices come from the teachers, rather than be mandated by the administration. She said she presented data to the teachers and they pooled their expertise to come up with viable solutions. The

timeline for problem solving at Pleasantdale is cyclical rather than linear, with a monthly review of data, or evidence of student learning, followed by inquiry and action planning.

As Pleasantdale began to develop the more structured PLC model there were affordances and constraints to implementation. Affordances refer to conditions in the school environment that helped, or made it easier for the staff to implement the model. Constraints refer to the conditions present in the school environment that presented challenges to implementing the artifact at the school. The following sections will describe these in more detail.

Affordances

In the artifact analysis model, the researcher next considers affordances.

Affordances refers to the conditions in the school environment that helped the staff implement the model. Affordances for Pleasantdale include: Grade levels already collaborating, principal's prior training, and support from the parent community. Other affordances include the available technologies for communicating with families and staff, and technologies that support assessment data management, and progress monitoring.

The pre existing collaborative environment for most grade level teams at Pleasantdale made it easier for them to assimilate the new structures and expectations of PLC work. PLC formalized the work and provided time, facilitation and support so that grade level teams who were not collaborating regularly began doing so. The teams that were already collaborating served as role models.

The principal's prior training in the Cycle of Inquiry model gave her skills with facilitating teacher teams and creating an environment of trust among the staff. As one teacher said, "The principal is backing it, but also remembers what it is like to be in the

classroom, and understands. Because there is the theory and then there is the practicality” (Margot Anderson, Personal Communication, May 2010). Margot appreciates that though the principal is setting the expectation that teachers will do PLC work, the principal is also flexible in how it is implemented in the real world of a school.

The support of the parent community at Pleasantdale is another affordance. The principal recognized early on that she would need to communicate with the Parent Teacher Organization (PTO) and all parents about this work, since the PTO raises funds to pay for enrichment teachers. The principal felt that there might be resistance to raising the funding for intervention teachers. She began a program of educating the parents about PLC and the Cycle of Inquiry process. Parents came to understand that all students would benefit from the work the school was doing. PTO members enthusiastically supported, volunteered and raised money to fund these initiatives. In fact, several of the enrichment and intervention teachers the principal hired were parents. These parents were credentialed teachers who are willing to work part time as intervention teachers to support the program at their child’s school.

The affordances to developing PLC at Pleasantdale included the following: pre-existing norms for grade level collaboration, principal’s prior coaching, and support from the parent community. These affordances allowed the school to develop PLC more easily. The next section will look at the constraints to developing PLC.

Constraints

In the artifact analysis model the concept of constraints refers to the challenges that the staff has come up against as they seek to implement the artifact in the school. Challenges or constraints were uncovered by asking the question: What has hindered the

development of PLC? The following themes emerged as constraints: time, resistance to change, and need for training and support for progress monitoring and reporting. Each of these constraint themes will be described in this section.

The second grade team felt a time constraint during the 2009 – 2010 school year because their enrichment blocks were not at the same time. Each of them expressed a desire to have more time to meet. Sandra Rawles said: “It sometimes feels like we are doing it on the run...it would be nice to have some more sacred time” (Personal Communication, June 2010). Sandra felt that she would like to have a set time allowed for PLC work. Ann Dillon said, “Our team never has the time to do it, so that’s kind of been a problem, because our blocks are at all different times” (Personal Communication, June 2010). Like Sandra, Ann was also frustrated that her team didn’t have a set time to meet in the 2009 – 2010 school year. This idea stands in contrast to the fourth grade teachers at Pleasantdale who did not express a concern about time. They shared daily intervention and enrichment blocks and had 45 minutes available to meet, if they needed or wanted to meet, every day.

Another aspect of the time constraint is having time to handle other business of the school. Milana Corbett noted that the staff had not had traditional staff meetings on a regular basis during the prior year. She said:

Staff meetings have to happen twice a month and they didn’t this year. And we had a lot of things fall through the cracks, just general stuff. The day to day running of the school, you need to know that recess time was changed, half the staff knew, the other half did not. (Milana Corbett, Personal Communication, June 2010)

When the staff does not have meetings about the general running of the school, important messages often do not get out to the staff. When asked if the information traditionally shared in staff meetings could be shared with staff via email or web posting, Milana said, “Absolutely we could do mass email.” But she noted that all the teachers would need to regularly check it and the principal would need to post information or send information via email.

All the participants interviewed commented on some variation of the theme that teachers are people, and people are resistant to change. This resistance to change has not stopped PLC, according to the teachers interviewed, but it has slowed its progress. “It’s definitely had to evolve because of the resistance” (Emily Garnett, Personal Communication, May 2010). Ann Dillon put it this way, “When we go into PLC, people are negative about it, but it really is something that is good once we get into it” (Personal Communication, June 2010). Various reasons were given for the resistance to change, including that it is human nature, that teachers don’t want to try things that are outside their comfort zones, and that there is a resistance to anything that feels like a “top down” mandate.

The final constraint that emerged in interviews was the challenge of keeping up with ongoing progress monitoring and reporting. The principal commented on the challenge of keeping track of student progress in the intervention programs the school was implementing. In the 2009-2010 school year the principal did a lot of one to one assessments with intervention students and input the results into Data Director™ this can be a time consuming task, especially if the person is not adequately trained to do the work. The principal expressed that she needs someone to help her manage data input and

reporting for progress monitoring. She would like to train and pay an aide to help her do this work in the future.

Lessons Learned

The Pleasantdale team learned a variety of lessons as they implemented the PLC model. These include the value of looking at common assessment results as a team, the importance of embedding meeting time in the school day, the value of sharing resources and group idea generation in PLC. Another lesson learned is about the importance of being open to change and building trust in the school community as teachers work together and ask each other for help in areas of need.

As a new teacher, Ann Dillon expressed how she appreciates the guidance her teammates provide about how to refine instruction based on data. Sandra Rawles, a more experienced teacher, noted that she liked the way her team generates ideas about how to address student learning needs. Margot Anderson described what makes PLC work, noting that the assessments are not what does it, but what teachers do with the information: “working together and identifying issues and working together to figure out ways to teach this better and get the [students] to understand it more” (Personal Communication, May 2010). This kind of group support relies on trust as Margot describes it:

Trusting each other enough to say, “Hey, I’m not good enough at teaching this, help me.” ...that is the only way that we will move forward as a school... If we have enough trust that someone is not going to come by and say, “Oh, she doesn’t know how to teach.” (Personal Communication, May 2010)

Margot describes the importance of trust, so that teachers can admit when they need help, without worrying that they will be judged as incompetent teachers.

Emily Garnett recalled teachers she has worked with at her grade level in the past. “I had a really hard time collaborating with both of those people. It may be that if we had had PLC in place it would have been easier, or we would have collaborated more” (Personal Communication, May 2010). She believes the PLC model may have been helpful in that situation because of the expectation for collaboration from the principal, the schedule that allows them time, and the Cycle of Inquiry protocol, that is part of the expectation.

Milana Corbett spoke about the use of assessment data to guide instructional improvements: “The problem is, ‘Do we use the data to drive instruction?’...by being forced to do the PLC the way we are...we had to have some proof...I think now we are all using data more” (Personal Communication, June 2010). Milana describes how the Cycle of Inquiry for PLC work requires teachers to present evidence to show student learning outcomes. This forced the teachers to learn how to use data, because they were expected to do it monthly.

Teachers interviewed expressed that they really valued PLC work, they find the ideas they generate together are helpful and the assessments give them a better idea of what students are learning. Sandra Rawles, one of the more experienced teachers, expressed the following sentiment about PLC work: “I think it has helped us take the blinders off and look at all the different ways we can do things...it opens us up to more ideas” (Personal communication, May 2010).

Teacher participants noted that PLC work forces teachers to collaborate, because of the expectation from the administration. But they also found that providing time, structure, support staff and facilitation backs up the expectation so that even teams of teachers who would not otherwise collaborate are able to do so. As one veteran teacher put it, “Honestly some years, some teams gel and some don’t...so, how do you make it work even if your group doesn’t gel?” (Personal Communication, May 2010). The principal describes how each team struggles or excels in different areas of PLC work:

Some teams really struggle with the concept of common formative assessments.

Some teams really struggle with the concept of looking at student data to drive instruction. Some teams get all of that; do incredibly well and are doing it so fast that they are ahead of our month long curve, they have already finished that...

used a common formative assessment, analyzed it, re-taught and are on to the next seven things. (Personal Communication, April 2010)

Janet Hill finds teams struggle with different parts of PLC work such as using common assessments or using data to drive instruction, but other teams have internalized the program to the point where they are using the cycle of inquiry process regularly in multiple areas of the curriculum.

There were a variety of lessons learned by the Pleasantdale team as they have implemented the PLC model. These include the value of looking at common assessment results as a team, the importance of embedding meeting time in the school day, the value of sharing resources and group idea generation in PLC. Another lesson learned is about the importance of being open to change and building trust in the school community as teachers work together and ask each other for help in areas of need.

How are Technologies used in PLC work?

The following section looks at the question: “How are technologies used in PLC work at Pleasantdale?” Participants mentioned the following primary uses: assessment data management and communication via email. Teachers often spoke to the use of technology for whole class and individualized instruction. Teachers referred to these uses of technology as something they currently do or would like to do to address the essential skills and standards they have targeted in PLC work. It was difficult for the researcher and the teachers to talk strictly about the use of technology to support the specific tasks of PLC work. PLC is one part in a web of instructional activities that teachers undertake. Teachers integrate computer based learning activities as an instructional strategy to address PLC targeted skills, such as use of the reading comprehension and incentive program, Scholastic Reading Counts for students who need to build comprehension skills. Another example was described by Emily Garnett, who referred to how the fourth grade team shares online learning activities by adding Internet links to the fourth grade section of the school web site. The fourth grade team also shared assessments and other resources they have created with fourth grade teachers at other schools in the Pacific School District by sending them via email. These uses of technology are not directly part of the PLC meeting, but are ways technology can be infused as an instructional strategy to address PLC goals.

When asked how technologies are used in PLC work, participants first referred to the use of Data Director™ and Scholastic Management System for progress monitoring and creating reports of assessment results. Margot Anderson spoke to how color-coded data reports help teachers:

I think what has helped, is that it's really [clear] in...red and green, where your kids are, so you can't tell yourself, "oh, they're really doing okay" because they are not. If they're not, they're not and we need to have that hard conversation.

(Personal Communication, May 2010)

Margot says that the reports make it easier to recognize which students need extra help so that teachers can decide how to address those needs. Sandra Rawles noted that she uses data, to help her decide what she needs to focus on in math instruction, "I've looked at who is deficient [in which skills] and plugged in my math instruction into that. Instead of just saying, 'hey, let's play math games!'" (Personal Communication, June 2010). Sandra describes how she uses assessment data reports from the district benchmarks to help her determine where kids need more instruction to master the standards.

The fourth grade teachers both talked about how they use word processing software to organize common assessments for each essential Math and English Language Arts standard. They used the California Standards Test release questions to create quizzes with about ten questions each with one skill or standard addressed per quiz. They used these quizzes with their own students and also shared these assessments with all the other fourth grade teachers in the district, sending them via email. They found these quizzes gave them a quick look at whether they needed to revisit a skill for the whole class or create a small group for targeted instruction. Both fourth grade teachers would like to see greater use of the Data Director™ system, or something like it, to make generation, grading and analyzing the results of assessments like this easier to manage.

Teachers referred to email as a daily necessity. Emily Garnett said, "We use email all the time, constantly" (Personal Communication, May 2010). Teachers use email to

communicate, coordinate meetings and agendas, and share resources. The principal notes that she emails weekly bulletins to the teachers and weekly newsletters to the parents with a report that shares inquiry questions and goals and communicates success in reaching goals. Margot Anderson recalled her time as a principal, before email, when she generated printed memos and put them in teachers' boxes almost daily. Margot said, "It's just so much nicer to have it all electronically, you can go back and look, you don't have to worry that it's buried somewhere on your desk" (Personal Communication, May 2010). Margot recalls how easy it was for teachers to lose paper memos, and prefers email so she can search for messages.

All the teachers talked about how they would like to use computer based programs more often, to help them provide individualized, differentiated learning for their students. Though the question addressed how technologies were used in PLC work, the teachers often veered off to how computer programs could help them address the student learning needs diagnosed in PLC from the assessments. Some teachers expressed a desire for more training to understand how to integrate available programs, such as an ELD program, the Reading Counts reading comprehension and incentive program, and math curriculum online learning activities, in their regular instruction. Teachers mentioned the need for more classroom computers to make this idea work. Teachers expressed the belief that computer based learning programs could make it easier for them to provide differentiated instruction, targeted to student learning needs based on assessment results.

The idea of sharing instructional resources using an online tool was addressed by the fourth grade team. Emily Garnett, fourth grade teacher, described her use of School Loop®, the school website, to share resources with the other fourth grade teacher:

When I find a site...I put it on School Loop® and then I tell Juliette. “This is all on School Loop,” then she and I both use our *In Focus* machines and screens to play games with the kids on the computer. (Personal Communication, May 2010)

Emily refers to links to targeted online learning games, presentations and activities that she shares with Juliette, by posting links to them in the fourth grade section of the school website. These learning activities address targeted Math or English Language Arts standards, but also address Science and Social Studies topics and concepts. Posting them on the website also makes them available to students who have access to the Internet away from school, for further practice of targeted skills.

Summary

The case study reveals how PLC have been enacted at Pleasantdale and how technologies are used in that work. Pleasantdale is a school that had already begun a process of creating a consistent program through collaborative work among grade level teams of teachers. The introduction of the PLC model, formalized the principal's expectation that all grade level teams would collaborate and focus on common learning goals. PLC work increased the focus on using data from common assessments for progress monitoring and as a guide for refining instruction. This increased level of expectation was supported by training the staff in the Cycle of Inquiry protocol and the process of setting SMART goals for student learning. The principal seeks to build consensus and create an environment for examining assessment data and instructional

practices that is emotionally safe for teachers. The PLC conference in January of 2008, helped the entire staff get a better picture of what it meant to use data to guide instructional improvement and also suggested creative ways to modify the school schedule, rearranging existing enrichment blocks to allow teachers more time for collaboration during the school day.

The goals of PLC at Pleasantdale were to support differentiated instruction that meets the learning needs of all students. Strategies used by the staff as they implemented the program included creative scheduling, and use of the Cycle of Inquiry protocol as a guide for teacher teams. Regular communication of goals and progress to the staff was a strategy used to increase alignment from grade level to grade level. Regular communication of PLC goals and success stories with parents was a strategy used to encourage and maintain support for funding PLC efforts. Resources used by Pleasantdale as they developed PLC included: time, support staff and technology tools for progress monitoring and reporting. Time was found by reorganizing the schedule; parents, who are credentialed teachers, were recruited and trained to work as intervention teachers with students at the school and the existing progress monitoring software programs were used by the teachers and principal to help guide the work of the PLC.

Affordances that supported the development of the PLC model at Pleasantdale included the existing collaborative culture among most of the grade level teams, the prior coaching the principal had received in facilitating the Cycle of Inquiry process for teacher teams, and the support of the parent community. Constraints on the model at Pleasantdale included time, resistance to change, and a need for better training and support in technologies for progress monitoring and reporting. Participants agreed that

the constraints were slowing the adoption of the PLC model, not stopping it. The researcher found that dissenting voices in the community had been heard and their messages had influenced the implementation of PLC work in positive ways.

Technologies in PLC work supported progress monitoring and communication with the principal and teachers making use of data reports and email on a regular basis. Use of data reports to guide instructional focus and improvement, and use of electronic memos and newsletters to staff and parents, communicating goals and successes, were seen as the main uses of technology at this time. Future uses of technologies envisioned by the staff at Pleasantdale focused on greater access to and use of technology programs to provide differentiated instruction using activities designed to address targeted learning needs. The fourth grade teachers also hoped to see greater use of Data Director™ for creating formative assessments that would make it easier for them to manage and track progress.

CHAPTER VI – DISCUSSION

In this chapter, study findings are analyzed. The purpose of this study was to articulate how PLC are being enacted in elementary schools, and to examine how technologies are utilized in that work. The researcher proposed that in order to determine how ICT can facilitate the work of PLC one must first articulate how and why the PLC model is being enacted, and examine the information and communications activities that would facilitate PLC work. The first part of the chapter looks at how PLC were implemented in each school, and how closely the implementation matched the Schmoker (2006) definition of PLC. The chapter then uses the conceptual framework of artifact analysis to describe how the schools have implemented PLC and how technologies are used in that work. The chapter examines how teachers conceive of the role of technology in PLC work. Finally, the chapter suggests the implications of the findings for school practitioners, district administrators, ICT support professionals, ICT developers, and future research.

How PLC were being enacted at Seaside and Pleasantdale

Seaside and Pleasantdale were selected because they followed a model of PLC based on the precepts described by Schmoker (2006). This section will review the Schmoker definition of PLC and describe how each school was enacting PLC in relation to that definition. Schmoker (2006) defines PLC as small collaborative teaching teams that meet in regular, focused meetings. The first step in these meetings is to choose a clear, concise set of essential standards that students need to master, and agree to teach to these standards on a roughly common schedule (Schmoker, 2006).

At both schools, teachers follow a very similar learning program at each grade level, some teams even teach the same lessons on the same day. The expectation for consistency between classes was a norm for most grade level teams at both schools before the introduction of formal PLC work. “We've always collaborated quite a bit here...[in the workshops] they were talking about things that we were already doing, but.. [after the workshops] we had it more formalized. We actually had a cut-out time when we met.” (Madalienne DeLeon, Personal Communication, March 2010). Training in the PLC model formalized the collaborative work teachers were already doing.

Teachers at Seaside meet at the start of the year in grade level teams to plan their curriculum maps for the year. Then they meet about twice a month after school to plan units, lessons and activities. A consistent learning program does not necessarily mean that teachers teach in the same way, when asked about whether “being on the same page” means a loss of creativity for teachers, Marisol Ruiz said:

I don't think it limits your creativity in any way. If anything, knowing what is going to come in a month or so, [allows you to] cook the ideas ahead of time so... you know what you can do. Because you are not told what you have to do you are given a focus, and a goal. (Personal Communication, March 2010)

Marisol finds that the collaborative work of creating a year long curriculum map, does not limit her creativity, it enhances it. Knowing her focus and goals in advance she has time to think of creative lessons and activities to address the goals, how she reaches the goals is not prescribed.

Schmoker (2006) described how PLC teams agree to work on a common set of essential standards in a roughly common schedule. Karen Ellis from Seaside said:

We've gotten to know the standards better...and that has changed the work teachers do, because they are starting to think about what do [students] have to be able to do [at the next grade level]? What is the real expectation? (Personal Communication, March 2010)

Karen noted how PLC meetings have provided time for teachers to really examine the state curriculum standards and become familiar, not only with the expectations for their own grade level, but also, what the students need to know in the upcoming grades.

Articulation of the learning program from grade to grade was evident at both schools. At Seaside, teacher leaders for each grade level team (GLT), meet monthly with the principal and literacy coach. In this meeting, goals and plans for each grade level are communicated between teacher leaders, who communicate this back to each GLT. At Pleasantdale, the entire teaching staff gathers for a monthly PLC meeting. In this meeting, each GLT shares their current area of inquiry and student learning outcomes. The principal includes the monthly goals and outcomes of each grade level team in a weekly memo to the whole staff. Observations and interviews at both schools suggest that regular communication of grade level goals has increased informal teacher conversations around the articulation of instructional goals from grade to grade.

Schmoker (2006) describes how PLC use the results of common assessments to help them guide instructional improvements in the classroom, and to plan interventions for students who are not achieving the standards. Margot Anderson at Pleasantdale and Marla Dennis Kelly at Seaside said they came to better understand the use of common assessments when they were trained in the PLC model. As Margot Anderson at Pleasantdale put it:

That was the piece we were lacking. What do we do with the assessment? Do we just do [the assessment] and say, “This kid gets it or doesn’t get it?” Or do we go further and say; “If they are not getting it, what do we need to do, what do we need to change so that they do get it?” (Personal Communication, May 2010)

Margot said that teachers learned how to use the assessment results not as a summative evaluation of learning that is static, but instead as a formative evaluation, to guide instructional improvement.

Since the formalization of PLC work, GLT at both Seaside and Pleasantdale have been using formative assessments and examining other evidence of student learning to measure student progress toward the essential standards. Various uses of assessment data became evident from observations and interviews. For example teachers at both schools use data to:

- Group students with similar learning needs for intervention
- Find an area of instructional focus for a whole class or grade level
- Examine and share effective instructional practices; i.e. If one class performs better than the others on an assessment, that teacher can share the instructional strategies he or she used.
- Differentiate learning goals and strategies for students in whole class activities
- Determine which students need one to one support from tutors or other specialists

Teachers at Seaside use assessment data to group students from three classes into six targeted instructional groups in an intervention block called, “College Prep” twice a week for 45 minutes. At Pleasantdale, second grade EL students are grouped for an ELD teaching block, and small groups are formed to re-teach essential standards. Fourth grade

teachers regroup students often for math and language arts teaching based on assessment results. One Pleasantdale teacher described how she and her teammates each picked a different instructional strategy to try, to examine the effectiveness of the strategy, but they found that all four methods helped students build skills in the targeted area, the teacher concluded that simply focusing time on the skill helped the students learn.

Teachers interviewed recognized the value of formative assessments in guiding their instructional practice. At the same time, the use of formative assessments has added new tasks to teaching practice. Formative assessments must be created, administered, scored, and then the resulting data must be prepared in a format that can be analyzed to guide instruction. One to one assessment data must be gathered, input and prepared in a format that can be analyzed. In addition, teachers must monitor student progress over time.

An example of progress monitoring from Pleasantdale school is the use of the Dynamic Indicators of Basic English Language Skills (DIBELS), Oral Reading Fluency (ORF) assessment. The principal and support teachers have a target group of students that they are monitoring for progress towards grade level reading ability. The DIBELS – ORF scores are input to the Data Director™ program, and the principal and teachers can then create a report to show student progress over time on this assessment. This is a time consuming process that the principal referred to in the research interview. She felt the need to hire and train someone to help her manage that piece of the work.

According to Schmoker (2006) once educators have assessed student learning needs, they need to find or design lessons and activities to help students increase mastery of a given standard. Teachers at Pleasantdale described how they prepared lessons and

activities for at least two groups of students, the group they would be working with, as well as the group of students who would be working with the intervention teachers. This meant that the teachers took on additional preparation work and had to interface with the intervention teachers to let them know what they would be teaching with their group of students. Daniel Laurence, a fifth grade teacher at Seaside, noted that this work with the intervention teachers also led to increased need for communication about which teachers would be administering assessments, and how assessment results would be shared by teachers.

Observations and interviews showed that though teachers wanted to do these extra tasks necessitated by PLC work, they did not have time to do them. Many inefficiencies existed in assessment creation, scoring and analysis. At Seaside Marla Dennis Kelly and Daniel Laurence both expressed the desire for a better way to quickly analyze student assessment results so that they could regroup students for instruction more regularly. Teachers were also spending a lot of time searching for activities to address needs of the multiple intervention groups. Casey Jones expressed frustration with the lack of easier ways to search for lessons and activities to address the learning needs of his students. Schmoker (2006) suggests that the purpose of PLC is to allow teachers to have meaningful reflective dialogue about assessment results, instructional practices and how to best adapt instructional practices to better address student learning needs. ICT tools could reduce the challenges of many of these new tasks if teachers are trained to use the tools in the context of PLC work.

This section has examined the development of PLC at the two schools and the extent to which the formalized PLC model has followed that described by Schmoker

(2006). Examples of school practices were described that fit into the elements of Schmoker's PLC model. The challenges of implementing the PLC model in schools as they are currently organized were addressed. The following section will use the conceptual framework of artifact analysis to further compare the development of the PLC model at the schools, examining the goals, strategies and resources used in the process of developing PLC. Affordances and constraints to developing the model in the schools will also be considered. The reader will note that PLC requires a level of collaboration that includes planning, scheduling, communication, assessment, progress monitoring, and sharing of data and resources. Later in the chapter, the researcher will examine technologies might facilitate parts of PLC work.

Artifact Analysis

Goals of PLC development

The development of a consistent learning program and the PLC model served different goals for each of the schools. At Seaside, about 96% of students are English Language Learners (ELL), and many students perform below proficient on state assessments in math and language arts. The primary goal of PLC work at Seaside was to increase student achievement in school, and also on the high stakes state tests. At Pleasantdale, the original goal behind developing a consistent program was to decrease "teacher shopping" by parents who expressed preferences for different teachers, a practice that was not contributing to a positive school culture. However, the increase in ELL students at Pleasantdale has made them more focused on meeting the needs of this population.

Both schools share the goal of providing differentiated learning for students based on assessed needs. PLC work provides a structure and focus for teacher teams as teachers support each other in selecting goals, analyzing best approaches and planning instructional improvements. Novice teachers and teachers who were new to their grade level, such as Ann Dillon, in her second year of teaching, at Pleasantdale and Cynthia Cox, in her fourteenth year of teaching but only her second at her current grade level, at Seaside both expressed that PLC work was very helpful to them. PLC work can foster teacher reflection on individual practice, while the use of assessment results provides a measure for teachers to see how their students are progressing towards the goals they have set.

Strategies used in the development of PLC

Strong guidance backed by support from school leadership were important to the success of PLC work at both schools according to the teachers interviewed. Teachers at both schools expressed that the principals' expectation for teachers to work together, and practice the formalized PLC model was important. They said that strategies for building successful PLC included: creating a schedule that allows teacher teams to meet during the school day, facilitating team meetings when needed, and expecting teams to gather data about student achievement, and report on progress and lessons learned to the rest of the staff. Teachers found this structure added work, but most stated that it was worth the extra effort because it helped them see the results of their efforts. "It was nice to be able to see the kids I'm working with and the progress they are making" (Ann Dillon, Personal Communication, June 2010).

Both principals noted the need to build teachers' capacity to work together effectively as teams. Jairo Ramirez at Seaside said, "We had to work on just the team formation and what does it mean to be a team member" (Personal Communication, March 2010). Jairo points out the importance of having teachers learn how to work in teams. At Pleasantdale, the principal, Janet Hill, trained the teacher teams in the Cycle of Inquiry and provided protocols to guide the teachers through the cycle each month. Teams choose a monthly inquiry question related to student learning and decide how they will measure student progress towards that learning goal. At the end of each month, they report how things went and what they learned. Janet said, "having these protocols, gets people out of stuck places" (Personal Communication, April 2010). Janet finds that structured guides, such as protocols, help teachers work through areas of collaboration when team members need to decide on next steps or have different points of view on how to approach a problem.

Resources used in developing PLC

The resources mentioned most often at both sites included: time, support staff and the available assessment data management programs. The use of time embedded in the school day for PLC meetings was considered very valuable to the staff. Madalienne De Leon said, "It's such a gift to have time within the school day, because we all get busy in the afternoons" (Personal Communication, March 2010). Madalienne speaks to the importance of embedded time, so teachers can focus and not be thinking about preparing for the next school day. Another resource mentioned often was the support staff to coordinate the program, work with students when teachers were meeting and to provide

intervention teaching. The final resources mentioned were the available assessment and data analysis programs. This section will elaborate on each of these resources.

As mentioned previously, both sites organized their schedules in a way that allowed teachers to meet regularly during the school day, while their classes received enrichment instruction. At Seaside the literacy coach and often the principal co-facilitated PLC team meetings with the GLT leader. At Pleasantdale, the PLC teams usually met on their own, without the principal, the principal provided a protocol that they could adapt to meet their own needs, and then submit monthly. The protocol included their goals and the assessments they would use to measure student progress.

Support staff was hired using different sources of funding for each site. Seaside received both grant, state and federal funding due to the high numbers of EL students with low socio economic status (see Appendix F). The principal used these funds to hire support staff such as the literacy coach, and enrichment teachers. Teachers were hired to work with homeroom teachers during SFA and the intervention block so groups could be smaller, e.g. three fourth grade classes worked with six teachers in smaller groups.

At Pleasantdale, much less federal and grant funding was available (see Appendix G). The principal did not have funding for a literacy coach, and the PTO raised money used to hire enrichment teachers and intervention support teachers. The principal at Pleasantdale used communications technologies to keep the PTO informed of the school goals with PLC work and interventions. She hired parents who were credentialed teachers willing to work as hourly intervention teachers in their child's school to provide intervention instruction to small, targeted groups of students.

The final resource referred to at both sites was “good data.” Participants referred to the CST reports, and district benchmark results available in Data Director™. They also referred to the use of the SRI reading comprehension test results. The principals and literacy coach were more aware than teachers of how these tools could be used to find focus areas. Teachers used the benchmark results and SRI to help them gauge student progress toward grade level standards and reading comprehension. Teachers, especially in the fourth grade, were interested in learning how to use existing technology tools to create and manage the common assessments they were regularly using and monitor student progress.

Problem Setting

Each of the schools had a different motivation for implementing the PLC model, but both schools saw a need to differentiate their instructional strategies to meet the needs of diverse learners. Seaside needed to bring up the academic achievement of their high ELL population. Pleasantdale sought to ensure that all classes were teaching a consistent set of learning standards and to continue to provide a challenging learning environment for their proficient and advanced students while bringing up the academic achievement of their growing ELL population.

Problem Solving

Collaborative problem solving at Seaside has become an expected norm of the school community. Regular examination of student learning data allows teachers to focus on targeted areas of need and group students for regular, leveled intervention teaching. At Pleasantdale, the Cycle of Inquiry is used to help teacher teams focus in on

evidence of student learning and determine the next best steps for targeted groups of students. At both schools, the timeline for problem solving in PLC is cyclical not linear.

Affordances

Affordances are preexisting norms or conditions in the school community that make it easier to implement a new model or artifact. Teachers at both schools commented that it was easier to implement the PLC model proposed at the countywide workshop because it was not a radical change from what they were already doing in grade level teams. The PLC model has helped them focus the work of their grade level teams by using the assessment data they were already collecting. Margot from Pleasantdale said, “It was about taking that extra step and really using the assessments to inform our teaching. But we were ready for that because we weren’t starting from scratch.” (Personal Communication, May 2010). The workshop and ongoing PLC trainings gave teachers a better idea of how to use assessment data they were already collecting. The existing norms of collaborative work in grade level teams made it easier for the teachers at Pleasantdale to understand and adopt the structured PLC model in their schools.

Constraints

Constraints are preexisting norms or conditions in the school community that make it more difficult to implement a new model or artifact. One of the constraints to PLC work common to both schools was lack of confident use of the available assessment technologies and lack of awareness of the capabilities of these programs on the part of principals and teachers. The researcher observed at both schools, that though teachers had access to both Data Director™ and SRI results on their computers, usually the reports

from these programs were printed out for teachers by the literacy coach or principal. In part this was done to make it more convenient for teachers to get right into the work of discussing the results of assessments. “That’s a waste of their time, for them to have to find all these pieces” (Karen Ellis, June 2010). But it was also due in part to insufficient training provided to the whole staff in how to create various reports, and how to use available reports to guide instructional decision making. Both principals expressed the belief that they needed someone to help them manage assessment data. There was a need for more training for teachers and principals in simple and available technologies to help them collect and manage assessment data.

Lessons Learned

Teacher teams at both schools plan units, lessons and instructional activities to address gaps in student learning. Participants expressed that group idea generation in this process is a very positive element of PLC work. “When we get together we do come up with good ideas” (Ann Dillon, Personal Communication, June 2010). Ann and others expressed that they value working with their teammates, because it helps them think of alternative instructional and classroom management strategies to address student learning needs. Collaborating as grade level teams often serves to increase the efficiency of preparation work since similar materials are being prepared for all classes, e.g. one person can make copies for the entire team. Some participants in the study reported greater enjoyment and sense of confidence in their work now that they were participating in teaching teams.

Implementation of PLC at both schools has increased teacher collaboration for instructional improvement, and helped teachers learn how to use data to guide that

process. Milana Corbett, a first grade teacher at Pleasantdale, said that her team had learned how to use data to guide their selection of areas for instructional focus. She also described how assessment data had revealed areas of weakness in their current reading program. This finding led the team to discuss elements of reading programs team members had used in the past, and choose activities to supplement the current program.

This section used the conceptual framework of artifact analysis to compare and contrast the goals of PLC, strategies and resources used in developing PLC at each school. Affordances and constraints to developing the model, along with lessons learned. More similarities were found between the implementations than differences. Differences related to primarily to student school readiness factors, and funding. Differences in how PLC work was organized, monitored and supported related to differences in the leadership styles of each principal and the background coaching and training each of them had in team building and PLC work. Each principal was acknowledged by the interviewed teachers for support of the model and willingness to adapt the model based on teacher feedback.

Seaside had more EL students with low socio economic status and therefore had more grant, state and federal funding for support staff. Seaside also had greater numbers of students needing intervention support. Pleasantdale used communications technologies to encourage and maintain PTO support for intervention and enrichment teachers. Both schools valued the data, in assessment management programs, but were not completely comfortable using these programs, and were not aware of the greater capabilities of these available programs. The role ICT might play in helping teachers find and share instructional activities was mentioned by only a few of the participants. The

following section examines teachers' thoughts on how technologies are used in PLC. These findings show that teachers conceive of PLC work as extending beyond the process of meeting to examine the results of assessment data, into the realm of redesigning and improving instruction based on those results.

Teacher thoughts on technologies related to PLC work

When asked how technologies are used in PLC work, a few teachers spoke first about how they infuse computer based learning activities in whole class lessons, "We put the games and activities up on the screen all the time and we play as a class" (Emily Garnett, Personal Communication, June 2010). Emily describes how she uses online learning activities to help students learn and practice the essential skills the fourth grade teachers have targeted in their PLC team. Ann Dillon also noted the use of online learning games, "there was a really good site that we found that had [activities] that went directly with the standards" (Personal Communication, June 2010). She and her team looked for online activities students could use that helped address targeted standards.

At Seaside, Casey Jones expressed an interest in the potential use of computer based learning programs to provide individualized learning for students. "I'd have as many computers as I have students...I'd be the manager of each kid's learning program as they went at their own independent pace. I'm not saying it should be done all day, but maybe for a portion of every day" (Casey Jones, Personal Communication, March 2010). Casey expressed how he would like to use learning programs regularly as way to provide targeted individualized instruction. Janet Hill, the principal at Pleasantdale, had a similar thought, "Another way to use technology...for PLC is...that you can have kids at a [learning] center...using technology, that allows you to provide that individual attention"

(Personal Communication, April 2010). Janet speaks to the possibility of having computer learning centers in the classrooms that allow students to work independently, receiving targeted instruction. Ideally these programs would include embedded assessment, so that learning assessment is ongoing and personalized.

Almost every participant recognized and mentioned the importance of assessment management programs in PLC work. But it is noteworthy that, with the exception of the Scholastic SRI program, teachers seldom created reports by themselves, instead the principal or literacy coach printed them out for the teachers. At Seaside Madalienne De Leon said, “Well, I don't do it, but...a lot of data is given to us on spreadsheets” (Personal Communication, March 2010). Such reports were created by the literacy coach, added to the PLC data binders and referred to regularly in meetings. Teachers had received training in how to access the district benchmark test reports in Data Director™, they used these when completing the district’s standards based report cards, but few teachers knew how to access information about student performance on state tests.

Teachers mentioned use of the Internet for research related to essential standards and CST information. “We use [technologies] for the benchmark information, printing out CST information, printing out [CST] test released questions, looking at questions in Data Director™. We've also printed out SRI scores” (Mindy Gonzalez, Personal Communication, March 2010). Mindy noted the various ways her team used technology to support their efforts in creating formative assessments. It should be noted that there is a strong emphasis on printing things out. Teachers at Seaside liked having data reports and information together in their PLC data binder so that all the information they need is

at their fingertips in meetings. Laptop computers or other portable devices might be useful and allow teachers to have easy access to this information in meetings, but the school would need to provide laptops or other portable computer notebook devices, and there would need to be access to sufficient power supplies and Internet connections in meeting rooms. Use of these tools would require additional training and planning to ensure that teachers can use them well.

Participants in the fourth grade teams at both sites mentioned an interest in using Data Director™ to help with creation, scoring and analysis of formative assessments. These teachers were creating common assessments by printing out CST test release questions, cutting and pasting questions into quizzes to photocopy, hand scoring quizzes and looking at what skills had been mastered by thumbing through the piles of tests to see which questions were missed. As Emily Garnett said, “I did this all by hand” (Personal Communication, May 2010) and Marla Dennis Kelly, “Right now, we are just making them all by hand” (Personal Communication, March 2010). Both of these fourth grade teachers, one from each school, are referring to the common formative assessments they were using.

Teachers have been creating and scoring formative assessments manually, and they also did not have an easy way to save the assessment data or analyze it. Casey Jones said:

We don't have great tools for inputting and then comparing data of the before-and-after assessments on the specific skill...We know why we picked the skill, because it was a skill that was typically weak for our student population in our grade level. But we don't know what, if any,

improvement came out of [our instruction] in the short window. (Personal Communication, March 2010)

Casey describes how the fourth grade team at Seaside had done a series of pre and post assessments, but they did not really have an easy way to input the results and analyze the data.

Principals and literacy coaches needed additional training within the context of their own work environment to use the existing assessment creation and data management programs. Existing programs will continue to be underused, and users will continue to suffer trying to manage a growing mountain of data, unless more attention and time is devoted to training in these programs. In addition, teachers will not have as much time to reflect collaboratively on the results of assessments and how they might use the data to guide instruction as long as these assessments are created, managed and analyzed manually. This was most clearly revealed in the common assessment struggles of the fourth grade teams at both schools.

As a district office curriculum and instruction department staff member, the researcher recognized that the Data Director™ program was available that could have made this process easier for teachers. The district curriculum office staff had used Data Director™ to create the district benchmark tests for English Language Arts and Math. In Data Director™ teachers could select premade test questions, add them to a quiz or test, adapt test items if necessary to meet the needs of their students, print test booklets, create scan sheets for answers preprinted with student names to ease scoring, and use a scanner to input the assessment results. After scanning, the program immediately provides color-coded reports of results. Though the program had this capability, at the start of this

study, principals and teachers had only been using Data Director™ to access CST and district benchmark data. This suggests that district curriculum support professionals, as well as developers and sales representatives of ICT programs such as Data Director™ should perhaps spend more time in schools meeting with practitioners. This would help them better understand the work teachers actually need to accomplish and how products will be used in practice. This time on site would also guide developers and district administrators to a better understanding of the kinds of training and information teachers need to make the most of these tools.

This section examined teachers' thoughts on how technologies are used in PLC. These findings showed that teachers conceive of PLC work as extending beyond the process of meeting to examine the results of assessment data, into the realm of redesigning and improving instruction based on those results. The following section will examine the implications of the findings of this study for practitioners implementing the PLC model, or seeking to improve instruction through collaborative teaching teams. It presents some of the challenges of PLC work, and suggests technologies that may help practitioners address some of these challenges.

Implications for Practitioners

Challenges presented by the PLC model varied by team and site. One of the challenges to PLC work comes from the ongoing need to manage the changes and adaptations of daily life in the school community. Traditionally, staff meetings have been the place where teachers receive communication from the principal. PLC meetings after school can distract from these meetings. Milana Corbett at Pleasantdale said, "Staff meetings have to happen twice a month and they didn't this year. And we had a lot of

things fall through the cracks. Just general stuff [about] the day to day running of the school” (Personal Communication, June 2010). Milana was concerned that the whole school PLC meetings take away from time for regular staff meetings that are needed to coordinate the day to day running of the school. When asked if email or an online forum could help communicate some of this information, she said: “We all are really good about reading email...so, I think it could be done that way” (Personal Communication, June 2010). However, she noted that the principal would need to “get that out in a timely fashion” (Personal Communication, June 2010). She stressed that the principal or a principal designee would need to update an online forum or send an email in time for teachers to get the information they need.

Teachers identified email as a communication medium that is very important in their work. Email communication had become so ubiquitous to teachers in both schools that most neglected to mention it, but when asked about it, they enthusiastically voiced how important it was for coordinating their work. “Email is such an important part of our daily schedule...our agendas are given to us through email” (Marisol Ruiz, Personal Communication, March 2010). The need for regular communication to coordinate tasks, and share resources is facilitated by email. Margot Anderson, who was a principal at Pleasantdale before email was available spoke about school communications at that time:

There was the Monday memo, and the Tuesday memo, and then “oops we forgot” so here’s a Wednesday memo...It’s just so much nicer to have it all electronically, you can go back and look, you don’t have to worry that it’s buried somewhere on your desk. (Personal Communication, May 2010)

Margot talked about the numerous paper memos that were produced to give information to teachers, and how these were easy to misplace. Email increased the ease of communication among staff members and made it easier to keep track of important information.

Teachers in the study saw the value of email for easing communication and sharing information but no one mentioned an interest in or awareness of other potential modes of electronic communication. Some messages sent via email are time sensitive or trivial and do not need to be preserved for future reference. However, other communications include the sharing of electronic documents, links to web resources and conversations about more meaningful topics. If these types of electronic communication were shared in an online discussion, via wiki or group portal, it could be easier for teachers to find and use these resources when they need them.

Future research could be useful to examine the email communications in school communities. A better understanding of the types of communications sent via email could be used in development of a guide for teachers to suggest which electronic conversations should continue to take place via email, and which would be better suited for an online discussion forum or group portal. Participants expressed that they would like more time to work with their teams. Though additional time cannot be created, online tools could be used to communicate about upcoming events, changes in the normal routines and calendar events. Having this information available in a reliable shared location could help reduce the need for communicating these events in a face to face meeting. A print out of this information, updated regularly, could be kept in a central location for staff members who do not have easy access to a computer.

K - 6 Mathematics PLC Group

ABOUT
A forum for coordinating PLC meetings, sharing resources, online discussion and posting minutes from our meetings

DISCUSSIONS
[New Topic](#) [View All](#)
Click View All to be removed from mailing list.
Second Grade - PLC Minutes
K - 6 Mathematics Replies: 012/22/09
PLC Group
First Grade - Number Sense - Games
K - 6 Mathematics Replies: 012/22/09
PLC Group
Third Grade PLC Meeting Protocols
K - 6 Mathematics Replies: 012/22/09
PLC Group
Everyday Math - Challenges and Success
K - 6 Mathematics Replies: 010/20/08
PLC Group

PROJECTS
[Start Project](#) [View All](#)
Key Standards - After school training
Sarah Zykanov - Due: 12/29/09
District Admin

CALENDAR
Add Events
Sunday 12/20/09
Monday 12/21/09
Tuesday 12/22/09
Events
1:00 PM PLC meeting Grade 5
Wednesday 12/23/09
Thursday 12/24/09
Friday 12/25/09
Events
9:00 AM PLC meeting Grade 4 - Bring student word problem samples
Saturday 12/26/09

NEWS
[Publish](#)
Focus on Probability Standards
Audience: K - 6 Mathematics PLC Group
Record the possible outcomes for a simple event (e.g., tossing a coin) and systematically keep track of the outcomes when the event is repeated many times. Summarize and display the results of probability experiments in a clear and organized way (... [Continue](#))

TOOLBOX
[Members \(View, Add or Remove\)](#)
[Edit Name/Description](#)
[Delete Group](#)
K - 6 MATHEMATICS PLC GROUP: LOCKER
[Add Resources](#)
PPT, Word, Excel Viewers
PC [Go], Mac [Go]
Acrobat Reader [Go]
[Getting started using online resources](#)
10/20/08 - Sarah Zykanov
[Edit](#) | [Delete](#)
[Math Pacing Calendar](#)
12/22/09 - Sarah Zykanov
[Edit](#) | [Delete](#)
[PLC Team Action Plans 09/10](#)
12/22/09 - Sarah Zykanov
[Edit](#) | [Delete](#)

Figure 7 - School Loop® - Web Based Group Portal

A sample of a group web portal that could be used for shared calendar events, news, project planning, online discussions and resource sharing is shown in Figure 7.

Having more routine communications handled in a web portal could allow more time for staff and PLC meetings to include reflective conversations about the work of instructional improvement and student learning.

Teachers at Seaside suggested that resource sharing would ease the challenge of doing instructional preparation work that they currently do for their own homeroom class and for the targeted intervention block groups that meet twice a week. Daniel Laurence said, “The teachers have been creating their own work...and it would be nice to have an electronic copy of everything so that the work does not have to be re-created every year” (Electronic communication, June 2010). Daniel described how he would like to see lessons and activities that have been created by teachers at Seaside saved in a place that is

accessible to all teachers, to ensure that this work is available in future school years.

Teachers currently search through binders full of printed resources in the staff workroom to find appropriate instructional materials. Casey Jones said, “I hate reinventing the wheel...teachers do it all the time...If technology can be used for best practices and collaboration, sharing of lesson plans, common lesson plans...I should be able to find it all on the computer” (Personal Communication, March, 2010). Casey suggested that teachers should share lessons and activities just like they share common assessments. He described how he would prefer to use a computer to search for lessons and activities that are organized by unit, topic, standard, or subject and grade level.

The kind of resource and knowledge sharing described by Daniel and Casey could be done in an online discussion forum, or group portal like the School Loop® portal in Figure 7. Another option for teacher resource sharing would be a wiki. Wikis are simple web pages that are easy to edit by multiple users and can be used to quickly post and share lessons or units (Sheehy, 2008). Figure 8 is an example of a wiki, a simple website that allows multiple teachers to post resources to share. Tags, or key words, could be added to make lessons and activities easier to find in a search.

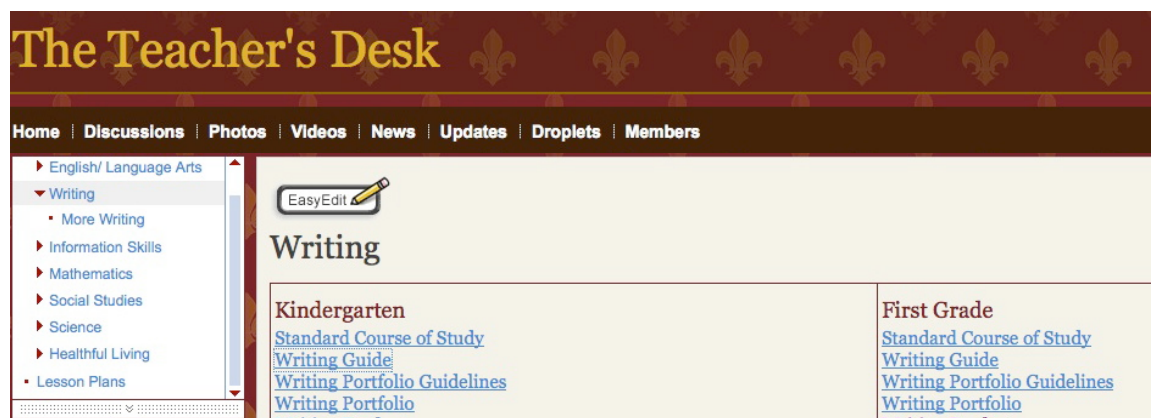


Figure 8 - Wiki for Teacher Resource Sharing

At Seaside, Marisol Ruiz described how the second grade team used MS word, “creating tables for planning our goals and creating maps, yearly maps, like we did for the GLAD units. ‘What are we going to teach in August? September?’” (Personal Communication, March 2010) Teachers would email these to each other, edit them and email them again for review and further editing. At the current time there is a more efficient way to accomplish this. PLC teams can set up a collaborative Internet based document that can be edited simultaneously by multiple people, such as a Google Doc, or similar online tool. Alternatively, teacher collaborative editing can be facilitated through the use of a web-based template like the Universal Builder template from My-ecoach® shown in Figure 9.

Curriculum Map
 Second Grade Social Studies: What do we need to learn?

Goals and Objectives Assessment Introduce Research Produce Present Reflect

Learning Objectives
 Understandings & Standards
 Rationale
 Search
 Clone This
 Printable View

Share:

Bookmark:
 Subscribe
 Add to Any

Email:

 Password:

 Sign In Register

Powered by my eCoach

Learning Objectives
 What do you want students to know and be able to do? What knowledge, skills, strategies, and attitudes do you expect students to gain?

- Learning objectives are the specific knowledge and skills (what your audience will know and do) that your audience will acquire as a result of this website, project, or course.
- Make sure the skills and objectives are learner-centered, outcomes driven, measurable, attainable, and specific.
- Use specific verbs such as explain, create, analyze, summarize, evaluate, rather than vague terms such as “know”, “learn”, “comprehend”, “understand”, “study”, or “cover.”

Replace this text with your objectives. Some examples include:

- Students will perform a 10-minute dramatic skit based on the events of the American Revolution.
- Students will create a 10-slide presentation about the rise and fall of an ancient civilization.
- Students will create a 2-minute video about a famous musician.

California Content Standards
 English and Language Arts
 Grade Three
 Written and Oral English Language Conventions
 ELA.3.II.1.0 Written and Oral English Language Conventions
 Grammar
 ELA-3.II.1.2. Identify subjects and verbs that are in agreement and identify and use pronouns, adjectives, compound words, and articles correctly in writing and speaking.

Figure 9 – My eCoach® - Online Collaborative Curriculum Map Template

Online collaborative tools could allow teachers to co-author work easily, from different Internet connected computers. Teachers can attach electronic copies of resources directly to the section of the web based curriculum map where they belong. Teams can agree upon an outline to use in a template as they create the curriculum plan. The Universal Builder tool allows users to easily link lessons or activities to the state curriculum standards they address. Use of such tools would also facilitate the monitoring of PLC teamwork by school leaders, allowing principals to better support the work of teams.

A Conceptual Model for Technology to Facilitate PLC

Three key ways that technology can facilitate the work of PLC as of fall 2010 are shown in Figure 10. Instructional improvement, the primary goal of PLC work, is indicated in the circle in the lower position on the model. The graphic shows three boxes pointing towards the goal of Instructional Improvement. These include: Communications, Data Management, and Sharing.

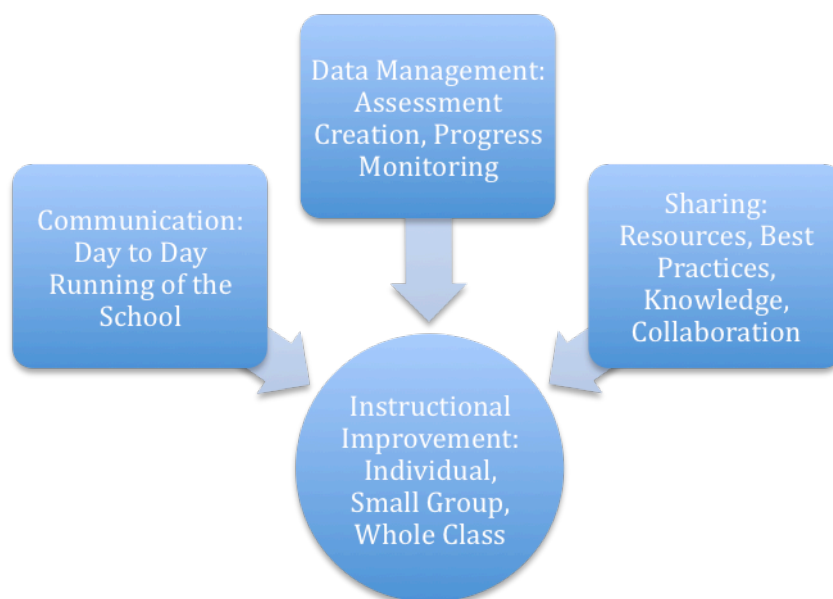


Figure 10 - Concept Map: Technologies to Facilitate PLC

Communications technologies can support the day to day running of the school so that face-to-face conversations have the potential to be more reflective. Data Management tools can be used to make formative assessments easier to create and the results easier to analyze. This would make it easier for teachers to create targeted learning groups, and differentiate instruction. Technologies for sharing would support teachers as they find and share resources, lessons, activities and best practices. Technologies can also be useful to facilitate teacher collaboration in the creation of curriculum and activities. The study suggests that as of fall 2010, these are the primary ways technologies can facilitate the work of PLC. The section above has outlined implications for practitioners suggested by the findings of this study. The next section considers the implications of this work for district administrators and providers of ICT support for schools.

Implications for District Administrators and ICT Support Professionals

This section will consider the implications of this research for District Administrators and ICT professionals. It suggests the requirements for professional development, technology infrastructure, and support for technologies to facilitate PLC. Technology tools can only facilitate the work of PLC if teachers have been trained how to use the programs within the context of their work. This includes time to discuss and consider how the tools will be useful to them. Teacher training should be practical, and embedded in the work they do. Training should include opportunities to use the tools and return for additional training when questions arise.

The online tools, computers, Internet and local area network connections of computers in school must be reliable, accessible, supported and easy to use. Systems

should be accessible to teachers in their classrooms, and at home. If teachers were to use data reporting programs in PLC meetings, they would need access to laptops or other portable computing devices. The meeting rooms where PLC teams meet would need strong wireless access, or multiple Internet connections and adequate power supplies.

Increased use would also require ongoing support for each teacher that is quickly available when systems are not working, or a teacher needs help. Most of all, since teachers in PLC meetings need to focus on conversations about improving student learning, technology tools should be easy to use. In the future, handheld devices such as the iPad® or tablet PC's may be more useful to teachers in PLC because these devices are more portable and could allow teachers to have a face to face conversation while interacting with the device. Such devices given appropriate software tools, could also support teachers as they gather; save and share assessment data for many of the assessments teachers currently do with students.

The study reveals a discrepancy between ICT tools available and practitioner awareness of those tools. This finding suggests that district administrators and ICT coordinators interested in instructional improvement, should spend more time learning about teacher work processes before selecting new ICT programs to make teacher work more efficient. This finding also suggests that more time should be dedicated to educating principals about available technologies so that they can share information with teachers, and plan time for staff professional development.

This section has considered the implications of the current study for district administrators and ICT support professionals for schools. It suggests the requisite technology infrastructure; support and professional development for schools to

seamlessly integrate technologies to facilitate PLC work. The next section will consider the implications of this study for ICT developers.

Implications for ICT developers

The current study suggests that ICT developers should study teacher work processes and how ICT tools and programs might make that work more efficient. ICT developers are defined, for the purpose of this study, as those who design hardware and software, and market these tools to schools. Under this definition, developers also provide initial professional development and ongoing support for users.

Designing communications tools with an interface like existing email programs will increase teacher comfort and familiarity, and potentially increase teacher use. Designers should find ways to make it easy for users to transition to use of these tools for more enduring communications such as sharing resources and holding online reflective discussions.

Data management tool designers should pay attention to how formative assessment data is collected and used by teachers. Data collection tools could be designed that increase the efficiency of collecting and analyzing data. For example: A teacher, when administering one to one student assessments, could use a portable device, such as an iPad®, with an assessment application. This would save time because progress-monitoring data would be input immediately. If data analysis reports could be created on the portable device, that would also be helpful to teachers. Student and class assessment data reports that teachers can easily customize would also be valuable.

Implications for ICT developers include the need for new strategies for providing professional development for their products. Developers should design job embedded

learning for teachers. They should create websites with online resources such as downloadable teachers guides and video that will help teachers learn how to use their programs. As appropriate, best practice teaching videos could also be made available to help teachers learn how to integrate programs successfully. Casey Jones at Seaside referred to online best practice video as useful to him as a teacher new to his grade level. Face to face professional development should go beyond simply showing teachers how to use the ICT tools, into helping teachers understand how the tools will be useful to them in achieving team goals. Time for teacher teams to use and discuss the resources should be embedded in the schedule for face to face professional development workshops.

Implications for Future Research

The current project suggested opportunities for future inquiry into the work of PLC and the use of technologies in that work. Research in each of the areas of the concept map: Communications, Data Management and Sharing will be suggested. Research on professional development best practices for lasting integration of ICT tools in schools will also be suggested.

In the area of communication it would be useful to research the following questions: Can the use of shared calendars, calendar reminders, and online discussion forums for school news and events help reduce the time needed for traditional staff meetings? Would use of these communications technologies and email for day-to-day communications increase the level of reflective discourse in meetings and support instructional improvement? Since practitioners are comfortable with email, it would be useful to conduct a study of email messages between members in a school community to categorize the kinds of messages that are typically sent. The findings of such a study

could be helpful to guide practitioners as they establish web portals or online discussion forums. This research would help define the types of conversations that would be best conducted in a more enduring online discussion forum. It would also help guide an understanding of resources that should be shared in a web portal or wiki, and messages that would be best conveyed via email, web portal news or shared school calendar.

In the area of data management, the low level of teacher use of data management software, despite the fact that practitioners expressed it was important in their work, indicated that more research in this area would be useful. Specifically, research into professional development models embedded in the work teachers do with their teams to help teachers understand how to use data management software, create valid assessments and analyze the results of assessments. It would also be valuable to research potential uses of ICT tools such as the iPad®, laptop or tablet pc with assessment software to make one to one student assessment data collection and sharing more efficient.

Research that examines best practices for organizing and maintaining web portals or wikis for resource sharing, would be useful to guide planning and implementation of such programs. Schmoker (2001) notes that though resource sharing would be valuable, the resources shared should go through an evaluation process to ensure they are of good quality. Therefore, strategies for collecting and evaluating the resources teachers share would be an area worthy of study. In addition, examples of projects created collaboratively by teachers could be compared with projects created by individual teachers to examine if the products of such collaborations are superior to those created by individuals.

Research into the best models of professional development for teachers integrating new technology tools would be useful. Research should examine how to organize ongoing, job embedded professional development at minimal cost to schools. The effectiveness of using online video for teacher professional development, or best practices for using online video for teacher professional development would be valuable areas for research. Research on the PLC model as a method of providing ongoing job-embedded professional development would also be valuable. This section has considered some of the implications for future research suggested by the current study. The following section looks at the overall significance of the study.

Overall Significance of the Literature

The findings of this study are significant in that they examine the practices of two schools that have been effective in raising student achievement, in part due to their work in Professional Learning Communities. The study revealed inefficiencies in work processes currently practiced by teachers in the areas of communications, data management and information sharing. Some of these inefficiencies could be mediated by ICT. The research suggests that available technologies are underused because practitioners are not aware of the abilities, nor are they given adequate time to learn and integrate new programs in their work.

PLC work engages teachers in inquiry conversations about student learning, encourages them to determine areas of student weakness and try out new strategies to increase student learning in targeted areas. The effectiveness of this work is measured by the use of formative assessments that can be created, and analyzed more easily with the use of technologies. The study suggests that ICT developers, and administrators should

work more closely with teachers to ensure that new programs will facilitate teacher work, making it more efficient, rather than adding more work, or increasing the complexity of teacher work.

Findings suggest that teachers are interested in resource sharing and greater communication with other teachers about PLC work and best practices. However, they are not really sure how sharing technologies could work, and there was a sense that these systems may be difficult to set up and maintain. As Casey Jones at Seaside put it: “does that require a lot of front-end or back-end work? Yes... Would it require that teachers get more training on how to use the technology to pull that off? Yes” (Personal Communication, March 2010). Casey refers to establishing a system for collecting, and organizing lessons and activities so that teachers are not constantly “reinventing the wheel.” The findings of the study suggest that teachers need to be a part of the process of developing resource and knowledge sharing tools so that teacher needs are considered and the programs are organized in a way that is not overly complicated or time consuming for users.

Findings also show that school leadership should seek to balance clear expectations for teacher collaboration with opportunities for teachers to lead the process. If principals are feeling pressured to monitor the work of teacher teams, online discussion forums could be used to document the work of teams. This would allow principals to monitor and support PLC teams, while allowing them greater autonomy to establish their own goals and processes, within an agreed upon set of expectations.

Limitations

The limitations of the research project include: the small sample size, the relationship of the researcher with the participants and the fact that only elementary schools were studied. The small number of interviews within each school may have limited the variety of feedback the researcher received about the topic. The small sample size and unique demographic make up of the sample schools and community may limit the potential for generalizing study results to other schools.

Conclusions

This study examined how PLC are enacted in schools and how technologies are used in that work in order to better understand the interactions and work processes that might be facilitated by ICT. The artifact analysis model was used to help document the goals, strategies and resources used in developing PLC. The information gleaned from the artifact analysis suggested that the primary goal of PLC work was instructional improvement that involves providing differentiated, targeted learning activities in individual, small group and whole class instruction. Technologies that were identified as most likely to contribute to that goal were: communications; data management and sharing. Communications to support the day to day running of the school and allow time for more reflective conversations in meetings. Data Management programs to help in the creation of common assessments, inputting of results, data analysis, progress monitoring and data sharing. Sharing refers to teachers' interest in sharing resources such as lessons, unit plans, and activities with other teachers. There was also an interest in sharing best practices; with Casey Jones from Seaside stating that video-recorded examples of best practice lessons would be valuable to him as a new teacher.

These three areas of technology could facilitate the work of PLC if sufficient time and planning were allowed prior to implementation. Local teachers should be included in the process of planning. Teachers need training in how to use technology programs, and also time to plan how to use the programs to make their work easier, not more complex. Implementations of new programs will be more successfully integrated if professional developers are aware and respectful of each teacher's level of experience and of the school's current effective practices. PLC work engages teachers in a process of examining evidence of student learning and collaboratively designing new strategies for improving student mastery of targeted, essential skills and standards. Technologies can facilitate PLC work by improving communication, data management and sharing of resources.

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Appendix A: Interview Schedule and Analysis Grid

Demographic Data to be collected for each participant interviewed

Name

Age

Grade Level

Number of years teaching

Number of years at current grade level or in current position (depending on participant)

Number of years at current school

1. How did Professional Learning Communities (PLC), consisting of grade level teams, develop at Seaside/Pleasantdale?
 - a. Is the PLC work useful to you?
 - b. If so, why is it useful?
 - c. If not, why not?
2. People develop models like PLC to solve problems: What problems did or does PLC address?
3. Why was this problem important to the school at the time?
4. What was accomplished by addressing this problem?
5. What helped the school develop PLC?
6. What hindered the development of PLC?
7. Have PLC changed since they were first developed?
 - a. If PLC have changed, why did they change?
 - b. What influenced that change?
8. What has been the effect of developing PLC on student learning, teachers' work?
9. How are technologies used in PLC work?
 - a. Are technologies useful to you in the PLC work?
 - b. If so, in what ways are technologies useful?
 - c. If not, why not?
10. What problem did or does the use of technologies in PLC address?
11. What helped the school incorporate technologies in PLC work?
12. What hindered the incorporation of technologies in PLC work?
13. How has the incorporation of technologies changed since PLC began?
 - a. If it has changed, why did it change?

- b. What influenced that change?
- 14. What has been the effect of incorporating technologies into PLC work on student learning, teachers' work?
- 15. Who else should I talk to-supporters and detractors-about PLC or the development and use of technologies in PLC?

| | | | | | | |
|---|--|--|--|--|--|--|
| | | | | | | |
| Name | | | | | | |
| Age | | | | | | |
| Position/ Grade Level (GL) | | | | | | |
| Years in current GL/ Position | | | | | | |
| Years at Current School | | | | | | |
| Years in Education | | | | | | |
| Other Notes | | | | | | |
| Themes | | | | | | |
| How PLC started | | | | | | |
| Why PLC was initiated (Goals and Problem Setting) | | | | | | |
| What supports PLC (Strategies and Resources) | | | | | | |
| Positives (Lessons Learned, Problem Solving) | | | | | | |
| Challenges (Constraints) | | | | | | |
| Outlier themes | | | | | | |
| Technologies that support PLC work | | | | | | |
| Technologies that could support PLC work | | | | | | |

Figure 11 Analysis Grid for Tracking Themes in Interviews

Appendix B: Sample PLC Day Schedule at Seaside

Seaside PLC Schedules

Tuesday, January 19, 2010

2nd Grade 1:00-1:45:**2nd Grade teachers will meet in ??? classroom**

Walk students out for recess at 1:45

- Morris: PE with Victor A. (Sub)
 - 1st graders have recess at 1:40
- De Leon: Nutrition/Garden with K. and E.
- Cox: Library with V.
- Ruiz: PE with Ruben C. (Sub)
-

2nd Grade 1:45-2:00

- All second graders will have recess with Victor A. and Ruben C. supervising.
- ***If it rains, PLC will end at 1:45.***

3rd Grade 2:00-3:00:**3rd Grade teachers will meet in the Conference Room**

Dismiss students at 2:40

- McLaren: Library with Vickie and Victor Aron (Sub); Victor will dismiss
- Booth: PE with Ruben Castro (Sub); Ruben will dismiss
- Kelvin: Nutrition/Garden with K. and E.; V. will dismiss
- Lewis: Music with R.; M.C. will dismiss

Victor A. PLC Schedule

| | |
|-------------|--|
| 8:15-10:05 | 2 nd Grade Phonics Testing – computer lab |
| 10:05-10:25 | Recess break |
| 10:25-12:15 | SFA for Ellis– computer lab |
| 12:15-1:00 | Lunch |
| 1:00-1:45 | PE with Morris (1B19) |
| 1:45-2:00 | Supervise 2 nd Grade recess |
| 2:00-2:40 | Library with McLaren (2B13) |
| 2:40 | Dismiss McLaren's class |

Ruben C. PLC Schedule

| | |
|-------------|--|
| 8:15-10:05 | Co-teach Math with Kelly (2C05) |
| 10:05-10:25 | Recess break |
| 10:25-12:15 | Co-teach SFA with Kelly (2C05) |
| 12:15-1:00 | Lunch |
| 1:00-1:45 | PE with Ruiz (2B14) |
| 1:45-2:00 | Supervise 2 nd Grade recess |
| 2:00-2:40 | PE with Booth (2B16) |
| 2:40 | Dismiss Booth's class |

Appendix C

Pacific School District Overview
Instructional Minutes for Schools in Program Improvement*

| ELA/ELD | |
|---|-----------------|
| Use current SBE-adopted basic core programs for RLA/ELD. | |
| Kinder | 60 minutes |
| 1st – 3rd | 2.5 hours |
| 4 th – 5 th | 2.0 hours |
| STRATEGIC ELA/ELD (Tier 2) | |
| Use the current SBE-adopted basic core program ancillary materials. | |
| Kinder – 5 th | 30 minutes |
| ELD | |
| Use either the 2008 SBE-adopted basic core materials instructional program and materials in ELD or materials from the previous SBE-approved lists. | |
| Kinder – 5 th | 30 – 60 minutes |
| INTENSIVE ELA/ELD (Tier 3) | |
| Use the current SBE-adopted intensive intervention programs in RLA from Program 5. | |
| 4 th – 5 th | 2.5 – 3.0 hours |
| MATHEMATICS | |
| Use the current SBE-adopted basic core programs for mathematics. | |
| Kinder | 30 minutes |
| 1 st – 5 th | 60 minutes |
| STRATEGIC MATHEMATICS (Tier 2) | |
| Use the current SBE-adopted basic core ancillary program mathematics materials. | |
| Kinder – 5 th | 15 – 30 minutes |
| INTENSIVE MATHEMATICS (Tier 3) | |
| Use the current SBE-adopted mathematics intervention materials. | |
| 4 th – 5 th | 15 – 30 minutes |
| <i>For districts using the 2001 SBE adoptions:</i> | |
| Students who have been assessed and identified as needing intensive mathematics intervention should be provided additional time and support using the ancillary materials from the adopted program. | |

*Program Improvement is a status granted to schools and districts that have not met annual yearly progress (AYP) goals toward student academic learning targets on state standardized tests. Pleasantdale and Seaside are not in Program Improvement, but the Pacific School district is in Program Improvement, so they are mandated to follow these guidelines for instructional minutes. These numbers increase the complexity of creating blocks in the school day for PLC teams to meet.

Appendix D

PLC Binder – Seaside Elementary School

Contents in the binder of the Fourth Grade Team Leader in June of 2010, at the end of the second full school year of implementing PLC.

Opening Page:

Keys to Effective Teams, credited to DuFour, DuFour & Eaker

- Collaboration is embedded in routine practices of the school
- Time for Collaboration is built into the school day
- Teams focus on key questions
- Products of collaboration are made explicit
- Team norms guide collaboration
- Teams pursue specific and measurable performance goals
- Teams have access to relevant information

Data Section:

- 1) Reading Comprehension Report – Scholastic Management Report - Lexile Score report from spring of the prior school year for the entire grade level, alphabetical order.
- 2) California Standards Test Cluster Scores – Data Director™ Report - prior spring for all kids in grade level, alphabetical order.
- 3) Multiple Assessment Listing – Data Director™ Report - Student name, ELA scaled score and CELDT scaled score in columns side by side, from prior school year, entire grade level in alphabetical order.

- 4) Pivot Table Report – Data Director™ Report - ELA proficiency on CST from prior school year, shows graphically how many students stayed at the same proficiency level, gained one or more proficiency levels or slid backwards, for the entire grade level.
- 5) CST Cluster report ELA – Data Director™ Report - graphic presented as a chart for the prior school year Teacher circled the cluster in which students performed lowest, “Writing Strategies”
- 6) CST Cluster report ELA – Data Director™ Report - graphic presented as a chart for two years prior.
- 7) Pivot Table Report – Data Director™ Report - Math proficiency on CST from prior school year, shows graphically how many students stayed at the same proficiency level, gained one or more proficiency levels or slid backwards, for the entire grade level.
- 8) CST cluster scores reports – Data Director™ Report - Math -one year and two years prior

Standards Section:

- 1) Criteria for Identifying Essential Standards – Credited to Doug Reeves (undated).
 - Endurance: Are students expected to retain the skills/knowledge long after the test is completed
 - Leverage: is this skill/knowledge applicable to many academic disciplines
 - Readiness for the next level of learning: is this skill/knowledge preparing the students for success in the next grade/ course.

2) Blueprints for the California Standards Test Grade 4 English Language Arts and Mathematics. The blue print is a spreadsheet with a list of standards that will be on the CST test and the number of test items that there are for each standard

Goals Section:

1) SMART Goal Worksheet (DuFour et al, 2006)

Assessment Section:

Overview of Assessment:

1) Types of Assessment from Summative to Formative adapted from Thomas Many (2008) to include California State assessments.

2) Common Assessment Guidelines: Adapted from Thomas Many, 2008

Planning Section:

1) 4th and 5th Grade PLC Schedule 2009 – 2010 - A grid with dates when PLC meetings were scheduled in a small column to the left and a long column on the right with the words Agenda Items and Next Steps and space for teachers to write. This page is filled out in pencil for October through December with some notes at the bottom.

2) Team Essential Standards worksheet with Trimester focus – no notes on this form.

3) Team Feedback Sheet – Template from DuFour et al (2006)

4) California Standards Test Release Questions Grade 4 English Language Arts from 2009 and 2007

Items in the binder pocket:

1) Class list with spreadsheet of standards and checkmarks to show which students mastered which standards on a pre-assessment.

- 2) Benchmark School Exam Report – Shows number and percentage of students in the Seaside fourth grade in each proficiency level and shows which standards were covered in the assessment.
- 3) Fourth Grade College Prep Pacing Guide: This calendar has penciled in notes about which standards the team will address in most of the weeks of the school year
- 4) District Benchmark Assessment School Exam Report: Item by Item performance for all students in the grade level
- 5) Five different sample College Prep assessments
- 6) Notes on which standards to target
- 7) District Benchmark Classroom Performance Summary Report ELA Grade four
- 8) College Prep Group lists created on computer
- 9) Two handwritten spreadsheets with columns that show the percentage correct on the pre-assessments and student names listed under the percentage they received. For example on the first sheet - 100% with seven student names, 86% with eight names, 71% with eleven names, 57% with eleven names, 43% with thirteen names, 29% with seven names, 14% and 0% with three names each, these handwritten columns of names are circled with a college prep intervention teacher name written by them.
- 10) Blank monthly calendars November 2009 – June 2010

Fourth grade College Prep – 2009–2010 Reading Comprehension (RC) report columns set up by literacy coach include Student name, CST RC Score, Standard pre-assessment score, post-assessment score, Growth, CST ELA Scaled Score and CST ELA Proficiency level.

Appendix E: Pacific School District Strategic Initiatives

School Board Adopted

➤ **ACHIEVEMENT FOR ALL STUDENTS**

Research, develop and implement innovative grade level, school site and individualized instructional models targeted to the needs of each student subgroup for academic improvement, with particular attention to middle school.

➤ **DIVERSITY/BUILDING COMMUNITY**

Develop, implement and increase ongoing outreach strategies and systematic parent education programs to engage under-represented community and parent voices at the school site and district levels and enhance parent/family involvement in their child's educational process.

➤ **HIGHLY EFFECTIVE TEACHER IN EVERY CLASSROOM MOTIVATED TOWARD THE SUCCESS OF ALL STUDENTS, COLLEAGUES,**

Assure an environment that encourages system-wide and school site collaboration with and among teachers for well-informed decision-making, communicate respect and professionalism, and support autonomy and cooperation among teachers and

administrators to improve overall the academic program for students. *Particular attention to transition points; Pre-K to Kindergarten, 5th to 6th grade, 8th to 9th grade, high school to college/world of work.*

➤ **RESOURCES FOR EDUCATIONAL PROGRAMS**

Build a thriving Foundation as the lead fundraising organization for both districts.

➤ **COMMUNICATION AND COLLABORATION**

Clearly define roles and facilitate expanded and meaningful participation of Site Leadership Teams, District Leadership Team, District and Site English Advisory Councils, and district committees in decision-making and problem solving.

➤ **PARENT/FAMILY INVOLVEMENT**

Create regular opportunities for people to come together through a K-12 comprehensive parent involvement plan suited to the diversity of the school community and reach out to all cultural and linguistic communities using a variety of methods and events.

Appendix F: Seaside School Plan

Elements of school plan that relate to Professional Learning Communities Work

Professional Learning Communities Action Plan
2009-2010

| | | | | |
|---|--|---|---|--|
| Goal 4 Use SMART format: Specific, Measurable, Achievable, Results-oriented, Target date. | During the 2009-2010 school year, the school will further develop our action plan of implementing the Professional Learning Community framework which includes continued participation in PLC professional development, grade level collaboration, primary/upper grade articulation and implementation of a college prep block (intervention block). | | | |
| Data Describe data consulted and a summary analysis of the data that indicate the need for the goal. | We consulted the Spring 2009 CST results from Data Director. | | | |
| Evidence Summarize how this goal will be measured. What will be the evidence of goal attainment? | SRI data, "Success for All" data, Benchmark data and CST data are used continuously as tools to evaluate and inform our reading and math instruction. | | | |
| Description of Proposed Action What is going to be done to address this goal? | Research/Rationale Explain how best practices and research justify this activity. | Results What will be the evidence of completion of the activity? | Resources Funding Source and Cost | Timeline When will the activity occur? |
| Activity #1 Implement a PLC collaboration meeting block for grade levels in preparation for student college prep blocks (intervention blocks) | This teacher planning time has been deemed effective in Professional Learning Community research by Roland Barth, Rebecca DuFour and Richard DuFour. | The effectiveness of this meetings will be documented in PLC meeting minutes and quarterly assessments of skills focused on in each block. | | September-June 2009-2010 |
| Activity #2 Create student college prep blocks (intervention blocks) in weekly classroom schedules. | Differentiated curriculum targets identified student needs. | This will be documented in teacher lesson plans, with reference to specific assessment results/data. | | September-June 2009-2010 |
| Activity #3 Develop grade level plans to address differentiated instruction for the intervention block. | This collaboration in lesson planning has been deemed effective in Professional Learning Community research by Roland Barth, Rebecca DuFour and Richard DuFour. | The effectiveness of this collaboration will be reflected in curriculum assessments, promotions to the next leveled groups and in STAR testing results. | | September-June 2009-2010 |

Single Plan for Student Achievement Budget
2009-2010

| Description/SACS and Non-SACS Expenditure Costs | Title I 3010 | Title III 4203 | EIA-SCE 7090 | EIA-LEP 7091 | ELL 6286 |
|---|-----------------|--------------------|---------------------|----------------------|-------------|
| 1000-1999 Series Certificated Personnel Salaries <ul style="list-style-type: none"> Instructional Support and Intervention Teacher Substitute release days Teacher hourly | | \$3,330 | | \$54,814 \$36,000 | |
| 2000-2999 Series Classified Personnel Salaries <ul style="list-style-type: none"> Instructional aides/community liaison Interpreters /translations | \$52,350 | \$6,973 \$4,800 | | \$21,661 \$5,000 | |
| 3000-3999 Series Employee Benefits <ul style="list-style-type: none"> Certificated Classified | \$4,188 | \$557 | | \$6,118 | |
| 4000-4999 Series Books and Supplies <ul style="list-style-type: none"> Books and reference materials Materials and supplies | | | | \$10,000 \$5,000 | \$9,943 |
| 5000-5999 Series Services and Other Operating Expenditures <ul style="list-style-type: none"> Staff development training Staff workshops and travel/conferences | \$8,348 | | \$15,000 \$5,000 | | |
| TOTAL | \$65,886 | \$15,660 | \$20,000 | \$138,593 | \$9,943 |

2009 STUDENT ACHIEVEMENT DATA

Summary Analysis of 2008-2009 Data

Student Achievement Data**Analysis and Conclusions Based Upon Data**

~~Our analysis~~ met our API, AYP and district established goals. We met the participation rates both in language arts and math. We met our schoolwide goal. We also met the goals for our three significant subgroups goals – Hispanic, socio-economically disadvantaged, ELL.

Academic Performance Index (API)

The state required ~~to raise our API~~ to raise our API by 5 points; we increased it by 1 point. Schoolwide, we went from a base of 748 to 749. The API for our Hispanic subgroup increased from 740 to 741. The API for our socio- economically disadvantaged subgroup increased from 746 to 750. The API for our second language learner subgroup increased from 746 to 751.

Academic Yearly Progress (AYP)

The federal government asked that 46% of our 2nd-5th grade students score in the proficient and advanced categories in language arts; we increased the number from 32% the previous year to 40% this past Spring for students schoolwide, with the exception of the Hispanic subgroup of whom 36% did.

The federal government asked that 47% of our 2nd-5th grade students score in the proficient and advanced categories in math; we surpassed this goal. 50% of our students schoolwide did. We are very proud that half of our students are proficient or advanced in math. 48% of students in our Hispanic subgroup are proficient/advanced; 51% of students in our socio-economically disadvantaged subgroup are proficient/advanced; and, 52% of students in our ELL subgroup are proficient/advanced.

2009/2010 Academic Goals/Language Arts

2nd grade will increase the students inherited from 1st grade from 35% to 45%
 3rd grade will increase the students inherited from 2nd grade from 35% to 45%
 4th grade will increase the students inherited from 3rd grade from 20% to 45%
 5th grade will increase the students inherited from 4th grade from 60% to 70%

2009/2010 Academic Goals/Math

2nd grade will increase the students inherited from 1st grade from 63%to 70%
 3rd grade will increase the students inherited from 2nd grade from 63% to 70%
 4th grade will increase the students inherited from 3rd grade from 36% to 46%
 5th grade will increase the students inherited from 4th grade from 48% to 58%

Appendix G: Pleasantdale School Plan

Elements of school plan that relate to Professional Learning Communities work

**Professional Learning Communities Action Plan
2010-2011**

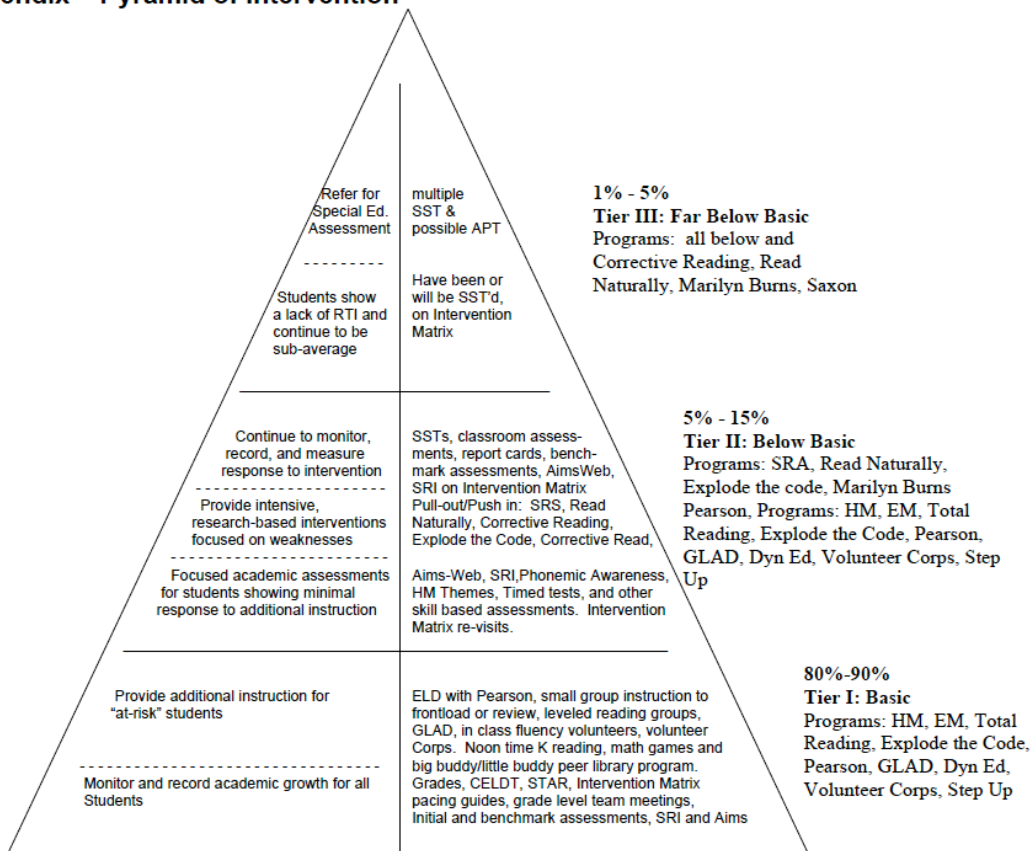
| | | | | |
|--|---|--|---|--|
| Goal 4 Use SMART format: Specific, Measurable, Achievable, Results-oriented, Target date. | Teachers will continue to complete the "Cycle of Inquiry" every month developing goals based on student work, targeting intervention and re-teaching concepts for targeted individuals. | | | |
| Data Describe data consulted and a summary analysis of the data that indicate the need for the goal. | Data collected will be on-going formative assessments, District benchmark assessments, AimsWeb, SRI, Everyday math units and CST data. | | | |
| Evidence Summarize how this goal will be measured. What will be the evidence of goal attainment? | Progress will be measured, monitored and published in weekly staff memos. | | | |
| Description of Proposed Action What is going to be done to address this goal? | Research/Rationale Explain how best practices and research justify this activity. | Results What will be the evidence of completion of the activity? | Resources Funding Source and Cost | Timeline When will the activity occur? |
| Activity #1 Monthly PLC school-wide meetings will be focused on the Cycle of Inquiry where each grade level will select an area of focus, develop specific lessons to address that area, monitor the progress and report out to the whole staff. | Rick DuFour writes, "Assessments created collaboratively by teams of teachers who teach the same course or grade level represent a powerful tool in effective assessment in professional learning communities." | Principal will publish results of grade level cycles in the Monday Memos. | Lottery for materials & supplies, EIA for IA support for teachers for planning or implementation. | Sept. – June 2011 |
| Activity #2 Teachers will meet once a week during Block Enrichment to confer about progress towards PLC grade level assessments. | Research indicates that creating time for collaboration between teachers will improve targeting teaching practices that will increase student achievement. | Progress notes will be kept by teachers and monitored by Principal. | PTO for Block Teachers | Sept. – June 2010 |
| Activity #3 Teachers will meet at least once a month in Grade Level Meetings to review pacing schedules, and continue to refine thematic curriculum and GLAD units. | Research indicates that thematically integrating curriculum increases student engagement and understanding of curriculum. GLAD strategies challenge all levels of learners. | Progress notes will be kept by teachers and monitored by Principal. | none | Sept. – June 2010 |

**Single Plan for Student Achievement Budget
2009-2010**

| Description/SACS and Non-SACS Expenditure Costs | Title III | ELL | EIA-LEP 7091 |
|--|-----------------|----------------|------------------|
| 1000-1999 Series Certificated Personnel Salaries <ul style="list-style-type: none"> Certificated Intervention Teachers | | | \$16,000 |
| 2000-2999 Series Classified Personnel Salaries <ul style="list-style-type: none"> Intervention IA School Services Coordinator | \$4,064 | | \$10,000 |
| 3000-3999 Series Employee Benefits <ul style="list-style-type: none"> Benefits and driven costs for classified and certificated | \$ 24 | | \$1500 |
| 4000-4999 Series Books and Supplies <ul style="list-style-type: none"> Books and supplies | | \$2,107 | \$4,869 |
| 5000-5999 Series Services and Other Operating Expenditures <ul style="list-style-type: none"> | | | |
| TOTAL | \$ 4,089 | \$2,107 | \$ 32,369 |

PLC provides a place for monitoring progress and discussing possible RtI interventions

Appendix – Pyramid of Intervention



Pleasantdale Elementary School
School Improvement plan 2009 – 2010

Summary Analysis of 2008-2009 Data

Demographic Characteristics Analysis:

- Student population has increased by approximately 20 students. ELL population is slowly increasing by 1% per year.

API Analysis:

- School wide we met and exceeded the growth target going up 8 points. White subgroup met API growth target. Hispanic and ELL subgroups dropped significantly and did not meet growth target.

AYP Analysis:

- School-wide and the White sub-group met and exceeded the ELA and Math criteria.
- Hispanic, Disadvantaged and ELL subgroups did not meet the 46% proficient criteria.

STAR Analysis:

- 276 students were tested, 181 white, 63 Hispanic, 57 English Language Learners, 28 students with disabilities, and 50 economically disadvantaged. These are not significant changes from 2008.
- 2nd and 5th grade showed an increase in percent of students scoring proficient or advanced in ELA and Math. 3rd and 4th grade showed a significant decrease in percent of students scoring proficient or advanced.

CELDT Analysis & EL School Profile:

- 50 students were CELDT tested in 2008. Of those, 3 increased CELDT levels, 35 made no change in CELDT level and 12 declined.
- The data indicates that a majority of the students achieve a CELDT 3 level and do not move.

Conclusions:

- The White subgroup is making good growth meeting and exceeding targets. The Hispanic group is not making progress on the CELDT or the STAR as their English Language Development does not progress past the listening and speaking stages.
- Need a researched-based ELD program administered five times a week for 30 minutes and a monitoring system.
- Need more systematic pyramid of interventions for targeted students with a clear monitoring system.