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THE CULTURE OF ONE SCHOOL SUSTAINING THE WORK OF CONTINUOUS IMPROVEMENT THROUGH PROFESSIONAL LEARNING COMMUNITIES

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Abstract

As part of a study exploring how principals create a context for change to both develop professional learning communities (PLCs) and sustain a context of continuous improvement over time, this article examines how a principal recognizes and employs a school's existing culture to develop, implement, and sustain the work of PLCs to foster improvement. The specific research question that this study sought to address was: How does the staff of a secondary school that is sustaining continuous improvement through PLCs describe their professional culture? This article answered this question by analyzing data from in-depth interviews, documents, observations, and a survey at the case study school. A theme that emerged as a result of this study was how the principal in the high school context overcame a culture of isolation—particularly how the principal not only developed and implemented PLCs to create a culture of collaboration, but more importantly, how the principal sustained the work of PLCs despite the history and culture of this traditional high school. Specifically, the school leader at the high school selected for this case study worked to sustain a culture of continuous improvement that addressed three prominent areas in the high school context—subject division, organizational structure, and professional autonomy—by engaging teachers in cross-departmental professional development and creating structural changes.

INTRODUCTION

The culture of a school influences the approach to the change process (Ely, 1990). Schein (2011) formally defined culture as :

...a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems. (p. 356)

According to Awbrey (2005), awareness of culture and context “allows faculty and administrators to approach change initiatives . . .with greater understanding of how the change process can best be facilitated and how the implementation of change can be sustained” (p. 6). In short, educational leaders seek to understand the culture of a school before changing it. In the case of a school facing challenging patterns of performance over time, the culture needs to be assessed quickly so that change can be implemented to respond to the immediate needs of students and to meet external accountability pressures. The challenges and roadblocks experienced during the implementation of change and reform are deeply rooted in the cultural context and climate of the school (Awbrey, 2005). According to Awbrey (2005), understanding the basic underlying assumptions within the culture of a school before making structural changes will assist a leader and its faculty in implementing professional learning communities (PLCs) (Brown & Anfar, 2003; DuFour, DuFour, & Eaker, 2008).

Although a wealth of literature exists on educational change and PLCs, few studies have examined how a principal recognizes and employs a school’s existing culture to develop, implement, and sustain the work of PLCs to foster a context of continuous improvement over time (Giles & Hargreaves, 2006; Hipp & Huffman, 2003; McLaughlin & Hyle, 2001; Scribner, Cockrell, Cockrell, & Valentine, 1999). With the emergence of PLCs as structures for school improvement and for cross-curricular collaboration, research that explores how principals sustain the work of continuous improvement in the high school context is needed. The purpose of this study was to examine this process by gathering data through: observations of PLC meetings; interviews with the principal, PLC leaders, and teachers; results from a survey administered to the entire faculty; and, document analysis in a high school engaged in sustaining the work of PLCs.

The primary research question that guided this study of PLCs was: “How does the staff of a secondary school that is sustaining continuous improvement through PLCs describe their professional culture?” Additionally, a theme that emerged as a result of this study was how the principal in the high school context overcame a culture of isolation—particularly how the principal not only developed and implemented PLCs to create a culture of collaboration, but more importantly, how the principal sustained the work of PLCs despite the history and culture of this traditional high school. In exploring our interests, we will focus on examining the culture of one high school in a mid-Atlantic state through qualitative research methods (Creswell, 2009; Maxwell, 2005; Merriam, 2002; Yin, 2003). By offering insight into the culture of a high school sustaining PLC work, we will also aim to respond to the need for additional research to guide the work of school leaders in this area (Louis, 2008; Wells & Feun, 2007). Given the unique nature of the high school context, we analyzed the existing literature to provide us a lens through which we could respond to our research question.

Leading Improvement in the High School Context

Siskin (2004) acknowledged that a number of reform efforts have tried to change the “massive, highly stable, and reputedly reform-resistant form of the American high school” and have failed (p. 167). Similarly, in her study of Cleveland Heights High School, Tittle (1995) acknowledged this paralysis, occurring within attempts at high school reform, calling it “the culture of inertia” (p. 263). Despite the movement towards standards-based accountability, moving high schools into the 21st century still presents a challenge.

In order to develop, implement, and sustain a culture of continuous improvement in a high school, the school leader must overcome the challenges posed by high school structures to develop a shared vision and goals to collectively meet the unique needs of the children and the communities served by the school (Siskin, 1997; Siskin, 1994). Similarly, principals must also create a culture in which teachers across the school engage in learning together, and in which leaders learn with teachers, thereby serving as a component of continuous improvement during the change process (Hord, 1997). To do so, principals must overcome the barriers to improvement in high schools.

Barriers to Improvement in High Schools

Through a review of the literature, we identified three characteristics of high schools that serve as structural and cultural barriers to the development of a collaborative culture that will foster and sustain ongoing improvement efforts.

The organizational structure of high schools serves as a barrier to sustained conversations about teaching and learning (Siskin, 2004). The highly compartmentalized and organizationally isolated nature of the traditional, comprehensive high school is well documented in the literature (Goodson, 1988; Hargreaves & Macmillan, 1995; Little, 1995; McLaughlin & Talbert, 2001, 2006; Siskin, 1994, 1997; Siskin & Little, 1995). In high schools, unlike in elementary schools, the school structure allows each subject-based department to develop its own distinctive culture (Elmore, 2003). This separation of subject areas into departments has resulted in unique organizations within each school community, each with deeply entrenched beliefs and cultural norms. Teachers in the high school context identify themselves by the subjects they teach, foster assumptions that teaching and learning does not cross curricular boundaries, and act on the notion that departments hold a hierarchy of importance (Goodson, 1988; Hargreaves & MacMillan, 1995; Siskin, 1994; Siskin & Little, 1995). Additionally, the large size of high schools and of subject departments, saddled with rules that define professional relationships in large high schools, compounds the challenge of gaining teacher buy-in and collaboration (Chrismer, 2005; Siskin, 2004; Toch, 2003). Departments become significant barriers to school-wide communication and in establishing a community in high schools.

High schools are divided across subject lines, subjects in which students may be held to different standards (McLaughlin & Talbert, 2001; Siskin, 2004). At the high school level, curriculum and faculty are divided by subject areas that are not thoroughly defined and not always related (Siskin, 2004; Sizer, 1992). In their study, McLaughlin and Talbert (2001) found that high school teachers spoke of their own subject areas as having particular classroom goals, standards, and content that was distinct from other departments. Among strong departments, Talbert (1995) found consensus on teaching practice. However, few departments are currently organized to facilitate conversations about standards and teaching and learning. Some

departments thereby inhibit, rather than support, teacher learning, especially in providing adaptations to students with special needs and in adopting new standards for instruction.

Teachers in most high schools are left to practice as they choose, thereby maintaining professional autonomy (McLaughlin & Talbert, 2001). In their study of high schools in three communities, McLaughlin and Talbert (2001) found that the norm of professional autonomy is particularly common in high schools. A teacher's work is a creative and private endeavor that varies greatly from classroom to classroom. Student success is viewed as resulting from an individual teacher's training and students' backgrounds (McLaughlin & Talbert, 2001). This belief is emphasized by the specialization in instruction that occurs at the high school level. For example, a single teacher may be the only instructor in the building that teaches Government or AP Chemistry. The lack of opportunity to obtain advice and support from teachers in one's own subject area further contributes to a feeling of isolation by teachers. This anonymity can affect both teacher and student motivation to work and learn together. Comprehensive high schools thus become impersonal organizations where teachers and students often experience alienation (Sizer, 1992; Toch, 2003).

Leadership in the High School Context

The barriers to sustaining collaborative improvement through PLCs in high schools present high school principals with the challenge of uniting a diverse organization toward common improvement goals. In conjunction with McLaughlin and Talbert (1993), Siskin analyzed data from a five-year longitudinal study in California and Michigan, in which the research team surveyed, interviewed, and observed teachers and administrators in 16 secondary schools. Siskin (1997) used data from this study to focus on the administrators' perspectives of public comprehensive high schools. She found administrators actually compete with departments in their schools for leadership and shared vision, because the large and compartmentalized nature of high schools makes change of any magnitude and whole-school culture difficult for leaders to sustain.

Similarly, in her 1995 study at a high school in which teachers were organized by larger scopes of departments (for example, the math-science-technology department), Little found there were still department chairs that assisted in maintaining the isolated nature of subject departments. At the time of her study, this school's structure was in its infancy (10 years), and Little (1995) could not determine the success of sustaining such an approach to organizing a high school; however, she noted the struggle for the principal to balance school consensus with teacher autonomy, which is documented in the literature as another barrier for leaders (Archbald & Porter, 1994; McLaughlin & Talbert, 1993, 2001; Siskin, 1994, 1997).

With characterizations such as *36-ring circus* (Siskin, 1997, p. 606), *contested ground* (Little, 1995), and *balkanization* (Hargreaves & Macmillan, 1995), principals face what can be an overwhelming challenge in creating a culture of collaboration in the high school context. Hoy (2012) and Deenmamode (2012) identified a need to move away from superficial organizational cultural representations, such as norms, and toward deep and abstract tacit beliefs, such as commonly held notions of the nature of human relationships and the social environment. Similarly, Sergiovanni and Corbally (1986) stated, "Leadership acts are expressions of culture" (p.106). Further research that explores how principals in high school settings use collaborative cultures to break, breach, and bridge departmental silos is needed, especially in the post-NCLB era of the educational system when schools are expected to do more with less (Boykin &

Noguera, 2011; DuFour & Marzano, 2011; Lezotte, 2008). One structure that schools use in a collaborative culture, particularly to de-compartmentalize the traditional high school context, is PLCs. Leaders use PLCs as catalysts for improving both practice and student learning outcomes.

Professional Learning Communities

Although a review of the literature revealed more than 10 complex definitions, a synthesis into a single definition of PLCs better explores the problem and aligns leadership with the principles of learning organizations: a PLC is a group of professionals in a learning organization continuously collaborating to learn, achieve school improvement, and work toward shared and common goals through the collection and analysis of data (Achinstein, 2002; Burnette, 2002; DuFour, 2004; Hipp & Huffman, 2003; Hord, 1997; Hord & Sommers, 2008; Louis & Marks, 1998; McTighe, 2008; Mullen & Huttinger, 2008; Nathan, 2008).

The underlying assumption of this study was that teacher collaboration in the form of PLCs in a learning organization is the most effective means for continuous improvement, as suggested by the research revealing the importance of PLCs in education (Hord, 1997; Hord & Sommers, 2008; Louis & Marks, 1998; McLaughlin & Talbert, 2001; Mullen & Schunk, 2010; Nathan, 2008; Schmoker, 2004; Wheatley & Frieze, 2007). A learning organization is a structured entity consisting of people who work collaboratively toward common goals and a shared vision (Senge, 2006). Professional learning communities foster a learning organization and create the structures necessary for school improvement by improving student achievement (Langer, 2000; Lee & Smith, 1996; Louis & Marks, 1998; Nathan, 2008), creating a shared vision (DuFour, 1995; Hord & Sommers, 2008; Wheatley & Frieze, 2007), increasing teacher knowledge (Darling-Hammond, 1996), practicing authentic pedagogy (McLaughlin & Talbert, 1993), and building capacity (Schmoker, 2004). The literature on leading improvement in the high school context, with a particular focus on PLCs, informed our conceptual framework for this study.

Conceptual Framework

In our examination of the case study school, we found school culture played an important role in sustaining the work of continuous improvement through PLCs. Organizational culture, in this case, school culture, includes a set of values, beliefs, traditions, assumptions, and shared systems that distinguish one organization from other similar organizations (Mintzberg, 1989; Robbins, 1998; Schein, 1992). For this study, we used this definition to guide our examination of how the principal understood the existent culture upon appointment and then made subsequent changes at the organizational culture level that created an environment open to the implementation and sustainability of PLCs. Therefore, we developed a conceptual framework that depicts the relationship between (a) school culture, (b) the three barriers unique to the high school context, (c) continuous improvement, and (d) the role of the principal in establishing and sustaining a culture of continuous improvement in the high school setting. This framework was used as a lens to examine both the literature and the data from this research. Figure 1 shows the visual representation of how the three barriers to improvement in the high school context relate to school culture in general and how the principal assesses and shapes the conditions necessary for sustaining continuous improvement.

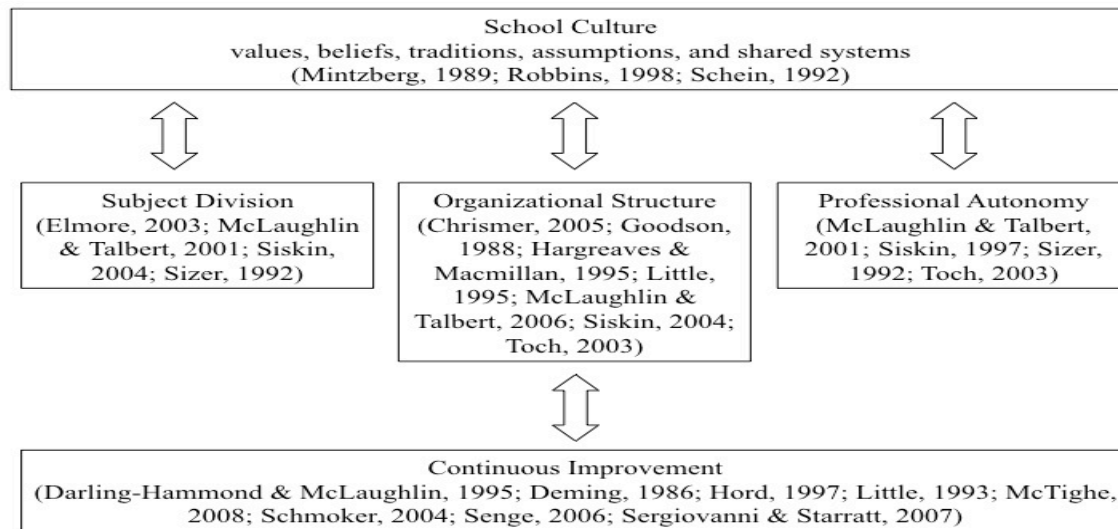


Figure 1. A conceptual framework organizing high school culture in sustaining continuous improvement

The top of the framework symbolizes the focus of this study: school culture, including the values, beliefs, traditions, assumptions, and shared systems (Mintzberg, 1989; Robbins, 1998; Schein, 1992). The three themes we identified in the literature that either contribute to or hinder continuous improvement include: (a) high schools are divided across subject lines, subjects in which students may be held to different standards (Elmore, 2003; McLaughlin & Talbert, 2001; Siskin, 2004; Sizer, 1992); (b) the organizational structure of high schools serves as a barrier to sustained conversations about teaching and learning (Chrismer, 2005; Goodson, 1988; Hargreaves & Macmillan, 1995; Little, 1995; McLaughlin & Talbert, 2006; Siskin, 2004; Toch, 2003); and, (c) teachers in most high schools are left to practice as they choose, maintaining professional autonomy (McLaughlin & Talbert, 2001; Siskin, 1997; Sizer, 1992; Toch, 2003). Finally, the goal of schools in the current era of high stakes accountability is to sustain continuous improvement, and the work of PLCs was the lens through which we examined the case study school (Darling-Hammond & McLaughlin, 1995; Deming, 1986; Hord, 1997; Little, 1993; McTighe, 2008; Schmoker, 2004; Senge, 2006; Sergiovanni & Starratt, 2007). The double-sided arrows represent the role of the principal in leading a high school to create and sustain a culture of continuous improvement over time (Giles & Hargreaves, 2006; Hipp & Huffman, 2003; Hollins et al., 2007; Lujan & Day, 2010; McLaughlin & Hyle, 2001; Scribner et al., 1999; Wells & Feun, 2007). This conceptual framework formed the lens used throughout our investigation of the cultural conditions in the process of leading improvement in the high school context.

The purpose of this study was to take an intensive look into the culture of a high school that is sustaining the work of PLCs. How leaders in the high school context overcome the culture of isolation was of interest for this study—particularly how a leader not only develops and implements PLCs to create a culture of collaboration, but more importantly, how a leader sustains the work of PLCs despite the history and culture of traditional high schools. Therefore, we designed methods to incorporate a 360-degree analysis of the case study school by observing

PLC meetings; interviewing the principal, PLC leaders, and teachers; administering a survey to an entire faculty; and, analyzing documents in a high school that is viewed as sustaining the work of PLCs in a learning organization.

METHODOLOGY

The focus of this study was on a principal and a school as they endeavored to sustain the work of PLCs in a learning organization. Therefore, qualitative research methods grounded this work and allowed inquiry into processes of the case study school (Creswell, 2009; Maxwell, 2005; Merriam, 2002; Yin, 2003). To allow for triangulation of the data, we used the following methods: non-experimental survey (n = 48; response rate of 34%); in-depth interview with the principal; in-depth interviews with PLC leaders and teachers (n = 7); observations of PLC meetings (n = 2); and, document analysis.

The authors asked district administrators to identify a school operating in a mature culture of collaboration for this study. At the school site selected, we administered a survey and collected documents to inform the context and to understand the extent to which the school selected as the site for case study research was sustaining a context of continuous improvement. The authors interviewed the principal, three PLC leaders, and four teachers to offer insight into the process of sustaining the work of PLCs and to learn how the principal specifically sustained a context for continuous improvement. Finally, we triangulated the data with the school's PLC work described in the interviews by conducting observations of two PLC meetings. Because access to the case study school was limited for PLC observations, we decided not to include findings from this data source in the results section; however, this data informed our understanding of the culture of the school, its leadership, and the dynamics of the PLCs.

Although data analysis in qualitative inquiry is fluid, organic, dynamic, and happens concurrently with the collection process, a plan for analysis is helpful for the researcher (Coffey & Atkinson, 1996). The purpose of the survey was to describe the extent to which the school was operating as a learning organization comprised of PLCs. From the survey, we converted Likert scale responses to a score of one through four, and we then calculated a mean score for each response. For example, the teachers responded to the first prompt with 3 Disagrees (3 multiplied by 2 is 6 points), 26 Agrees (26 multiplied by 3 is 78 points), and 19 Strongly Agrees (19 multiplied by 4 is 76 points). We also calculated the arithmetic mean for each prompt. The transcription and thematic analysis of the interviews occurred as close as possible to the days of data collection in the same manner. Additionally, gathering and coding of field notes from observations and from documents occurred asynchronously but as close to simultaneously as possible—inductively first, and then deductively to continue the process of data analysis.

RESULTS

Waterman High School, a pseudonym for the case study school, was the comprehensive high school selected for this research. The school is large—serving over 2,200 students from diverse cultures, socioeconomic statuses, and academic spectrums. Table 1 provides a representation of the demographics for both Waterman and the school district. Waterman is also home to a specialized magnet program that serves approximately 500 students throughout the large, suburban mid-Atlantic school district in which it resides. This school has had only two principals, including the one who currently leads the 142 instructional members on the faculty

who are supported by seven administrators and approximately 20 instructional and 60 classified support staff members.

Table 1

Student demographics for Waterman High School and the school district

Elements of Student Make-up	Waterman	School District
Race/Ethnicity		
Caucasian	59.8%	52.4%
African-American	15.1%	24.0%
Hispanic	10.0%	9.1%
Asian	5.6%	6.1%
Multiracial	8.9%	7.7%
American Indian	0.4%	0.3%
Native Hawaiian	0.2%	0.4%
Economically Disadvantaged	22.9%	27.0%
Special Needs	11.4%	10.4%

The current principal was in her seventh year of service at the time of the study and worked at this school since its inception. As a teacher, computer resource specialist, administrative intern, assistant principal, and now principal, she has an awareness of context, community, and collegiality. During her interview, the principal discussed the event that led her to believe in the power of PLCs and the need to develop PLCs at Waterman High School. The principal indicated she decided it was time to develop PLCs after attending a regional Association of Supervision and Curriculum Development conference in 2005, during her first year as principal, where she observed a session from Rick and Becky DuFour. The principal believed in the power of structured collaboration that used data, reflection, and observation to keep the school focused on continuous improvement and to break down barriers associated with the departmentalized nature of comprehensive high schools. She spoke about the principles of PLCs throughout her interview and highlighted her desire to break down barriers through this metaphor:

The one phrase I think that DuFour used in the presentation that really convinced me was the whole egg crate thing. If you've ever seen an egg crate, and all the little eggs are in their little pockets. That's what the schoolhouse has traditionally been. You go into your little egg pocket, you close your classroom door, you teach teach teach, at the end of the day, everybody leaves. And you never touch another egg and you never talk to another egg, and it's all very isolated. How do you grow in your profession if you're not talking to other professionals?

After spending a year with her administrative team learning about PLCs through a comprehensive book study on *Learning by Doing: A Handbook for Professional Learning Communities at Work* by DuFour, DuFour, Eaker, and Many (2006), the principal decided to

bring in a Solution Tree¹ expert to introduce the concept of PLCs to the entire staff. Six years later, PLCs at this high school are structured in content-specific teams, meaning that members of each small team currently teach the same content (for example, there is a 9th Grade English PLC and an Algebra 1 PLC), and there are currently 38 content-specific PLCs in this learning organization.

Other PLCs in the school include five distinct teams in the organizational structure that not only offer opportunities for teacher leadership, but also provide the organization with opportunities to build instructional capacity, connect innovations for improvement, develop a shared vision, and make decisions based on the needs of staff and students: School Planning Council, Principal's Advisory Committee, Promethean Power Users, Synergy Super Trainers, and Teacher Resource Team. A deeper look into Waterman's culture reveals how this learning organization used its accepted behaviors, beliefs, and patterns of assumptions to sustain its focus on continuous improvement.

Survey

The purpose of the non-experimental survey was to understand the extent to which the case study school was operating as a learning organization. The prompts referenced the teachers' work in the PLCs and the structure and support necessary to successfully and effectively perform as PLCs focused on continuous improvement. The 17 prompts were organized into 4 categories: Critical Elements, Collaboration, Culture, and Conditions; however, the category headings were not identified in the survey—each heading provided the prompt, “To what extent do you agree or disagree with the following statements?” The four-choice Likert scale was: Highly Disagree, Disagree, Agree, and Highly Agree.

To understand the context of this school as a learning organization focused on the work of PLCs, the survey was administered via email link to Survey Monkey. All 142 teachers identified from the school's public website were sent the survey, and 48 of them responded (34 percent response rate, consistent with educational survey research). The Likert scale responses were given a score of one through four, and a mean score for each response was calculated. For example, the teachers responded to the first prompt with 3 Disagrees (3 multiplied by 2 is 6 points), 26 Agrees (26 multiplied by 3 is 78 points), and 19 Strongly Agrees (19 multiplied by 4 is 76 points). The arithmetic mean for each prompt was then calculated. In the example, the sum of the points was 160, and the number of responses was 48; therefore, the mean response score for the first prompt is 3.33 (equating to a value between Agree and Strongly Agree). Additionally, a mean response score was calculated for each category.

The results of the survey are provided in Table 2 and reveal how PLCs as a structure for continuous improvement in this school and the school's organizational structure and culture are related. Although the intent of this survey was not to analyze nor interpret, but to describe the context, the mean response scores provide an insight into how 34 percent of the teachers and PLC leaders view the work of their PLCs in this learning organization.

¹ Solution Tree is a professional consultancy company dedicated to providing resources, tools, and support for staff development, school improvement, and student performance.

Table 2

Survey mean response scores and standard deviations for each of the categories and the individual prompts

Critical Elements (3.24)		
	<i>M</i>	<i>SD</i>
Teachers in my PLC(s) communicate with each other about specific instructional challenges they face.	3.33	0.59
Teachers in my PLC(s) examine instructional practices utilized in my own classroom.	3.08	0.70
Teachers in my PLC(s) believe that all students can learn at high levels.	3.19	0.70
Teachers in my PLC(s) share common values related to their impact on student learning outcomes.	3.35	0.63
Collaboration (3.13)		
Teachers in my PLC(s) work collaboratively to establish goals.	3.21	0.61
Teachers in my PLC(s) work collaboratively to create instructional materials.	3.15	0.76
Teachers in my PLC(s) engage in learning together.	3.11	0.68
Teachers in my PLC(s) analyze data from student assessments.	2.94	0.77
Teachers in my PLC(s) work collaboratively to improve student outcomes.	3.15	0.71
Teachers in my PLC(s) reflect on our teaching together.	3.19	0.67
Culture (3.09)		
Teachers in my PLC(s) feel valued for their expertise.	2.87	0.63
Teachers in my PLC(s) welcome new members to our learning teams.	3.29	0.53
Teachers in my PLC(s) have autonomy to make collaborative decisions regarding their work within the PLC(s).	3	0.71
School leaders work collaboratively with teachers on continuous improvement efforts.	3.19	0.63
Conditions (2.83)		
Teachers in my PLC(s) are provided with regularly scheduled blocks of time for collaboration.	2.57	0.92
Teachers in my PLC(s) have a common space for discussion of instructional practices.	3	0.68
Teachers in my PLC(s) are provided with necessary supports to improve instruction.	2.91	0.62

The four categories and the prompts therein were modified from the National School Reform Faculty PLC Survey. Although the resulting survey was a tool used only to describe the context and understand the extent to which the case study school operates as a learning organization, the results reveal that participants agree their experience is aligned with the operational definition of a PLC synthesized for this study: a PLC is a group of professionals in a learning organization continuously collaborating to learn, achieve school improvement, and work toward shared and common goals through the collection and analysis of data (DuFour, 2004;

Hipp & Huffman, 2003; Hord, 1997; Hord & Sommers, 2008; Louis & Marks, 1998). The “Critical Elements” category outlines the work of the PLC, including instructionally focused dialogue, beliefs about students, and focus on the impact on student learning outcomes. The “Collaboration” category contains the foci of working together—the analysis of data to improve student learning outcomes, the use of social reflection to improve practice, the development of instructional materials, and the creation of learning opportunities based on their needs as professionals. The “Culture” category describes how teachers in PLCs are treated as professionals and how leaders in a learning organization focus on continuous improvement through a collaborative lens, versus a directive lens. Finally, the “Conditions” category is comprised of the structural elements necessary for sustaining a context of continuous improvement in a learning organization, including time, space, and resources.

Interviews and Document Analysis

Effective educational leaders seek to understand the culture before changing it (Awbrey, 2005; Ely, 1990). For Waterman, the original principal developed the culture when the school opened in the late 20th century, and the principal introduced the culture as one simply known as *The Way*. *The Way* is a set of guiding principles, beliefs, and assumptions that established precedence for behavior, interaction, and problem-solving as a cultural way of life. The culture of the school, as a collective entity, has led the participants in this study to refer to themselves and the school as “rule followers” (teacher), “competitive type-A personalities” (PLC leader), and “the ‘we are special’ idea, as a school” (teacher). One teacher’s explanation of *The Way*, and its connection to PLCs, went as follows:

That’s like our slogan here, and we say it to the kids. I think it holds true to teachers that you always do your best, you always strive for excellence, you always try something. Try something new. If it doesn’t work, don’t do it again. If it worked, tell everybody. When the PLCs came along, not everybody’s going to jump on board immediately, but people were like, “okay, this is what we’re supposed to do, let’s see what we can do.”

The concept of PLCs was not embraced by all members of the staff, as this teacher indicated. The teacher’s description of *The Way* was confirmed in one PLC leader interview:

Before [Principal] came on board, [The original principal] was looking for people who were willing to open a vein for this building and for the kids. There’s a group of people here who are committed to their content ... and committed to Waterman ... you have a group of people who are so similar in that they want to be the best.

The culture described by this PLC leader is one that set a tone for a commitment to continuous improvement. She described the willingness and drive of all staff members to be the best at all costs and affirmed individuals in the school as having a deep passion for students, content, and Waterman. One of the teachers expressed how a common focus, a similar commitment to student success, and an orientation towards collaboration and information sharing were the building blocks for the work of PLCs:

Inevitably we're all here for the same purpose—to help our students be successful outside of high school. So in our department, collaboration has always been huge. We've always shared information, that's the thing I always appreciated.

Finally, the principal talked about *The Way* and its influence on the development and implementation of PLCs as an innovation for improvement for “elite” teachers who “were not afraid to think outside the box” at Waterman:

You had to be willing to be innovative, be creative, and be willing to be flexible. [The original principal] got to pick and choose the staff that started the school, and that set the culture for the school and from that time, people who have been hired on have been asked if they are willing to buy into that. “Tell us about your collaboration experience. Tell us about your innovation and how you see your role on a team.”

There was also a document used for analysis called *The Way* that indicated the expectations and beliefs associated with acceptable behavior at Waterman and provided an understanding of the beliefs, norms, assumptions, expectations, and underlying current of the case study school as a learning organization. This document, originally created by the founding principal, assisted the researchers with understanding the culture of Waterman. What follows is a snapshot of the phrases contained in its message: *create exciting, new traditions; work together towards a common goal; respect others; act as role models; follow through with commitments; consider others; understand the importance of learning; strive for excellence; acknowledge work ethic as a valuable asset; dedicate [yourself] to reaching [your] highest potential; leave a continued legacy of greatness*. These beliefs, assumptions, and expectations embedded in *The Way* provide both the researcher and the reader with a foundational understanding of Waterman as a learning organization built on principles of continuous improvement.

The Way was evidence that this school had the cultural base necessary to move a school into a culture of collaboration. Despite what the principal, PLC leader, and teacher interview participants described as a friendly culture full of innovative teachers who think outside the box and interact congenially, there was one particular obstacle to overcome in the implementation of PLCs at this school—the 100-year old culture of isolation in education.

To sustain implementation of change and reform, Awbrey (2005) posited that leaders must treat educational change and reform as an interrelationship of structural and cultural change, and that understanding the basic underlying assumptions within the culture of a school before making structural changes will assist a leader and its faculty in implementing PLCs. The culture, known as *The Way*, provided Waterman High School with the necessary beliefs and acceptable behaviors to move forward with the process to develop, implement, and sustain a culture of continuous improvement through the work of PLCs.

In addition to acknowledging *The Way*, the school's deeply ingrained culture established by the founding principal, the participants discussed specific strategies the current principal used to overcome the barriers to creating and sustaining a culture for continuous improvement. One strategy included learning walks conducted by teams of teachers with common planning time:

Going on learning walks was a beneficial thing for our building. To see other people teach and see what goes on in other peoples' classrooms. That helped our building to become more comfortable with that kind of culture.

This teacher explained that during each grading period, teachers are required to conduct learning walks with colleagues to visit classrooms and reflect on their practice. During the interview, this teacher disclosed that he conducts learning walks with a small group of teachers much more frequently than required to gain insight into other teachers' practices to help him improve his instruction.

During the year when the school focused its efforts on developing a balanced assessment system, the PLCs took on the task of creating an assessment that would be put on display at the end of the year. The display was called a showcase, and the participants described it as quite an extravagant affair. Although the principal did not discuss this action in detail, the other participants told the story of the way the principal created an environment that turned out to be instructive in nature. According to one PLC leader:

The year before when we had this showcase, it was our first year with balanced assessment. That was the year that they drank the Kool-Aid. They really were like, "wow, that was transformational." ... the showcase was instructive in a way that the process we took them through could be used again.

Waterman focused its efforts on developing a balanced assessment system during the second year of the "mandatory" PLC involvement, which was four years post-Solution Tree presentation. The end-of-the-year goal of using the Understanding by Design² format to create a unit with a common assessment provided each PLC with a clear focus and an outcome for their efforts. According to one PLC leader and one teacher, the showcase was instructive in two ways: it set an expectation for the work of the PLCs and highlighted the importance of common assessments in the instructional cycle. One teacher described how the initial perception was not well received among faculty members, but that in the end, the experience was worth the endeavor:

And one of the things we did our balanced assessment year, we did a showcase at the end of the year. Where we each had to put a unit on display—a UbD unit on display that was balanced, and we walked around the building for three days after school looking at each others' units, and it was awful because it became a show. But the actual walking through other classrooms; I had a conversation with a Science teacher about a book she taught that I could tie to Social Studies. I never would have done that. And so, I think the benefits out-weighed the awfulness of it.

The principal mentioned that without common assessments, the content-specific PLCs would not gather common data with which to base their instructional decisions and focus their work on continuous improvement.

² Understanding by Design (UbD) is a curriculum framework used for educators to create instructional units that improve student understanding of the standards and objectives.

Finally, there were two key structural changes that the principal engaged to facilitate developing, implementing, and sustaining the work of PLCs: time and space. To begin, there were three strategies developed by Waterman that show evidence of providing the time necessary to engage in the work of PLCs: Meeting Mondays, common planning time, and professional leave planning days.

Each Monday, teachers were required to stay later than their contractual obligation after school to engage in collaborative meetings. The meetings on Meeting Mondays included PLC meetings, department meetings, faculty meetings, and PLC leader meetings. The common planning time, new to Waterman during the school year of data collection for this study, was built into the teachers' schedules as part of the master schedule organized by the school's administration and planning council. The common planning time provided content-specific PLCs with at least 95 minutes every other school day to meet as a PLC. Additionally, included in the master schedule is common planning time for the members of the educational leadership team (ELT)—which consists of administrators, department chairpersons, and a handful of teachers—to meet at least once a month during the instructional day. Common planning time, Meeting Mondays, and professional leave for collaborative planning became staples at Waterman:

So our master schedule is extremely tight. What we had to do was look at the PLCs where our [state accountability assessment] scores were struggling. Those were the ones that we focused on this year for the common planning. We also tell them that we will give them professional leave. We've had several who take a day and just meet. If they want to make a common assessment, and they don't have time during the day or whatever, we give them a professional leave day, we put them down in the conference center, and they just meet all day long.

The principal shared an additional strategy of master schedule manipulation to use teacher proximity to encourage and ease the burden of collaboration for student success. Teachers can use real-time data gathered during class to share necessary instructional adjustments between the bell changes for students. One adjustment to the master schedule created common planning time was discussed earlier; however, the strategy of putting teachers of similar content areas in classrooms with proximity has become a critical strategy for sustaining the work of continuous improvement, discussed here by the principal:

If I'm an English 9 teacher, I have a little row of English 9, so that even in the 5 minutes between classes, if we're all doing the same thing because our PLC is talking about the same thing, I can run across the hall and say "I just tried that and it didn't work, you might want to try this." So we're finding those conversations are happening more now.

With a strong culture in place and several strategies for overcoming the barriers of the high school context, Waterman presented evidence that they are a school deeply entrenched in continuous improvement through PLCs. Since her inception as the principal of Waterman seven years ago, the school has made continuous efforts to maintain a focus on school improvement. Using the culture established by the founding principal, the current principal designed, implemented, and is currently sustaining a culture of continuous improvement through the work of PLCs.

DISCUSSION

Data from the survey, interviews, and analysis of *The Way*, led us to believe that continuous improvement remains a clear focus at Waterman. The original principal of the school developed a culture so deeply ingrained in the values, beliefs, traditions, assumptions, and shared systems—as we have defined as the basis of culture for this article—that new members are asked about elements of innovation and improvement as early as the interview process. What remains unclear, however, is the school's capacity to overcome the obstacles of isolation in the high school context identified in the literature (Archbald & Porter, 1994; McLaughlin & Talbert, 1993, 2001; Siskin, 1994, 1997). For a deeper understanding of Waterman's culture, we turned to our conceptual framework and the three barriers—subject division, organizational structure, and professional autonomy—to analyze the data.

Subject Division

Although there are at least five cross-curricular PLCs established for leadership and operational purposes at Waterman (School Planning Council, Principal's Advisory Committee, Promethean Power Users, Synergy Super Trainers, and Teacher Resource Team), 38 content-specific PLCs exist that help to solidify the compartmentalized nature of high schools. There was, however, one common bond that defied the borders of subject and content area—*The Way*. The school culture prominently and clearly shaped the values and behaviors of the individuals at Waterman, including the students. Waterman's focus on a particular culture, *The Way*, was the standard held throughout the organization, regardless of the subject taught or the learning readiness levels of the students. Despite the domination of teacher teams comprised of subject and content areas, there was collective ownership for student learning and student success at the case study school, held by the common bond of *The Way*.

Additionally, the survey data related to values and the school leadership team's collaborative work with teachers on continuous improvement efforts reinforce the interview and document data about Waterman's culture. The survey data indicated that teachers in the PLCs at Waterman agree that teachers share common values related to their impact on student learning outcomes ($M = 3.35$, $SD = 0.63$) and school leaders work collaboratively with teachers on continuous improvement efforts ($M = 3.19$, $SD = 0.63$). Interestingly, the participants scored the *common values* prompt the highest of the 17 in the survey.

Organizational Structure

The five cross-curricular PLCs developed by the principal to support instruction and operations at Waterman were one of several strategies to sustain continuous improvement through conversations about teaching and learning. Another included learning walks conducted by teams of teachers who had common planning time. During the second year of PLC implementation, the principal and her leadership team led the school through an assessment showcase, in which the faculty worked across departmental lines and between the traditional separation of teachers and administrators. Additionally, the survey data indicated that collaboration and dialogue were prominent in the work of the PLCs throughout Waterman in six key areas: establishing goals ($M = 3.21$, $SD = 0.61$), creating instructional materials ($M = 3.15$,

$SD = 0.76$), learning together ($M = 3.11$, $SD = 0.68$), analyzing assessment data ($M = 2.94$, $SD = 0.77$), collaborating to improve student outcomes ($M = 3.15$, $SD = 0.71$), and reflecting on teaching practice ($M = 3.19$, $SD = 0.67$).

Finally, the principal indicated that teaching and learning conversations were a focus as the administrative team developed the master schedule. Waterman used common planning time and collaborative meetings each Monday throughout the school year to set the conditions necessary for meaningful dialogue about improving teaching and learning. Despite the administrative team's attempt to create a context for continuous improvement through time, space, and necessary supports, the survey data suggested there might be a gap between the organizational structure and the effectiveness of PLC work. In the Conditions section of the survey, the overall mean for the three prompts was 2.83. Time ($M = 2.57$, $SD = 0.92$), Space ($M = 3.00$; $SD = 0.68$), and necessary supports ($M = 2.91$, $SD = 0.62$) were among the lowest scoring prompts on the 17-item survey.

Professional Autonomy

Prior to implementing the work of PLCs at Waterman, the interview participants shared that there was an isolated nature to their professional practice. The principal used the egg crate metaphor and PLC leaders and teacher interview participants discussed teacher resistance and reluctance to work together and share resources. Additionally, the survey prompts regarding expertise and autonomy yielded two of the lower mean response scores than the majority of responses: teachers feel valued for their expertise ($M = 2.87$, $SD = 0.63$) and teachers have autonomy to make collaborative decisions regarding the work of their PLCs ($M = 3.00$, $SD = 0.71$).

The teachers, however, are working to sustain their efforts in deprivatizing practice at Waterman. Team learning walks to observe instruction and collaborative planning processes are two strategies the interview participants indicated are assisting with breaking the isolated mold. Additionally, two of the survey prompts indicated that teachers are working toward collective autonomy as a team of professionals versus individual professional autonomy—examination of instructional practices in classrooms ($M = 3.08$, $SD = 0.70$) and collaborative reflection on teaching practices ($M = 3.19$, $SD = 0.67$). The question still remains as to how a culture so deeply entrenched can overcome the isolated and compartmentalized traditions of high schools; however, one conclusion we were able to draw is the important role the principal holds throughout the process of sustaining a culture of continuous improvement.

CONCLUSION

In a new building with new faculty members, we found the importance of the school leader's role in establishing a culture of continuous improvement. The original principal of Waterman single-handedly developed and implemented a code to be followed as the organizational culture, thereby contradicting Hord's (1997) dimensions of shared vision and collective responsibility, *The Way* appeared to be the consistent factor over the past 20 years at Waterman. The case study school held deeply ingrained values, beliefs, traditions, assumptions, and shared systems that were originally developed by one person, the original leader of the school. Additionally, the current principal who developed, implemented, and now sustains the work of PLCs focused on continuous improvement, is responsible for maintaining the structure

to support the culture. The data revealed that Waterman is still working to provide the structure necessary to support a culture of improvement through PLCs, including breaking through the departmentalized nature of the high school context. The three barriers found in the literature on high school culture and used as the conceptual framework for this study elucidate the role of the principal in creating the conditions to break subject division, design the organizational structure to support teacher dialogue about improving teaching and learning, and transition the value of autonomy from individual to collective. Waterman's work to address the three elements of the high school context in relation to school culture clearly shows that it supports and focuses on continuous improvement.

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