Enabling school structures, collegial trust and academic emphasis: Antecedents of professional learning communities

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Abstract
This study tested the role of enabling school structures, collegial trust and academic emphasis in the development of professional learning communities (PLCs) in a low-income school district. The empirical study was based upon the perceptions of teachers and principals as provided by survey responses ($N = 67$ schools). While enabling school structures, collegial trust and academic emphasis simultaneously contributed to the explanation of PLCs, only structure and trust had a unique effect on PLCs with structure having the larger contribution.

Keywords
academic emphasis, collegial trust, enabling school structures, professional learning communities

Introduction

Historically, educational research has looked to organizational structure as a key variable for understanding school change (Hargreaves and Goodson, 2006). Indeed, the history of the 'restructuring' movement of the 1990s suggests that practitioners and researchers alike have long sought a structure that might assist educators to achieve educational goals (Hipp et al., 2008; Hord, 1997, 2004; Louis and Marks, 1998; McLaughlin and Talbert, 2001, 2006). Since then research has focused on the relationship between school structure and school success, primarily attending to posited relationships between structures and student learning, teacher effectiveness, trust and other salient outcomes (Bottery, 2003; Bryk and Schneider, 2002; Cosner, 2009; Honig and Hatch, 2004; Little and Curry, 2009; Tschannen-Moran, 2004).

Of particular interest has been the study of professional learning communities (PLCs). Literature concerning the development of PLCs suggests that when functioning effectively, the structure

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can have positive effects on student achievement and academic progress (Bryk et al., 1999; Gray, 2011; Louis and Marks, 1998; McLaughlin and Talbert, 2003; Wahlstrom and Louis, 2008). However, while there is much in the prescriptive professional literature extolling the virtue of the PLC, little is understood about how effective PLCs are cultivated and developed (Louis and Marks, 1998; McLaughlin and Talbert, 2003; Spillane, 2005; Supovitz, 2002). Furthermore due to poor implementation and/or efforts to sustain collegiality and focus (Hipp and Huffman, 2010; Hord and Tobia, 2012) PLCs have been found to fail in producing intended results. However, other work (Gray, 2011) has demonstrated that as a school improvement model, PLCs offer educators a structure to improve school culture and climate and increase student achievement. Finally, the literature suggests that PLCs promote teachers' sense of professionalism, collegial trust, participation in shared decision making and collaboration (Gray, 2011; Hipp and Huffman, 2010; Hord, 1997, 2004, 2007, 2009; Huffman and Hipp, 2003; Kruse and Louis, 1993a, 1993b; Kruse et al., 1994; Louis and Kruse, 1995; Lieberman and Miller, 2008; McLaughlin and Talbert, 2001, 2006; Wahlstrom and Louis, 2008).

We will explore the role of enabling school structures (ESS), collegial trust (CT) and academic emphasis (AE) in the development of PLCs in a low-income school district. The formal aspects of the school will be represented by enabling school structures while the informal aspects will be characterized by the variables collegial trust and academic emphasis, based upon the perceptions of teachers and principals as provided by survey responses ($N = 67$ schools). Previous research has established that each of these factors is essential to the development, maintenance and sustenance of PLCs (Gray, 2011; Wu et al., 2012; Hord, 2009).

Theoretical Framework

This study hypothesizes that enabling school structures, collegial trust and academic emphasis will individually and jointly predict the development of professional learning communities. While there is emerging research about collegial trust, enabling school structures and academic emphasis, to our knowledge, none has been applied in context to PLCs (Hipp et al., 2008; Hord, 1997, 2004; Hord and Summers, 2008; Huffman and Hipp, 2003; Louis and Kruse, 1995; McLaughlin and Talbert, 2001, 2006). It is our hope that the current study will further expand the theoretical knowledge base through empirical data and inform classroom practice in low-performing schools.

PLCs are promoted as a major restructuring effort for schools and contributor to increased student achievement (Hipp et al., 2008; Hord, 1997, 2004; McLaughlin and Talbert, 2001, 2006). Employing the foundational literature described above, in this study we are making assumptions that PLCs are an effective approach to school improvement, ESS provides the structure to enhance PLCs, academic emphasis is an important characteristic of the school vision and mission, and finally that collegial trust is an essential aspect of PLCs.

An enabling school structure (ESS) represents the teachers' belief that the administration and rules of the school help them in their work (Hoy and Sweetland, 2001). Hoy and Miskel (2008: 110) assert 'an enabling school structure is a hierarchy that helps rather than hinders and a system of rules and regulations that guides problem solving rather than punishes failure'. In enabling schools teachers and leaders work cooperatively and resolve issues through shared decision making; thus, providing structure and support that helps teachers to do their jobs more effectively (Wu et al., 2012).

Collegial trust is the faculty belief 'that teachers can depend on one another in a difficult situation; teachers can rely on the integrity of their colleagues' (Tschannen-Moran and Hoy, 1998:

342). Collegial trust is based upon the teacher's willingness to be vulnerable to his fellow teachers, while trust in principal varies because of the power structure of the organization and supervisory role of the principal over the teacher (Gray, 2011; Hoy, 2012). Principals need to understand that 'a culture of school trust is often as important as socioeconomic level in promoting learning and . . . a necessary essential condition for effective professional learning communities' (Hoy and Tarter, 2012).

Finally, academic emphasis is the 'extent to which the school is driven by a quest for academic excellence' (Hoy et al., 1991: 62). Teachers, parents and school leaders set high academic goals for students (Hoy et al., 1991). Academic emphasis was 'positively related to school achievement even after controlling for SES' (Hoy et al., 1991). In short, goals are set for students that are high but possible to attain, a safe and orderly learning environment is established, and students value academic achievements (Hoy et al., 1991; Hoy et al., 2006; Hoy and Miskel, 2008). Hoy describes academic emphasis as an essential property that affects student achievement despite the socioeconomic status and level of the school (Hoy, 2012).

In the almost twenty years since the PLC framework was first developed, others (Hord and Summers, 2008; Huffman and Hipp, 2003; McLaughlin and Talbert, 2001, 2006; Olivier and Hipp, 2010) have suggested that the conditions included in the original work may well be more complex and as such, while necessary for the development of PLCs, are not sufficient to ensure success. Salient to the current study, and in keeping with the history of PLC research, enabling school structures are represented by the structural conditions, collegial trust by social support, and academic emphasis and collective efficacy by the characteristics and benefits.

Conceptual Framework

Organizational Learning – the Origin of Professional Learning Communities

Senge (1990) introduced the concept of organizational learning as a different type of 'organizational structure' to address a changing society. He (1990: 3) defines a learning organization as a place 'where people continually expand their capacity to create the results they truly desire . . . where people are continually learning how to learn together'. Applying the construct to schools, Hoy asserts organizational policies, practices and procedures that promote trusting relationships among colleagues, and encourage active problem solving enable organizational learning (Hoy, 2002). Additional work by Hoy and Sweetland (2007: 361), hypothesizes 'that enabling school structures are important to the development of effective learning organizations'. Furthermore, Serrat (2009) asserts that organizational learning improves the overall health of the school in the development of shared goals and values, opportunities for teacher leadership, more open communication between colleagues, and constructive problem solving. In schools, the constructs of organizational learning are posited to operate with a professional learning community (Hord, 1997; Louis and Kruse, 1995; Kruse et al., 1994; Olivier, Hipp, and Huffman, 2010).

Professional Learning Communities

For this study we selected the Hord (1997) definition as the best fit as its research led to the development of the Professional Learning Communities Assessment – Revised (PLCA-R) instrument, which was implemented to gather empirical data (Olivier et al., 2010; Appendix A). SEDL (Southwest Educational Development Laboratory) credits Hord with the development of the term professional learning communities in the 1990s, which is accepted by many researchers in the field of

education (Hord, 1997). Hord defines a professional learning community as a collegial group of faculty and staff who are united in their commitment to student learning (Hord, 1997).

According to Hord, PLCs encompass these common characteristics: supportive and shared leadership, collective creativity, shared values and vision, supportive conditions and shared personal practice (Hord, 1997). For teachers to be willing to take risks and try new instructional strategies, they must feel supported to do such (Kruse et al., 1994). As teachers are more involved in shared decision making and collegial relationships, expectations are more formalized, and professional activity among teachers is encouraged, they tend to perceive the school to be more effective (Miskel et al., 1979). 'In order for students and teachers to benefit from empowerment, a professional community must develop among teachers, one committed to fundamental change in teaching practices' (Kruse et al., 1994).

The conceptual framework for this study is based upon early work in PLCs that established that certain structural conditions are important in the development of an effective PLC: time to talk and meet, physical proximity, interdependent teaching roles, communication structures, teacher empowerment and school autonomy (Kruse et al., 1994; Louis and Kruse, 1995). Further, certain social and human resources are critical to PLC development to include openness to improvement, trust and respect, cognitive and skill base, supportive leadership and socialization, which will be considered in the form of collegial trust (Louis and Kruse, 1995). For this study enabling school structures will represent the formal structure, that which supports teachers performing their instructional tasks more effectively. While the informal aspects of the school will include teacher perceptions of collegial trust and academic emphasis, these relate to the social and human resources needed to support the development of the PLC (Louis and Kruse, 1995).

Enabling School Structures

Enabling school structures represent the teachers' belief that the rules and administration of the school help them in doing their work (Hoy, 2002, 2012; Hoy and Sweetland, 2000, 2001). While we acknowledge the complexities of the construct of enabling school structures, the variability of ways to measure such, and given the parameters of this study, we found the Hoy and Sweetland (2000) definition to be the most appropriate for our purposes. By definition, all formal organizations are centralized to some degree, that is, they all have administrative decision making. Similarly, all formal organizations are formalized to some degree; that is, they all have written rules and regulations. The conceptual importance of enabling structure is the recognitions that some bureaucratic arrangements contribute to the effectiveness of the organization – enabling – and some do not – hindering.

Hoy (2002: 91) asserts that enabling school structure is built upon a 'hierarchy of authority and a system of rules and regulations that help rather than hinder the teaching learning mission of the school'. Enabling structures allow teachers to solve problems with the support of the principal who encourages openness and professionalism (Hoy and Sweetland, 2007). In contrast, hindering school structures are more tightly controlled or managed by the principal (Hoy, 2002). In all organizations the formalization of the organization ranges along a continuum from hindering to enabling (Hoy, 2002).

Miskel et al. (1979: 114) summarize that teachers who viewed their school as effective were 'characterized by (a) more participative organizational processes, (b) less centralized decision making structures, (c) more formalized general rules, and (d) more complexity or high professional activity'. Hoy and Sweetland (2007: 362–363) assert that for schools to improve there must be a

'structure that enables participants to do their jobs more creatively, cooperatively, and professionally'.

In respect to the development of the professional learning community, we assert that the enabling school structures are operationalized by opportunities for teachers to meet and collaboratively plan lessons together, the development of interdependent teaching roles and regularly scheduled time for professional development (Louis and Kruse, 1995). The principal facilitates these structures within the organization by fostering shared decision making and encouraging collaboration among teachers. In turn, these enabling structures provide teachers with a sense of support and a positive culture that 'emphasizes trust, efficacy, and academics' (Wu et al., 2012) and increases teacher empowerment and dignity (Louis and Kruse, 1995).

Collegial Trust

Supporting social and human resource conditions of the professional learning community are collegial trust and academic emphasis. Trust has long been posited as essential in the development of collegial relationships (Cohen, 1988; Firestone and Rosenblum, 1988; Louis and Kruse, 1995). Certainly, research in the last 25 years has established trust as an important organizational factor in schools (Bryk and Schneider, 2002; Forsyth et al., 2011; Hoy and Tschannen-Moran, 1999, 2003; Tschannen-Moran, 2004; Tschannen-Moran and Hoy, 1998). Collegial trust is the faculty belief 'that teachers can depend on one another in a difficult situation; teachers can rely on the integrity of their colleagues' (Hoy and Kupersmith, 1985: 2). Again, we acknowledge the complexities of the construct of trust, in particular teacher trust in colleagues. Trust can be measured by a variety of constructs, however we selected the Hoy and Tschannen-Moran definition for the sake of this study as the most appropriate construct.

Hoy (2012: 78) asserts 'faculty trust was conceived as the collective belief that the word and promise of another individual or group could be relied upon, and further, that the trusted party would act in the best interest of the faculty'. Hoy and Tschannen-Moran characterized the five facets of trust: benevolence, reliability, competence, honesty (Hoy and Tschannen-Moran, 2003). In other words those who view their colleagues as honest, open, competent, reliable and professional will tend to have more trust in their colleagues. In the midst of change, trust plays an important role as teachers view their fellow educators as invested in the process of improving the school (Louis and Kruse, 1995). In the same manner in which professionals trust each other, they need to share a common belief in the ability of their students in the form of academic emphasis.

Academic Emphasis

Academic emphasis is defined as the 'extent to which the school is driven by a quest for academic excellence' (Hoy et al., 1991). High and achievable academic goals are set for students by both teachers and parents (Hoy et al., 1991). Students are expected to work hard, seek additional work, be cooperative and to respect others who achieve good grades and academic success (Hoy et al., 1991). There is a focus on learning with the belief that all students have the ability to be successful academically (Hoy, 2012). Parents and teachers alike press all students for academic achievement (Hoy et al., 2006). 'A school climate with a strong academic emphasis influences not only individual teacher and student behavior but also reinforces a pattern of collective beliefs that are good for the school' (Goddard et al., 2000: 698). In other words, academic emphasis affects the collective beliefs of teachers in a positive way.
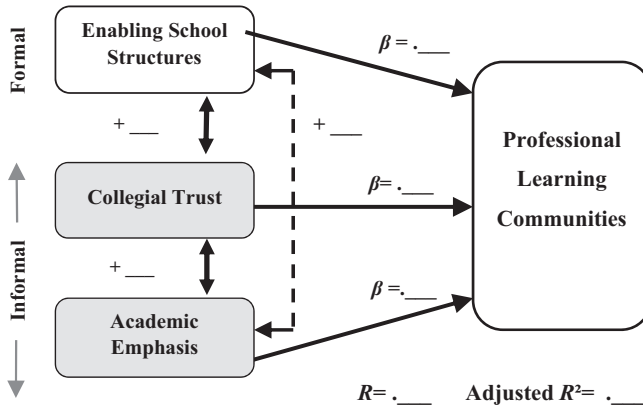
Figure 1. Conceptual diagram of hypothesized relationships.
Note: **p < 0.01

In Figure 1 we demonstrate a conceptual diagram of the hypothesized relationships of the variables in this study. Enabling school structures will represent the formal aspects of the school while collegial trust and academic emphasis will characterize the informal facets of the organization. We assert that an explicit focus on enabling school structures, collegial trust and academic emphasis is a necessary antecedent of the development of strong mature professional learning communities. Clearly, the intensification of each is also an outcome of the work of teachers within nascent or developing professional learning communities. In this way, the establishment of these factors is iterative and mutually informing. We also consider the collective and reciprocal relationships of the variables of this study.

Methodology

An existing database from a large southeastern school district provided the data for this study. The sample consists of 67 public elementary, middle or high schools in the large metropolitan district. The majority of the students in the 67 schools qualified for free and reduced lunch services, a widely accepted indicator and proxy of low socioeconomic status (NCES, 2012). Teachers completed surveys online via the Qualtrics Research Suite™ software, which was exported to Excel and then SPSS for statistical analysis.

Hypotheses

The preceding literature makes a case for a zero-order correlation of all the variables. Structure by itself as well as each dimension of trust should correlate with each other and with professional learning communities. The independent variables represent the formal and informal elements of organization and should be connected to any organizational element of the school.

Therefore, we hypothesized:

> **H1:** Enabling structure, collegial trust, academic emphasis and professional learning communities will correlate with each other.

While each of the independent variables would logically contribute to the development of the learning communities, there was no guiding literature as to which elements would be greater contributors. Consequently, we used the phrasing of simultaneous regression and hypothesized the following:

H2: Enabling structure, collegial trust, and academic emphasis will individually and jointly contribute to an explanation of professional learning communities.

Instrumentation

Professional Learning Communities

PLC development was measured by a shortened version of the Professional Learning Community Assessment (PLCA) instrument, which was developed by Olivier et al., but revised to form the PLCA-R (Olivier et al., 2003; 2010). The Cronbach alphas for the subscales ranged from 0.82 to 0.94 (Olivier and Hipp, 2010), meaning that the items were reliable and consistent in what they are meant to measure. The subscales of the PLCA-R include: shared and supportive leadership, shared values and vision, collective learning and application, shared personal practice, supportive conditions – relationships and supportive conditions – structures (Olivier, 2003: 69; Olivier et al., 2003, 2010). Sample items include: 'Leadership is promoted and nurtured among staff members', 'Professional development focuses on teaching and learning', and 'Opportunities exist for coaching and mentoring' (Olivier et al., 2003, 2010).

The shortened version of the PLCA-R is a 12-item, Likert-type scale with answers ranging from 'strongly disagree' to 'strongly agree' (Olivier et al., 2003, 2010). The shortened form of this instrument was developed after two items were selected from each of the six subscales. A pilot study was conducted in eight schools (elementary, middle and high) in a small southeastern school district. Further, factor analysis was performed to determine that the shortened version of the PLCA-R had high internal reliability with a Cronbach's alpha of 0.92 (Gray, 2011), meaning the items were reliable.

Enabling School Structures

Enabling school structures was measured using a 12-item, five point Likert-type scale that ranges from 'never' to 'always' and was reliable in the high 0.8 s and 0.9s (Hoy and Sweetland, 2001). Sample items include, 'Administrative rules help rather than hinder', 'The administrative hierarchy of this school enables teachers to do their job', and 'Administrative rules in this school enable authentic communication between teachers and administrators' (Hoy and Sweetland, 2001: 307). The Cronbach's alpha was 0.91 for this study, demonstrating high internal reliability (Gray, 2011).

Collegial Trust

Collegial trust was measured by a subscale of the Omnibus Trust instrument, Omnibus T Scale (Hoy and Tschannen-Moran, 1999, 2003). This scale is comprised of a 26-item, six-point Likert-type scale including three subscales: teacher trust in principal (eight items), teacher trust in students and parents (ten items), and teacher collegial trust (eight items). The choices for response ranged from 'strongly disagree' to 'strongly agree'. Sample items include, 'Teachers

in this school are open with each other', 'The teachers in this school do their jobs well', and 'Teachers in this school trust each other', (Hoy and Tschannen-Moran, 2003: 189). The alpha coefficient of reliability for collegial trust is 0.94 (Hoy and Tschannen-Moran, 1999) and 0.91 for this study (Gray, 2011), both demonstrating high internal reliability.

Academic Emphasis

Academic emphasis was measured by a subscale of the Organizational Health Index (OHI), an eight-item Likert-type scale with an alpha coefficient of 0.93 (Hoy et al., 1991) and 0.89 for this study (Gray, 2011), which represent high internal reliability. Responses range from 'rarely occurs' to 'very frequently occurs' and sample items include 'Academic achievement is recognized and acknowledged by the school' and 'The school sets high standards for academic performance' (Hoy et al., 1991).

Control Variables

The control variables for this study include school level, elementary, middle and high school, and socioeconomic status (SES) of students enrolled in each school. It is our belief that elementary schools will be more likely to have developed PLCs than middle or high schools. Finally, the percentage of students eligible for free and reduced lunch services, an indicator of household income and therefore socioeconomic status, will be used to determine the SES of each school of the study (Wu et al., 2012). For the sake of this study we categorized a school with more than 50% of its students eligible for free and reduced lunch services as having low socioeconomic status (NCES, 2012). The majority of the schools in the study had low socioeconomic status and thus more impoverished populations (NCES, 2012).

Data Collection

Approximately 3700 teachers and 190 principals and other administrators were invited to participate using the Qualtrics Research Suite™ online survey. The local teacher union, as well as the district, supported the data collection and reminders were sent out. As a result there was a 74% return rate for the surveys with 67 out of 89 schools choosing to participate. The final sample consisted of 45 elementary schools, 13 middle schools and 9 high schools.

We gathered data from a large school district with enrollment of over 62,000 students, ranging from 90 to 2123 students, with a mean of 685 students per school. Each school employed from 12–126 teachers, with a mean of 41 teachers per school. Of the 3700 invited participants, 42% had a bachelor's degree, while 51% had a master's degree and 4% had advanced degrees beyond a master's degree.

The overall completion rate for teacher participants was 75% (67 participated out of 89 schools invited) with the school as the unit of analysis. Because we are investigating collective, school level variables, enabling school structures, collegial trust and academic emphasis, we needed to assess the development of PLCs in the same way, as a collective, school level variable for this study (Hoy, 2012). Further, 'the PLC model represents a set of ideas that its advocates use to harness the collective learning of school organizations in the interest of student learning' (Johnson, 2009: 26).

Table 1. Descriptive statistics of all variables.

	N	Minimum	Maximum	Mean	SD
Professional Community (PLC)	67	2.39	3.81	3.0218	0.33181
Enabling Structures (ESS)	67	2.43	4.77	3.9948	0.43759
Collegial Trust (CT)	67	3.29	5.80	4.6205	0.52674
Academic Emphasis (AE)	67	1.83	3.80	3.0205	0.47024
School Level (Level)	67	1.00	3.00	1.4242	0.65775
% Free/Reduced Lunch (SES)	67	.34	.99	.7425	0.18956
Valid N (list wise)	67				

The respondents represented 42% of all teachers invited to participate (1713 surveys completed out of 4082 teachers invited), however the teacher was not the unit of analysis for this study. The 22 principals who chose not to have their schools participate mentioned time constraints, busy schedules and voluntary nature of the survey as reasons for nonparticipation (Gray, 2011).

Data Analysis

The independent variables for this study were enabling school structures, collegial trust and academic emphasis, while the dependent variable was the development of PLCs. The unit of analysis was the school; therefore individual respondent scores were aggregated to the school level for the independent and dependent variables of this study. The Pearson correlation coefficient was used to consider the relationship between each of the independent variables (ESS, collegial trust and academic emphasis) with the dependent variable, the development of professional learning communities, and with the other independent variables. Multiple regression analysis was used to determine the individual and collective relationships between the independent variables to the dependent variable. The control variables were SES (measured by 1 – free/reduced lunch) and school level (elementary, middle or high).

Findings

Hypothesis 1 was supported; all the variables were significant correlated with one another (see Table 2). Enabling school structures, collegial trust and academic emphasis had significant correlations with PLCs.

In Figure 2 ESS, collegial trust and academic emphasis explained approximately 68% of the variance in PLCs development over and above school level and SES. Enabling school structures made a substantial contribution to PLCs development ($\beta = 0.54$, $\rho < 0.01$), while academic emphasis had a smaller effect on PLCs ($\beta = 0.32$, $\rho < 0.01$) (Figure 2, Tables 3 and 4). Collegial trust did not demonstrate a significant effect of PLCs development (Figure 2, Table 3).

Descriptive Analysis

Our first level of analysis involved obtaining descriptive statistics and bivariate correlations of the variables in our study. The descriptive statistics for our sample of schools revealed that PLC development ranged from 2.39 to 3.81 with a mean of 3.02 and a standard deviation of 0.33. Enabling school structures ranged from 2.43 to 4.77 with a mean of 3.99 and a standard deviation of 0.44.

Table 2. Pearson correlations of all variables ($N = 67$).

	Enabling Structures	Collegial Trust	Academic Emphasis	School Level	SES (1 − FRL)
Professional Community (PLCs)	0.73[**]	0.57[**]	0.65[**]	−0.36[**]	−0.07
Enabling Structures (ESS)	1	0.35[**]	0.38[**]	−0.17	−0.14
Collegial Trust (CT)		1	0.65[**]	−0.30[*]	0.16
Academic Emphasis (AE)			1	−0.51	0.08
School Level				1	0.15
Socioeconomic Status (SES)					1

Notes: **Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).
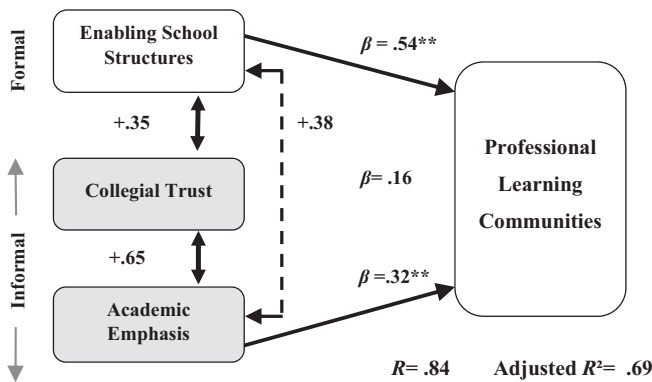

Figure 2. Conceptual diagram of hypothesized relationships with results.
Note: **$p < 0.01$

Table 3. Regression of PLCs on ESS, collegial trust, AE, school level and SES.

	Coefficients[a]				
	Unstandardized Coefficients		Standardized Coefficients		
Model	B	SE	Beta	*t*	Sig.
1 (Constant)	0.286	0.295		0.970	0.336
Enabling Structures (ESS)	0.401	0.059	0.535	6.811	0.000
Collegial Trust (CT)	0.105	0.063	0.159	1.676	0.099
Academic Emphasis (AE)	0.236	0.078	0.318	3.012	0.004
School Level (Level)	−0.029	0.045	−0.055	−0.652	0.517
Socioeconomic Status (SES)	−0.061	0.137	−0.033	−0.444	0.659

Note: Dependent Variable: PLCs

Collegial trust varied from 3.29 to 5.80 with a mean of 4.62 and a standard deviation of 0.53. Academic Emphasis ranged from 1.83 to 3.80 with a mean of 3.02 and a standard deviation of 0.47. The percentage of students eligible for free and reduced lunch services ranged from 34% to 99% with a mean of 74% and a standard deviation of 19%.

Table 4. Regression model (PLCs regressed on all variables).

		Model Summary		
Model	*R*	*R* square	Adjusted *R* square	SE of the Estimate
I	0.840[a]	0.706	0.682	0.19652

Note: [a]Predictors: (Constant), Collegial Trust, Academic Emphasis, Enabling Structures, School Level, SES

Bivariate Correlational Analysis

Hypothesis 1, which stated 'enabling structure, collegial trust, academic emphasis and professional learning communities will correlate with each other', was confirmed as demonstrated in Table 2. PLC development was positively correlated with enabling school structures ($r = 0.73$, $\rho < 0.01$), Collegial Trust ($r = 0.57$, $\rho < 0.01$), and Academic Emphasis ($r = 0.65$, $\rho < 0.01$). In other words, the correlations represent the greater the degree of PLC development and the higher the teachers' perceptions of enabling school structures, collegial trust and academic emphasis, accordingly. PLC development was negatively correlated with School Level ($r = -0.36$, $\rho < 0.01$) indicating that PLC development was higher at the elementary school level and tended to progressively decline at the middle school and high school levels. There was no significant correlation between PLC and SES, as measured by the percentage of students eligible for free and reduced lunch services ($r = -0.07$, $\rho < 0.01$).

The 0.73 ($\rho < 0.01$) correlation for PLCs and ESS represents the strongest correlation between variables in this study, which is also significant. In other words, as teachers' perceptions of the development of PLCs are greater, so are their perceptions about enabling school structures. The same can be said for the relationship between PLCs and collegial trust. The correlation for both Academic Emphasis and PLCs and for Academic Emphasis and Collegial Trust is 0.65 ($\rho < 0.01$), which signifies strong and significant relationships between these independent variables. The correlation of PLCs with Collegial Trust ($r = 0.57$, $p < 0.01$), which is moderate to strong in a positive direction as well as significant.

As one of the control variables, School Level had moderate, inverse correlations with several of the independent variables: School Level and PLCs ($r = -0.36$ $\rho < 0.01$) and School Level and Academic Emphasis ($r = -0.51$, $\rho < 0.01$) as demonstrated in Table 2. The other control variable, SES, was not significantly correlated with any of the variables in our study.

Regression Analysis

Enabling school structures had a significant positive effect on PLC development ($\beta = 0.54$, $\rho < 0.01$). Academic Emphasis also shared a positive significant effect of PLCs ($\beta = 0.32$, $\rho < 0.01$). Collegial Trust and the control variables did not demonstrate a significant effect on the development of PLCs (see Table 3). In Table 4 the dependent variable, PLCs, is regressed on ESS, CT, AE, Level and SES. Together ESS, collegial trust and academic emphasis explained approximately 69% of the variance in PLC development over and above school level and SES (Table 4, Figure 2).

Scholarly and Practical Significance of the Study

This study demonstrates the importance and necessity of enabling school structure, collegial trust and academic emphasis, yet the regression reveals that the structural dimension has more effect

than the relational dimension as represented by the trust variable. The empirical findings demonstrate the importance of establishing enabling school structures as an antecedent to the development of professional learning communities. The reciprocal relationship of ESS and PLCs confirms the hypotheses and shows that one depends upon the other for sustenance. Practically, this study suggests that the development of PLCs that foster increased collaboration and in turn, attention to student learning outcomes rests on a school leader's ability to foster these conditions and factors. Therefore, this study further adds to our knowledge of professional learning communities and to the field of literature.

Theoretical Implications

This study asserts that any structural implementation, in this case, professional learning communities, must be built upon a foundation from both the informal and formal organization. The formal structure of the PLC allows change, as it relates to classroom instruction and assessment practice, to be institutionalized within the school organization. In turn, change that may have been resisted becomes a more routine function of the school (Hord, 2004). Acting as a change agent within the school the principal may share, distribute or intensify the power of the formal organization through increased opportunities to be part of school decision making and leadership (Hord, 2004; Kruse and Louis, 2009). Informally, it may be that PLCs provide the structure in which trust is developed and in turn, creates the conditions that foster change and innovation.

Following a long history in the PLC research (Hord, 2007; Hoy and Sweetland, 2000; Huffman and Hipp, 2003; Kruse and Louis, 1993a, 1993b; Louis and Kruse, 1995; Louis and Marks, 1998; McLaughlin and Talbert, 2001, 2006;) this study confirms that both structural and social and human resource conditions must be in place for a professional learning community to be established in a school. In particular, data here suggest that both formal and informal aspects of the organization contribute to the development of PLCs.

Our data suggest that enabling school structures, collegial trust and academic emphasis are antecedents to the development of a professional learning community. This finding is not surprising; it makes sense that the operational aspects of organizational leadership provide a foundation for the development of social and professional relationships among faculty, staff and community. What is interesting, we believe, is the finding that formal organizational structures appear to be a necessary condition for community building. In this way, our study suggests that school leaders must attend to the development of the formal organization as the means to attain their end goals of student learning. In this way, efforts that rely on the simultaneous development of the formal and informal organization may be less fruitful than those who attend first to enabling structures.

Our implication is supported by Hoy (2002: 91) who contends 'when school structure was enabling, teachers trust each other, demonstrate professional autonomy, are not bound by rigid rules, and do not feel powerless'. Enabling school structures allow the principal to 'foster trust and value differences' in order to support organizational learning (Hoy, 2002: 89). Because PLCs are sub-organizational elements, they maintain features of organizations generally; in varying degrees they have centralization, specialization and formalization (Hoy and DiPaola, 2008; Mintzberg, 1983). We contend that enabling structures are essential for the formalization and centralization within professional learning communities. Our findings further support those of DiPaola and Hoy (2008) who contend that principals may empower teachers by encouraging initiative and fostering

trust via formalization, while promoting collaboration, cooperation and innovation via the centralization of the organization.

This study demonstrates the necessity and importance of enabling school structures and collegial trust, yet the regression indicates that the structural dimension has more effect than the trust variable. The empirical findings emphasize the importance of established enabling school structures as an antecedent of professional learning communities (Gray, 2011). One cannot exist or be sustained without the others. This reciprocal relationship confirms the hypotheses, further extending what is known about professional learning communities (see Table 2). Prior to this study, the importance of establishing enabling school structures in professional learning communities, as described by Hord, had not been addressed (Gray, 2011). Therefore, this research adds to our knowledge about PLCs as well as to the field of literature.

Limitations

While our findings are thought provoking and provide evidence of the importance of enabling school structures, collegial trust and academic emphasis in the development of PLCs, this study took place in one large metropolitan school district in the southeast and may not be generalizable to other contexts. We are cautious in interpreting our findings because of the possibility of multicollinearity between the independent variables (Cohen and Cohen, 1983), as some items in the PLCA-R are similar to items in the ESS and AE instruments. However, we were able to eliminate the possibility of multicollinearity with further statistical analysis. The Variance Inflation Factor (VIF) for each variable was 'less than ten', which allows us to rule out multicollinearity as an issue (Lomax, 2001: 63). Finally, the tolerance effect for each factor was less than .90, which is not considered to be an issue of multicollinearity (Lomax, 2001).

We also acknowledge there can be limitations in the use of instruments with different Likert-type responses (Norman, 2010). That is to say that comparing a scale with four options for response (PLCA-R and AE) with another with five options (ESS) or six options (Omnibus Trust) may not yield the same results. Therefore, we should be cautious in interpreting these items and making 'inferences about differences in the underlying, latent, characteristic reflected in the Likert numbers, but this does not invalidate conclusions about the numbers' (Norman, 2010: 629).

Conclusion

We acknowledge that it can take years for a school to develop an effective professional learning community with much effort on the part of the teachers and school leaders. Bolam et al. (2005: 3) purport that 'the idea of a PLC is one well worth pursuing as a means of promoting school and system-wide capacity building for sustainable improvement and pupil learning'. This study demonstrates the relationships between enabling school structures, collegial trust, academic emphasis and collective efficacy in developing professional learning communities and addresses a gap in the literature. If PLCs offer schools a model for reform and school improvement, and we believe the literature supports their potential, then educators and school leaders should work together to develop the structures and trust necessary to build these communities of learning.

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