A Comparison of Learning Cultures in Different Sizes and Types

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This study compared relevant data and information about leadership and learning cultures in different sizes and types of high schools. Research was conducted using a quantitative design with a qualitative element. Quantitative data were gathered using a researcher-created survey. Independent sample *t*-tests were conducted to analyze the means of school size factors and learning structures. According to responses from teachers, statistically significant differences existed between small school size compared to shared and supportive leadership and collaborative culture. A one-way ANOVA (analysis of variance) was run to compare means of sub-scales shared and supportive leadership, collaborative culture, collective learning and application and shared values and vision. Implications for practice were suggested based upon literature and data.

Keywords: professional learning cultures, shared decisions-making processes, supportive leadership, collaborative culture

Introduction

Wood (1992), the author of *Schools that Work: America's Most Innovative Public Education Programs*, suggested that making schools smaller is the first step towards enhancing school conditions and improving students' outcomes. The "National Conference of State Legislatures: The Forum for America's Ideas" (2002) summarized that in the last 50 years, the average size of high schools has changed from having fewer than 1,000 students to now having over 1,500 students. The research conducted through this forum found overwhelming support that students in kindergarten through high school are more successful when they attend small schools. "In fact, smaller learning environments positively affect grades, test scores, attendance rates, graduation rates, drug and alcohol use and school safety" (Wood, 1992, p. 1). Effective school leaders recognize the significance of school size.

According to the US Department of Education (2004, p. 1), unequivocal urgency shapes our national discussion of public education. Today's school environments have become more complex and diverse where all children are expected to learn and where high learning standards set the vision of educational success for all students (New York State Education Department, 2003). The demand for effective leadership is clear. School leaders are needed who visualize successful student learning, understand the work necessary to achieve it and have the skills to engage with others to make it happen (US Department of Education, 2004). Research made available on effective leadership, SLCs (small learning communities), ALT (alternative schools), PLCs

(professional learning communities) and non-PLCs (non-professional learning communities) will be useful to school leaders in different size schools.

School Size

Consistency in school size research has found smaller is better (Cotton, 1996; Ehrich, 2005; Fowler, 1992; Jewell, 1989). Cotton (1996) performed an extensive meta-analysis of the research literature on factors affected by school size. She analyzed 69 documents which investigated the effects of school size on achievement, attitudes, social behavior problems, levels of extracurricular participation, and feelings of belonging, interpersonal relations, attendance, dropout rate, self-concept and college-related variables. The author's results found smaller schools were just as effective as larger ones in academic achievement and preparation of students for college entrance. The argument for large schools being more cost-effective depended upon the particulars of the community and the school system, not whether the school was large or small.

Research on student attitudes strongly favors small schools over large ones, with minority and low-social economic students showing the most positive benefits from a small-school environment. The research found that small schools have lower incidences of negative social behavior, with minority and low-social economic students showing the most positive effects from smaller schools. Students in small schools reported higher attendance rates, lower dropout rates and more involvement in a greater variety of activities. Students in smaller schools also felt a greater sense of community and belonging. They reported a stronger sense of personal and academic self-regard and felt stronger, positive interpersonal relationships with teachers in small schools. Cotton (1996) reported fewer studies of teachers and administrators in schools of different sizes, but those who were found, favor smaller schools.

Effective and Participatory Leadership

Administrators face the challenge to understand what makes an effective leader (Lezotte & McKee, 2002; Marzano, McNulty, & Waters, 2005). Effective leaders in high schools strive to provide a safe haven for students and educate students according to their individual needs. The message of No Child Left Behind Act (2002) is that creating secure and welcoming environments is not enough. Schools, whether they are traditional or alternative, must ensure every child is learning. School administrators are being challenged to find the best way to meet each child's needs. The task of raising achievement, child by child, can be baffling. However, if consideration is first made to examine the administrator's leadership style, significant factors may be found that may help improve student performance, staff/student morale, school environment and organizational learning. One such factor is effective leaders utilize staff members in decision-making.

A participatory leadership style incorporates the expertise of staff members. Shared leadership with tacit knowledge enhances the knowledge base and expertise in schools. Schon (1987) discussed the power of tacit knowledge when it is made explicit and shared among other members of an organization. He expressed importance of practitioners holding reflective conversations using the expertise of their experiences and how that knowledge assists in "remaking a part of their practice world" (p. 6). School effectiveness research suggested that staff members and teachers in effective schools can provide instructional leadership as well as principals (Bacharach & Shedd, 1988). With this in mind, empowering teachers to have more voice in decision-making and exercise leadership more often in the school setting may be fundamental to improving student performance. Blanchard and Muchnick (2003) described this type of leadership as "not something you do to people; it's something you do with them" (p. 52). Collaboration with all stakeholders involves a wide

range of competing viewpoints (Brunner, 1998); however, the importance of understanding and listening to staff and their concerns is invaluable. Ogawa and Bossert (1995) agreed that leadership is dependent on relationships, and those relationships help shape organizations and "produce patterns of interaction and meanings that other participants attach to organizational events" (p. 224). These authors described leadership as a medium that flows through the networks of roles that compromise organizations and that "lie in the personal resources of people" (p. 224).

A participatory leader invites others to share the authority of their office and expects them to take on responsibility. This type of leader empowers and shares power with stakeholders and allows them to make decisions. Participatory leaders are open to dialogue, listen to staff and communicate well (Leithwood & Duke, 1999; Yukl, 2002). An effective leader is strong enough to trust others with his/her fate, just as he/she expects their trust in return (Schlechty, 2000). Kouzes and Posner (2002) noted, for a leader to create a trustworthy system, they must get to know their people and provide open communication.

According to Hord (1997), supportive and shared leadership is the phenomenon when "school administrators participate democratically with teachers sharing power, authority and decision-making" (p. 6). Research supporting that the effective schools have invariably ascertained shared leadership is an important component (DuFour & Eaker, 1998; Eaker, DuFour, & Burnette, 2002; Lezotte & McKee, 2002; Marzano et al., 2005; Ogawa & Bossert, 1995; Oliver, Hipp, & Huffman, 2003; Sergiovanni, 1984; Thomas, Enloe, & Newell, 2005). These authors define school leadership as supportive and shared leadership in which school administrators participate democratically with teachers by sharing power, authority decision-making, and by promoting and nurturing leadership among staff. Johnson (1996, p. 11) suggested that,

> Today's school leaders understand both the limits and the potential of their positions, carefully balancing their use of positional authority with their reliance on others, gradually building both a capacity and widespread support for shared leadership and collaborative change.

Fullan (2002) agreed that the role of leadership is to create a greater capacity of leadership in the organization which will gain better results.

Literature Review

Within an organization, the learning culture constitutes valuable and effective measures of organizational success. Nonaka and Takeuchi (1995) contended that "we have now entered the 'knowledge society', in which knowledge is not just another resource... but the most critical resource" (p. 226), and that, "The key to future prosperity lies in educating and training" (p. 227) within organizations. Organizations must learn in order to maintain stability. Within this section, learning culture, collective learning, collaborative culture and shared values and vision will be examined.

Learning Culture

Learning is imbedded in the organizational culture when individual and group learning are fostered by the creation of "new, complex, orchestrated learning communities" (Jensen, 1998, p. 114). However, organizational changes, while responsive to organizational needs, may or may not reflect true learning of the organization (Cook & Yanow, 1993; Nonaka & Takeuchi, 1995; Weick, 1991). Acculturation denotes organizational learning (Bruffee, 1999; Nonaka & Takeuchi, 1995).

Bransford, Brown, and Cocking (2000) contended that learners of all ages are more motivated when they

can see the usefulness of what they are learning and when they can use that information to do something that has an impact on others. A new type of staff development is needed where teachers within professional learning communities share their practices, study together, focus instructional strategies on student needs and use data to make decisions about their teaching (Huffman & Hipp, 2003, p. 22). Eaker (2007, p. 90) stated that educators must develop a deeper, shared knowledge of learning community concepts and practices, and then must demonstrate the discipline to apply those concepts and practices in their own settings, if schools are to be transformed.

Collective Learning

Nonaka and Takeuchi (1995) considered an organization, such as a school "as a system of shared meanings and beliefs" (p. 42). Their perspective spotlights a conceptual underpinning of this research study focusing on the fact that school organization's knowledge base is dependent on administrators, teachers and staff. Bolman and Deal (2008, p. 122) suggested that long-term success centers on investing in employees and responding to their needs.

Collective learning and application were defined by Hord (1997) as a staff's ability to take what they have learned as an organization and create high intellectual tasks and solutions to address student needs. Eaker, DuFour, and Burnette (2002) defined collective learning and application as the staff's ability, at all levels, to share information and work collaboratively to plan, solve problems and improve learning opportunities. Together they seek knowledge, skills and strategies and apply this new learning to their work. Learning while on the job requires staff members to learn by doing, reflect on their experiences and generate and share new insights and "learn with oneself and others" (Wood & McQuarrie, 1999, p. 10). According to Huffman and Hipp (2003), teachers who work in schools with PLCs share their practices, study together, focus instructional strategies on student needs and use data to make decisions about their teaching.

Foster and Suddards (1999) suggested that teacher leadership is an outcome of collective learning within a PLC. They noted that once teachers witness the benefits of learning with others in the school, they recognize the need to share in the leadership to develop a shared vision focused on student learning (Huffman & Hipp, 2003, p. 10). Teachers who are leaders lead within and beyond the classroom, contribute to a community of leaders and learners, and influence others towards improved educational practice (Katzenmeyer & Moller, 2001).

Collaborative Culture

School systems value individual skills, attitudes, energy and commitment as vital resources. A "good fit" (Bolman & Deal, 2008) described the way school systems need good teachers, and teachers need the career opportunity. The school system also has its own culture. Each school has its own mascot, ceremonies, stories, heroes and myths. Therefore, creating a collaborative culture where all members of the organization have the same beliefs, rules, policies, mission and goals is vital.

Yukl (2002) defined organizational culture as shared assumptions, beliefs and values by members of a group or organization. Therefore, methods for shaping organizational cultures include the design of organization structure, management systems, facilities, formal statements of ideology, and informal stories, myths and legends (Yukl, 2002, p. 300).

A collaborative culture is the essence of schools. Eaker et al. (2002, p. 22) stated,

> The most fundamental cultural shift that takes place… involves how teachers are viewed. In traditional schools, administrators are… viewed as being in leadership positions, while teachers are viewed as… followers. In PLCs,

administrators are... leaders of leaders.

According to Fullan (2002), improving schools requires collaborative cultures. Without collaborative skills and relationships, it is not possible to learn and continue to learn as much as needed to know for improvement. Eastwood and Louis (2007) agreed that creating a collaborative culture is the single most important factor for successful school improvement initiatives. Newmann (1998) noted that if schools want to embrace their capacity to boost student learning, they should work on building a collaborative culture. When groups are seen as the main units for implementing curriculum, instruction and assessment, they facilitate development of shared purposes for student learning and collective responsibility to achieve it.

Shared Values and Vision

Learning organizations collaborate to have a shared vision (Senge, 1990). According to Eaker et al. (2002), shared values and vision is an organizational staff sharing visions for school improvement. Staff focus will not deviate from student learning plus shared values will support norms of behavior that guide decisions about teaching and learning. Hord (1997) defined learning communities as embracing shared values and vision that "bind norms of behavior that the staff supports" (p. 3). The main challenge of a school leader is to involve staff members in creating a shared vision for the organization (Huffman & Hipp, 2003). Tacit and explicit knowledge sharing will benefit staff members in creating a collaborative vision. By sharing the personal visions of staff members, a collective vision can be molded and embraced by all members (Nonaka & Takeuchi, 1995). DuFour and Eaker (1998, p. 25) examined shared vision and described it as:

> What separates a learning community from an ordinary school is its collective commitment to guiding principles that articulate what the people in the school believe and what they seek to create. Furthermore, these guiding principles are not just articulated by those in positions of leadership; even more important, they are embedded in the hearts and minds of people throughout the school.

Willower and Licata (1997, p. 3) suggested that the implementation of a shared vision depends on the realities of the situation and the values of the participants. Their opinion is that collaboration is vital. Through the valuation process, the various stakeholders are able to negotiate school issues and form shared values and visions. According to Thomas et al. (2005, p. 60), the more we are social, relating and communicating with each other, the smarter we can become; and the smarter we become, the greater chance we have to succeed.

Nonaka and Takeuchi (1995) considered an organization, such as a school "as a system of shared meanings and beliefs" (1995, p. 42). Bruffee (1999) contended that people must be understood in the context of a social group. Such group interaction would broaden the perspectives of the participants. With this in mind, schools can work to create respectful spaces that promote open communication in a safe environment. Collaborative discussion is necessary to gain perspective and take into consideration the perspectives of the larger community (Flannery & Vanterpool, 1990). Collaborative discourse empowers all stakeholders within the school district to inclusively approach important topics that affect education. Willower and Licata (1997) stated that collaboration is vital, because implementation of shared values and vision depends on the realities of the situation and the values of the participants.

Methodology

This research study is a comparison of relevant data and information about leadership and learning

cultures in different size high schools (small schools and large schools) and types of high schools (ALT, PLCs, SLCs and non-PLCs/SLCs (non-professional learning communities/small learning communities)). Teachers in different size schools, different types of schools and schools with PLC's were assessed using the BLCA (Brown Learning Culture Assessment) (Brown, 2009; Oliver et al., 2003; Thomas et al., 2005) and asked open-ended questions about their leadership styles.

The perceptions of high school teachers in Missouri regarding the leadership and learning cultures in different sizes and types of high schools were examined. Perceptions were investigated to determine if staff members believed shared and supportive leadership, collaborative culture, collective learning and shared values and vision existed and were effective in these schools. Statistical, quantitative results were obtained from a representative sample of school leaders in different sizes and types of schools, including PLCs, through administration of the BLCA. Analysis of the perceptions of high school staff members regarding leadership and the comparison of learning cultures will assist educators who are planning to accept leadership positions in different sizes and types of schools.

Research Questions

The following research questions were developed to identify possible factors that may make a difference in how school leaders perceive their leadership styles and learning cultures and how they address their leadership roles in different sizes and types of high schools.

(1) Does school size (large vs. small) make a difference in perceptions of shared and supportive leadership, collaborative culture, collective learning and application, and shared value and vision?

(2) Does school type (SLCs, ALT and PLC) make a difference in perceptions of shared and supportive leadership, collaborative culture, collective learning and application, and shared value and vision?

(3) Do PLCs/SLCs make a difference in perceptions of shared and supportive leadership, collaborative culture, collective learning and application, and shared value and vision?

(4) How do school leaders describe the leadership styles and culture used within the different high school settings?

Design of the Study

A quantitative design with a small qualitative element was chosen to conduct this comparative study. The quantitative approach compared test results from the BLCA (Brown, 2009). The qualitative component complemented the quantitative design (Merriam, 1998; Seidman, 1998). The qualitative element was used to gain insight into educational issues through understanding the experience of the individuals whose lives constitute education (Seidman, 1998, p. 7).

Design Control

The independent variables used in this study are school size, school type and PLCs. The dependent variables are shared and supportive leadership, collaborative culture, collective learning and application, and shared values and vision. A visual description of the relationship among these variables is shown in Figure 1. In the item depicted, the relationship is shown with the arrows between the independent variables and the dependent variable.

Population and Sample

Participants in this study consisted of high school teachers in Missouri from small schools, large schools, SLCs, ALT, PLCs and non-PLCs. A visual description of the population is shown in Table 1. Two non-PLCs,

two SLCs, two PLCs and four alternative high schools of different sizes in Missouri were chosen as a purposive sample for this study.
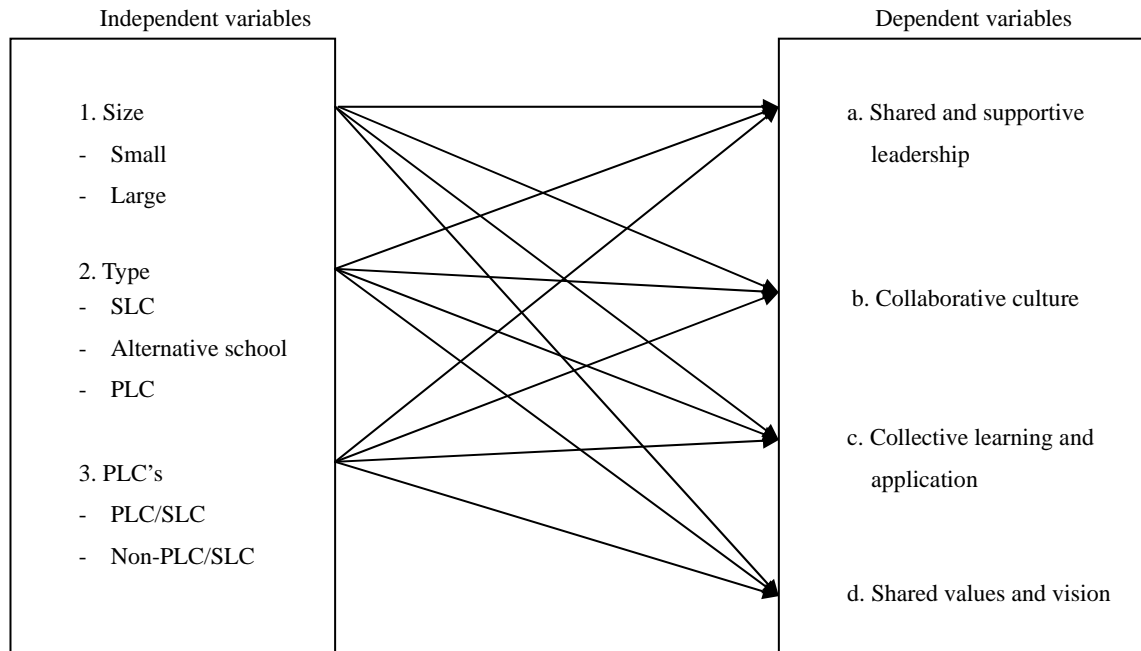

Figure 1. Independent and dependent variables.

Table 1

Population and Sample of Schools by Size and Number of Teachers

Type of schools	Large schools (5A and 6A)	Small schools (1A and 2A)
Non-PLCs/SLCs	Otis High School	Macy high school
$N = 93$	$N = 73$	$N = 20$
SLCs	Warren High School	Teal high school
$N = 107$	$N = 87$	$N = 20$
PLCs	Calvin High School	Ellen high school
$N = 119$	$N = 84$	$N = 35$
ALT	Harp High School	Feseme high school
$N = 44$	$N = 24$	$N = 20$

Note. *All schools have been assigned fictional names.

MSHSAA (Missouri State High School Activities Association) has divided high schools into six size categories (2009). The size categories for 1A and 2A schools range from 100 to 800 students. The rest of the six categories are listed as 1A, 2A, 3A, 4A, 5A and 6A. The large schools are listed as 5A and 6A schools and are determined by selecting the top 32 most populated schools as 6A and the next 50 most populated schools as 5A. With this in mind, for this study, school size (small vs. large) is measured with reference to 1A and 2A schools as being small schools and 5A and 6A schools are referred to as large schools. Ten high schools were identified based on the recommendations of the department of elementary and secondary education for having the necessary programs (SLCs, PLCs and ALT) in place. Three alternative high schools were used to create the *N* for that category. This information was cross referenced with MSHSAA size guidelines to allow the researcher to further define the sample schools based upon population patterns shown in Table 1.

Instrumentation

BLCA (Brown Learning Culture Assessment)

The BLCA was developed for the purpose of this study to assess learning cultures. The BLCA is a survey instrument used to assess high school staff perceptions of the four learning culture practices: shared leadership, collaborative culture and collective learning, and shared values and vision. It was developed after extensive research on learning cultures in ALT, SLCs and PLCs (Oliver et al., 2003; Raywid, 1998; Thomas et al., 2005).

In the first phase, the BLCA was developed using research from Huffman and Hipp's (2003) book *Reculturing Schools as PLCs and Research from the Coolest School in America: How SLCs Are Changing Everything* by Thomas et al. (2005). Important constructs from the literature review were used to develop sub-scales in the BLCA. The merging constructs of shared leadership, collaborative culture, collective learning, and shared values and vision were found and developed into sub-scales. These sub-scales were essential for data collection.

The BLCA, with a total of 24 questions and four learning culture sub-scales, is assessed with a six-point Likert scale. In addition to the four sub-scales, there are two open-ended questions which were written to address the leadership style and learning cultures found in the schools.

The BLCA was used to assess different size and types of high schools. A representative sample of high schools that fit each size category of small and large schools and each type category of PLCs, SLCs, ALT and non-PLCs were asked to participate in the study. Staff members from these schools were asked to participate by filling out the BLCA survey during a staff meeting.

The BLCA was piloted through a field test with a sample pre and post survey to 20 high school staff members with a period of two weeks between the two events. The sample population was from a Midwestern district in Missouri. Test-retest statistics were used on the BLCA survey with a Pearson product moment correlation between the two sets of scores. The results yielded for each sub-scale category were as follows: Shared and supportive leadership had a reliability coefficient of $r = 0.807$; collaborative culture had a reliability coefficient of $r = 0.647$; collective learning and application had a reliability coefficient of $r = 0.747$; and shared values and vision had a reliability coefficient of $r = 0.765$. The reliability was further substantiated using the data with Crombach Alpha statistics which are used to check the internal consistency of the instrument. The results yielded for each sub-scale category were as follows: Shared and supportive leadership had a reliability coefficient of $r = 0.804$; collaborative culture had a reliability coefficient of $r = 0.780$; collective learning and application had a reliability coefficient of $r = 0.824$; and shared values and vision had a reliability coefficient of $r = 0.799$. Field testing the instrument proved reliability and also helped improve validity.

Procedures for the Study

Superintendents were contacted to gain gatekeeper approval to contact high school principals and determine their willingness to participate in the study. After gatekeeper approval was obtained, permission was requested and granted from the IRB (Institutional Review Board) to conduct the study and begin contacting principals. The survey was administered during faculty meetings or via e-mail with each staff member.

Three hundred sixty-two surveys were returned, and the results were tabulated and analyzed using

independent sample *t*-tests and one-way ANOVAs (analysis of variance) (Fraenkel & Wallen, 2003). A visual description of the relationship between the dependent and independent variables is shown in Figure 1. A qualitative element was included on the BLCA with two open-ended questions. Open coding was used to analyze comments for thematic patterns to add in-depth knowledge to the results (Merriam, 1998; Seidman, 1998).

Analysis of Data

Participant responses to the BLCA were collected and imported into SPSS (Statistical Package for Social Sciences) version 17.0. Data were analyzed using independent-samples *t*-tests and a one-way ANOVA comparing the mean sub-scale scores. The critical value of 0.05 was used to determine significant statistical significance.

Research Question 1: Does School Size (Large vs. Small) Make a Difference in Perceptions of Shared and Supportive Leadership, Collaborative Culture, Collective Learning and Application, and Shared Value and Vision?

An independent-samples *t*-test comparing the mean sub-scale scores for shared and supportive leadership of teachers from small and large secondary schools revealed a significant difference ($t_{(275.09)} = 5.106$, $p < 0.001$; equal variances not assumed). The mean sub-scale for shared and supportive leadership for teachers from small schools ($M = 30.606$, $SD = 3.582$) was significantly higher than that for teachers from large schools ($M = 28.057$, $SD = 5.621$).

A second independent-samples *t*-test comparing the mean sub-scale scores for collaborative culture of teachers from small and large secondary schools revealed a significant difference ($t_{(289.014)} = 3.33$, $p < 0.001$; equal variances not assumed). The mean sub-scale for collaborative culture for teachers from small schools ($M = 29.566$, $SD = 3.204$) was significantly higher than that for teachers from large schools ($M = 28.038$, $SD = 5.299$).

A third independent-samples *t*-test comparing the mean sub-scale scores for collective learning and application of teachers from small and large secondary schools revealed no significant difference ($t_{(261.385)} = 0.888$, $p = 0.375$). The mean sub-scale for collective learning and application for teachers from small schools ($M = 28.354$, $SD = 3.618$) was not significantly higher than that for teachers from large schools ($M = 27.917$, $SD = 5.387$).

A fourth independent-samples *t*-test comparing the mean sub-scale scores for shared values and vision of teachers from small and large secondary schools revealed no significant difference ($t_{(328.05)} = 1.833$, $p = 0.048$). The mean sub-scale for shared values and vision for teachers from small schools ($M = 30.051$, $SD = 3.887$) was not significantly higher than that for teachers from large schools ($M = 28.936$, $SD = 7.577$). Further information on differences within the sub-scales of size is provided in Table 2.

Also summarized in Table 2, the mean difference of 2.55 in shared and supportive leadership between the large (28.06) and small (30.61) schools depicts small schools as having stronger shared and supportive leadership in their learning cultures. The mean difference of 1.53 in collaborative culture between the large (28.04) and small (29.57) schools depicts small schools as having a stronger collaborative culture in their learning environments. The mean difference of 0.43 in collective learning and application between the large (27.92) and small (28.35) school depicts small schools as having similar collective learning and application in their learning cultures. The non-significant mean difference of 1.11 in shared values and vision between (28.94)

and small (30.05) school depicts small schools as having similar shared values and vision in their learning environments.

Table 2

Independent Sample t-test Comparing Mean Sub-scale Scores to Size

Small $N = 99$	Large $N = 264$	Mean		Significance difference sub-scales	
Shared and supportive leadership*	Mean SD	30.61 3.582	28.06 5.620	2.55	$p < 0.001$
Collaborative culture*	Mean SD	29.57 3.20	28.04 5.30	1.53	$p < 0.001$
Collective learning and application*	Mean SD	28.35 3.62	27.92 5.39	0.43	$p = 0.006$
Shared values and vision*	Mean SD	30.05 3.89	28.94 7.58	1.11	$p = 0.048$

Notes. *Comparison of small and large size high schools revealed significant and higher differences using independent samples t-tests at the confident level of 0.05. Means based on a six-point Likert scale average for each six item sub-scale, with 1 = "Strongly disagree" and 6 = "Strongly agree".

The largest mean difference, between large and small schools, was (2.55) for shared and supportive leadership. The smallest mean difference, between large and small schools was (0.43) for collective learning and application.

Research Question 2: Does School Type (Small School, Small Learning Communities, ALT, Professional Learning Communities, and Large Schools) Make a Difference in Perceptions of Shared and Supportive Leadership, Collaborative Culture, Collective Learning and Application, and Shared Value and Vision?

A first one-way ANOVA was performed comparing the mean sub-scale for shared and supportive leadership for teachers from secondary schools based on four school types (SLCs, ALT, PLCs and non-learning community). A significant difference was found among school types ($F_{(3, 359)} = 16.154$, $p < 0.001$). Tukey's HSD was used to determine the nature of the professional learning communities and non-learning community. A significant difference was found among school types ($F_{(3, 359)} = 16.154$, $p < 0.001$). Tukey's HSD (honestly significant difference) was used to determine the nature of the differences between the school types. This analysis revealed teachers from the various types of learning communities all reported significant differences in their shared and supportive leadership sub-scale scores. Most notably, the scores from the alternative learning schools for shared and supportive leadership were significantly higher than all other groups ($M = 31.50$, $SD = 2.94$), and scores from the non-learning culture schools were lower than all other groups ($M = 26.28$, $SD = 6.78$). Teachers from the PLC schools ($M = 30.25$, $SD = 3.72$) reported significantly higher shared and supportive leadership sub-scales scores than those from the SLCs ($M = 28.21$, $SD = 4.88$). Table 3 provides the means and standard deviations of all sub-scales for the four groups.

A second one-way ANOVA was performed comparing the mean sub-scale for collaborative culture for teachers from secondary schools based on four school types (SLCs, ALT, PLCS and NONE). A significant difference was found among school types ($F_{(3, 358)} = 13.467$, $p < 0.001$). Tukey's HSD was used to determine the nature of the differences between the school types. Table 3 reveals that teachers from PLCs reported higher collaborative culture sub-scale scores ($M = 29.61$, $SD = 3.49$) than those from non-learning community schools ($M = 26.17$, $SD = 6.15$) and SLCs ($M = 28.31$, $SD = 4.54$). Teachers from SLCs ($M = 28.31$, $SD = 4.54$), PLCs ($M = 29.61$, $SD = 3.49$) and ALT ($M = 30.71$, $SD = 3.55$) all reported significantly higher collaborative culture

sub-scale scores than those from non-learning community schools ($M = 26.17$, $SD = 6.15$). There were no significant differences in collaborative culture sub-scale scores for teachers from PLCs ($M = 29.61$, $SD = 3.49$) and ALT ($M = 30.71$, $SD = 3.55$). Lastly, teachers from the ALT ($M = 30.71$, $SD = 3.55$) reported significantly higher collaborative culture sub-scales scores than those from SLCs ($M = 28.31$, $SD = 4.54$).

Table 3

One-Way ANOVA Comparing Means and Standard Deviations of Sub-scales for Shared and Supportive Leadership, Collaborative Culture, Collective Learning and Application, and Shared Values and Vision

Type		Shared and supportive leadership	Collaborative culture	Collective learning and application	Shared values and vision
ALT	Mean	31.500	30.714	29.523	31.833
$N = 42$	SD	2.940	3.550	4.050	8.602
PLC	Mean	30.254	29.610	29.381	30.771
$N = 118$	SD	3.717	3.486	3.709	5.874
SLC	Mean	28.213	28.306	27.769	27.963
$N = 108$	SD	4.880	4.544	4.577	4.002
NONE	Mean	26.284	26.170	26.011	27.642
$N = 95$	SD	6.780	6.150	6.275	8.571

A third one-way ANOVA was performed comparing the mean sub-scale for collective learning and application for teachers from secondary schools based on school types (SLCs, ALT and PLCs). A significant difference was found among types ($F_{(3, 359)} = 10.243$, $p < 0.001$). Tukey's HSD was used to determine the nature of the differences between the school types. The analysis shown in Table 3 reveals that teachers from SLCs ($M = 27.77$, $SD = 4.58$), ALT ($M = 29.52$, $SD = 4.05$) and PLCs ($M = 29.28$, $SD = 3.71$) all reported significantly higher collective learning and application sub-scales scores than those from non-learning community schools ($M = 26.01$, $SD = 6.27$). Teachers from SLCs ($M = 27.77$, $SD = 4.58$), ALT ($M = 29.52$, $SD = 4.05$) and PLCs ($M = 29.28$, $SD = 3.71$) did not have significantly different collective learning and application sub-scale scores from each other.

A fourth one-way ANOVA was performed comparing the mean sub-scale for shared values and vision for teachers from secondary schools based on school type (SLCs, ALT and PLCs). A significant difference was found among school types ($F_{(3, 359)} = 7.458$, $p < 0.001$). Tukey's HSD was used to determine the nature of the differences between the school types. This analysis, shown in Table 3, reveals that teachers from PLCs ($M = 30.77$, $SD = 5.87$) and ALT ($M = 31.83$, $SD = 8.60$) both reported significantly higher shared values and vision sub-scales scores than those from non-learning community schools ($M = 27.64$, $SD = 8.57$), but this difference was not found with teachers from SLCs ($M = 27.96$, $SD = 4.00$) compared to NONE ($M = 27.64$, $SD = 8.57$). Teachers from ALT ($M = 31.83$, $SD = 8.60$) also reported significantly higher shared values and vision sub-scale scores than those from SLCs ($M = 27.96$, $SD = 4.00$). Teachers from PLCs ($M = 20.77$, $SD= 5.87$) reported significantly higher shared values and vision sub-scale scores than those from SLCs ($M = 27.96$, $SD = 4.00$), but teachers from PLCs ($M = 30.77$, $SD = 5.87$) did not have significantly different scores from those from ALT ($M = 31.83$, $SD = 8.60$).

In summary, ALT and PLCs reported significantly higher scores on three of the four sub-scales. ALT were consistent as the significantly highest scores in shared and supportive leadership, collaborative culture, and shared values and vision. NONE had consistently lower scores on all four sub-scales. They had significantly weaker culture in shared and supportive leadership, collaborative culture, collective learning and application, and shared values and vision.

Table 3 clearly depicts a consistency in the order of sub-scale means. ALT consistently are higher in all four categories (shared and supportive leadership, collaborative culture, collective learning and application, and shared values and vision); PLCs are always second in all four categories; SLCs are always third and NONE are always last.

Research Question 3: Do PLCs (Professional Learning Communities)/SMLs (Small Learning Communities) Make a Difference in Perceptions of Shared and Supportive Leadership, Collaborative Culture, Collective Learning and Application, and Shared Values and Vision?

An independent-samples *t*-test comparing the mean sub-scale scores for shared and supportive leadership of teachers from PLC/ SLC and non-PLC/SLC schools (see Table 4) reveals a significant difference ($t_{(216.625)} = 2.264$, $p = 0.025$; equal variances not assumed). The mean sub-scale for shared and supportive leadership for teachers from PLC/SLC schools ($M = 29.279$, $SD = 4.422$) was significantly higher than that for shared and supportive leadership for teachers from non-PLC/SLC ($M = 27.883$, $SD = 6.340$).

A second independent-samples *t*-test comparing the mean sub-scale scores for collaborative culture of teachers from PLC/SLC and non-PLC/SLC (see Table 4) revealed a significant difference ($t_{(213.975)} = 2.476$, $p = 0.014$; equal variances not assumed). The mean sub-scale for collaborative culture for teachers for PLC/SLC schools ($M = 28.987$, $SD = 4.070$) was significantly higher than that for teachers from non-PLC/SLC schools ($M = 27.573$, $SD = 5.858$).

A third independent-samples *t*-test comparing the mean sub-scale scores for collective learning and application of teachers from PLC/SLC and non-PLC/SLC (see Table 4) revealed a significant difference ($t_{(220.446)} = 2.641$, $p = 0.009$). The mean sub-scale for collective learning and application for teachers from PLC/SLC schools ($M = 28.610$, $SD = 4.215$) was significantly higher than that for teachers from non-PLC/SLC schools ($M = 27.088$, $SD = 5.899$).

Table 4

Independent Sample t-test Comparing PLC/SLC to Non-PLC/SLC

Learning communities sub-scales		PLC/SLC	Non-PLC/ SLC	Mean difference	Significance difference sub-scales
Shared and supportive leadership	Mean	29.280	27.882	1.40	0.025
	SD	4.422	6.341		
Collaborative culture	Mean	28.992	27.573	1.42	0.014
	SD	4.070	5.858		
Collective learning and application	Mean	28.613	27.091	1.52	0.009
	SD	4.215	5.899		
Shared values and vision	Mean	29.432	28.933	0.50	0.544
	SD	3.891	7.582		

Notes.[*] Comparison of PLC/SLC high schools and non-PLC/SLC high schools revealed significant and higher differences using independent samples *t*-tests at the 0.05 level of confidence. Means based on a six-point Likert scale average for each six item sub-scale with 1 = "Strongly disagree" and 6 = "Strongly agree".

A fourth independent-samples *t*-test comparing the mean sub-scale scores for shared values and vision of teachers from PLC/SLC and non-PLC/SLC revealed no significant difference ($t_{(195.909)} = 0.608$, $p = 0.544$). The mean sub-scale for shared values and vision for teachers from PLC/SLC schools ($M = 29.429$, $SD = 5.247$) was not significantly higher than that for teachers from non-PLC/SLC schools ($M = 28.927$, $SD = 8.766$).

Summarized in Table 4 were the mean differences between PLC/SLCs and non-PLC/SLCs. The mean difference of 1.40 in shared and supportive leadership between the PLC/SLC (29.28) and non-PLC/SLC (27.88) schools depicts PLC/SLCs have a significantly stronger shared and supportive leadership in their learning

cultures. The mean difference of 1.42 in collaborative culture between the PLC/SLC (28.99) and non-PLC/SLC (27.57) schools depicts that PLC/SLCs also has a significantly stronger collaborative culture in their learning cultures. Collective learning and application have a mean difference of 1.52 between PLC/SLCs (28.61) and non-PLC/SLCs (27.09) which is significant. The mean difference of 0.50 in shared values and vision between the PLC/SLC (29.43) and non-Plc/SLCs (28.93) is not significant, but is in the same direction as the other differences. Further information on differences within the sub-scales of learning communities is provided in Table4.

Research Question 4: How Do School Leaders Describe the Leadership Styles and Culture Used Within the Different Cultures?

Two open-ended questions on the BLCA were used to answer research question four. Question 25 asked teacher participants what style of leadership was found in their high schools, and Question 26 asked teacher participants to describe the learning culture in their high schools. Answers to these questions were open-coded by analyzing each individual response for conceptualized themes (Merriam, 1998). Those themes were categorized for common patterns between other participants' responses. The data were then reassembled and divided into thematic perspectives of leadership characteristics and learning culture. The thematic perspectives for leadership characteristics were: shared leadership; participatory leadership; transformational leadership and open communication. In the large schools and non-PLCs, there were angry voices. Those voices used themes, such as dictatorship, top-down leadership, authoritative and bureaucratic. Thematic perspectives found for learning culture were collaborative culture, teaming, collective learning, and shared vision and smaller class sizes. Again, in large schools and non-PLCs, there were angry voices that rendered thematic characteristics, such as: no shared vision; teacher input not considered; over all culture does not support learning; students are lazy; and resistance to change.

Thematic Leadership Characteristics

Shared leadership. A common pattern to participant response was an acknowledgement of the staff being involved with decision-making, group leadership, staff leaders, shared opinions and teachers' voices being heard by the principal. Of 243 teachers who responded to the opened ended questions, 86 respondents included shared leadership ideas. Teachers felt ownership and respect when their shared voices were used to make important student, curriculum and building decisions. One teacher wrote, "Our principal uses shared leadership that solicits input from staff and other stakeholders in a collaborative environment". Another teacher wrote, "Leadership is shared, supportive and open to the concerns and needs of students/faculty, and works to resolve their issues".

Participatory leadership. Participatory leadership emerged as a dominant trend to the open-ended responses. Eighty-one participants responded with statements that included power-sharing or empowerment themes. For example, one teacher stated, "Teachers are treated as colleagues and professionals. Our opinions count when making important decisions". Another teacher responded, "Each staff member feels that they are a part of the decision-making". A participative/democratic style of leadership was mentioned numerous times in the data.

Transformational leadership. Twenty-two participants responded with statements that defined transformational leadership. In particular, the principal's ability to increase teacher motivation and performance was found in many of the responses. One teacher stated, "Our principal is a transformational leader as he

motivates the staff to make changes". A second teacher described their principal's leadership style as "Motivating by being visible and using positive interactions with staff/students/parents".

Open communication. Open communication was mentioned in 92 responses as a positive leadership trait. One teacher stated, "There is an open dialogue between administrators and staff, who take an active role in the development of new policies and initiatives". According to another teacher, communication has been a needed improvement in their building when the response stated, "It is such an improvement to work with our new principal who uses open communication and constantly works towards mutual understanding".

Thematic Learning Culture Characteristics

Collaborative culture. Collaborative culture emerged as a dominant trend in 121 responses. Collaborative time was mentioned as an important aspect of the learning process. One teacher stated, "Our district provides opportunities to collaborate with other faculty members, because our learning culture is very student-driven with collaboration being the backbone of what goes on in and out of the classroom". Collaboration responses were often associated with student learning and achievement. For example, "The learning culture is a collaborative culture with students, staff and administration working to maximize student learning".

Teaming. Teaming was also a common pattern identified by participant responses. Forty-five responses included teaming ideas. In particular, the teacher's ability to work together as a team to focus on curriculum development and student achievement was found in several responses. One teacher wrote, "Departments work as teams to collaboratively work on methods to increase student achievement". Another teacher added, "The majority of our staff works as teams to improve student learning and achievement. Teachers collaborate to create common assessments and lesson plans and prepare for state testing".

Collective learning. Characteristics of collective learning are mentioned in 74 responses. Learning cultures are defined by student, staff, teams and buildings learning together to increase student learning. One teacher stated, "Our teachers are willing to try new techniques to improve the learning culture and increase learning in our school". A second response added, "The learning culture revolves around a collaborative effort between departments to learn best practices, strategies and curriculum which will promote student learning".

Shared vision. Characteristics of shared vision emerged as another theme with 23 responses. One teacher stated, "Everyone works with the same goals and objectives that will promote student learning". Teacher trainings are mentioned in the data as assisting with the creation of shared vision. For example, "The district provides in-service programs to enable teachers to learn new teaching techniques". A shared vision is not always shared by all members of the staff. The data related that some staff members are not entirely sold, "Whether 'everyone learning everyday' is a shared vision by all teachers is debatable, but one that most staff embrace".

Small class size. Thirty-one participant responses mentioned the importance of small class size. One teacher stated, "The learning culture in our school is one that focuses on the one-on-one needs of a student, which make smaller class size a must". The data related the importance of small class size to meet the individual needs of students. For example, "Differentiated instruction is valued. We strive to personalize classrooms in order to build connections with our students".

Divergent angry voices. An unexpected occurrence was found in the qualitative data. Divergent angry voices were heard in the responses. Data reflected 52 angry voices throughout the data. When responding to leadership, they used descriptors, such as dictatorship, top-down leadership, authoritative and bureaucratic. Descriptors used for learning culture were: no shared vision; teacher input is not considered; overall culture

does not support learning; students are lazy and resistance to change. Angry comments were made mostly from participants from large schools and non-PLC/SLCs. There were no angry comments from either large or small ALT or small PLC/ SLCs. Negative comments were made from teachers who seemed frustrated with either the leadership, learning culture, or possibly change. For example, "Many people are resistant to change and struggling to find ways to address all types of students. There is a lot of negativity in my department due to frustrations that come with change". Another angry voice stated, "Our school leadership is top-down. They are only interested in numbers and figures and seem to have very few interests in comprehensive student achievement". A third angry voice stated, "The learning culture is directed at numerical and statistical success, not student success". Many of the comments addressed the fact that school leaders were willing to listen but did not enact any changes after ideas were given.

Data also related SLCs were not clear on the definition of learning culture. Participant comments were vague about learning culture with comments like "Our school culture is slowly evolving into one with higher expectations and one that involves different styles of learning".

Conclusions

Conclusions found the most prevalent factors were as follows:

(1) Small schools experience higher levels of shared and supportive leadership and collaborative culture;

(2) ALT and PLCs experience higher levels of shared and supportive leadership, collaborative culture, and shared values and vision;

(3) NONE have lower levels of shared and supportive leadership, collaborative culture, collective learning and application, and shared values and vision.

(4) Consistently, ALT were highest in shared and supportive leadership, collaborative culture, collective learning and application, and shared values and vision; PLCs were second, SLCs were always third; NONE always had the least learning culture qualities;

(5) PLCs and SLCs experience higher levels of shared and supportive leadership, collaborative culture, and collective learning and application;

(6) Qualitative findings supported quantitative data;

(7) Two new themes were identified that would support future research: open communication was valued in all size and types of high schools and divergent angry voices were found in large, non-PLCs/SLCs.

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