Principals' supervision practices and sense of efficacy in professional learning communities

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ABSTRACT: The aim of this study was to analyse principals' sense of efficacy regarding their teacher supervision practices in the context of a professional learning communities (PLC), and to establish correlations between these senses of efficacy and PLC supervisory practices. A questionnaire on principals' practices and perceptions (self-efficacy, collective efficacy, teachers' performance) in a professional learning communities (PLC) was administered (N = 81) in two Canadian provinces. Results indicate significant differences between (a) the sense of collective efficacy (SCE), self-efficacy (SSE), and professional efficacy (SPE). In this regard, SCE ranked the highest. The different senses of efficacy of these leaders are linked to their practices and perceptions in the context of a PLC. The processes by which principals develop these senses of efficacy with regard to their practices in supervising PLCs are not well understood and thus warrant further studies.

Keywords: Professional learning communities; school principals; sense of efficacy; sense of collective efficacy; self-efficacy

RÉSUMÉ: Le but de cette étude était d'analyser le sentiment d'efficacité des directions d'école quant à leurs pratiques de supervision des enseignants dans le contexte des communautés d'apprentissage professionnelle (CAP) et d'établir des corrélations entre ces sentiments d'efficacité et les pratiques de supervision des CAP. Un questionnaire sur les pratiques et les perceptions des directions d'école (sentiment d'efficacité personnelle, collective et performances des enseignants) dans les CAP a été administré (N= 81) dans deux provinces canadiennes. Les résultats indiquent des différences significatives entre (a) le sentiment d'efficacité collective (SEC), l'efficacité personnelle (SEPe) et l'efficacité professionnelle (SEPr). À cet égard, la SEC s'est classée au premier rang. Les différents sentiments d'efficacité de ces directions d'école sont liés à leurs pratiques et à leurs perceptions dans le contexte de travail en CAP. Les processus par lesquels les directeurs développent ces sentiments d'efficacité en ce qui concerne leurs pratiques de supervision des CAP nécessitent d'autres études pour une meilleure compréhension.

Mots-clés: Communautés d'apprentissage professionnelles; directeurs d'école; sentiment d'efficacité; sentiment d'efficacité collective; sentiment d'efficacité personnel.

Context and Review of the Literature

The PLC: Principles and benefits

Following publication of *The Fifth Discipline: The Art and Practice of the Learning Organization* (Senge, 1990), several authors (Louis & Leithwood, 1998; Mitchell & Sackney, 2000) underlined the importance for schools to form professional learning communities (PLC). Inspired by Wenger's work on communities of practice (1998), other studies on PLCs began to explore the advantages of a shared vision to support sustainable reforms through solutions that are rapid, flexible, and adaptable (DuFour & Eaker, 2004; Giles & Hargreaves, 2006; Senge *et al.*, 2000).

Based essentially on collaboration between teachers (DuFour & Eaker, 1998; Hord & Sommers, 2008), the work in PLC benefits both student and teacher. In fact, the PLC method not only contributes to lowering the rate of dropout (Bryk, Camburn & Louis, 1999) but has also been shown to improve student learning, achievement, and perseverance (Cranston, 2009; Hord, 1997). This approach reportedly:

- shapes school climate into a more conducive environment to nurture collaboration (Cranston, 2009; Linder, Post & Calabrese, 2012)
- develops autonomy and professionalism (Tschannen-Moran, 2009; Wahlstrom & Louis, 2008),
- consolidates knowledge, practices, attitudes, and competencies (Mitchell & Sackney, 2000; Sackney, 2007; Vescio, Ross & Adams, 2008)
- ensures teacher professional development by providing growth opportunities to improve their teaching practices (Raudenbush & Bryk, 2002; Roy & Hord, 2006).

Teachers in a PLC tend to be more diligent (Hord & Sommers, 2008), to develop a strong sense of self-efficacy (Bouchamma, April & Basque, 2017) and collective efficacy (Voelkel & Chrispeels, 2017), and to be less isolated (Hargreaves, 2003). This could be explained by the fact that meetings and schedules are structured to facilitate discussions with peers. In addition, material and human resources are provided (Hord, 2009), all in an environment that supports and encourages collaboration, training and an openness to the ideas of others (Jäppinen, Leclerc & Tubin, 2016). In addition, the PLC essentially enables teachers to consolidate their sense of belonging (Tremblay, 2005) and provides them with a greater level of professional autonomy and motivation for the profession (Dionne &

Couture, 2013), which in turn reinforces their professional identity (Newell Jones, 2006).

Role of principals in the PLC and climate

Principals have a significant influence on the success of collaborative structures such as the PLC (Clausen, Aquino & Wideman, 2009; Mullen & Hutinger, 2008; Buttram & Farley-Ripple, 2016; DuFour & Eaker, 2004; Hord & Sommers, 2008). They use their leadership to provide teachers with professional development opportunities to benefit the educational success of the students (Printy, 2008). Leadership lays down the structural and cultural conditions necessary to support the continuous growth of the PLC members (Szczesiul & Huizenga, 2014). Principals establish a common vision, values, and objectives (Kinkead, 2006) and employ leadership practices, whether shared (Holland, 2002), transformational (Kinkead, 2006), collaborative (Howden & Kopiec, 2002), or pedagogical (Howden & Kopiec, 2002). They are also responsible for providing the necessary temporal and physical resources (Eaker, DuFour & DuFour, 2004; Holland, 2002; Klonsky, 2002).

Finally, the role of principals is to encourage stakeholder participation in the:
- decision-making process (Hord & Hirsh, 2009),
- sharing of responsibilities,
- role distribution (MacBearth & Dempster, 2009),
- coordination of the various collaborative teams (Jäppinen, et al., 2016).

Through effective communication and ethical leadership, principals explains the standards, emphasises the school's values, guides their members, shares information, interacts with the participants, and supports change, creativity, and innovation. In addition, in their role as guide and facilitator, they are also transparent and able to ethically resolve conflict (DuFour, 2004; Leclerc, 2012). They exercise shared leadership that is characterised by concerted efforts, constant interaction, individual as well as coordinated collective actions, and shared responsibilities (Hord & Sommers, 2008).

By encouraging autonomy, creativity, professional development, a sense of trust, and a greater sense of professional worth, principals who ethically shares their power empowers their teachers who, in turn, develop a healthier sense of efficacy and increased confidence in their ability to act (DuFour & Eaker, 1998).

Sense of personal efficacy (self-efficacy)

Although the *Professional Standard for Principals and the Leadership Profiles* has generated a certain consensus as to what is required in terms of professional and transversal competencies (Australian Institute for

Teaching and School Leadership, 2015; MELS, 2008; Pont, 2013), these competency reference standards fail to address the socio-cognitive aspects, notably social relations-related knowledge.

Existing research on the subject does not specifically examine the sense of personal, professional, and collective efficacy of school leaders in their supervision practices of PLCs but has focused on principals' general sense of self-efficacy and its effect on the attainment of management goals, motivation level, and student outcomes. Studies have shown that principals who have a strong sense of personal efficacy have a positive influence on the goals of their organisation, teachers' motivation, and student achievement (McCormick, 2001; Tschannen-Moran & Gareis, 2007).

Sense of professional and collective efficacy

The level of collective efficacy of a school-team's members has been shown to contribute to improving the school and attenuating the effects of the students' low socioeconomic status (Goddard, Hoy & Hoy, 2000; Goddard & Salloum, 2011). Bandura (1993) also found that student outcomes were significantly and positively associated with collective efficacy and that this efficacy had a greater impact on student outcomes than the socioeconomic level did.

Principals who view themselves as being effective are more likely to persevere when charged with improving their school and promoting a sense of collective efficacy, which has a positive impact on both teaching and learning (Louis, Dretzke & Walhstrom, 2010). Strong pedagogical leadership influences collective efficacy by increasing opportunities for teachers to collaborate on ways to improve their teaching practices (Goddard, Goddard, Sook Kim & Miller, 2015). Collective efficacy also improves when teachers have a say in the school's decisions regarding pedagogy-related aspects (Goddard, 2002) and when changes in teacher behaviours occur (Waters, Marzano & McNulty (2003).

Goddard *et al*. (2015) showed collaboration between teachers (notably in the form of a PLC) to be a predictor of both collective efficacy and student achievement, and that the principal's pedagogical leadership practices create opportunities for collaboration, which in turn reinforces the collective efficacy of the school and ultimately improves teacher motivation and students' results (Goddard *et al*., 2015; Leithwood & Mascall, 2008; Louis *et al*., 2010; Versland & Erickson (2017).

In essence, the perception of being effective in a task is a key dimension of motivation, as it guides the individual in how they think, act, and mobilise their resources (Bandura, 2003). In light of this, and considering the significant impact of the principal on staff mobilisation and the work climate in the school, the effect of the principal's sense of efficacy on their collaborative supervision practices (Leithwood & Jantzi, 2008), and the lack of relevant research examining their sense of efficacy related to teacher supervision within a PLC, we sought to analyse:

(1) the teacher supervision practices of school leaders in a PLC and the associated senses of efficacy

(2) the connection between these different perceptions of efficacy and certain supervisory practices in the PLC setting
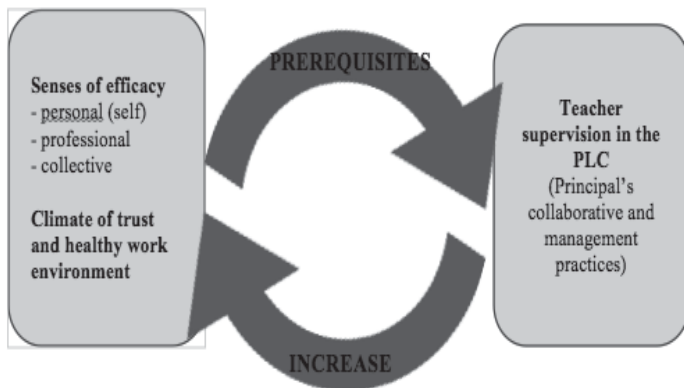

Figure 1. Sense of efficacy in teacher supervision in a PLC.

The conceptual framework of this study is based on three concepts: PLC, senses of efficacy (SSE, SPE, and SCE), and organisational climate.

The Professional Learning Communities (PLC)

To activate the goals of the PLC as well as a judicious sharing of their leadership, the principal must have a strong sense of personal and collective efficacy (DuFour, 2004). The PLC thus provides the ideal breeding ground by encouraging professional development and strengthening the sense of efficacy of its members (Hord & Sommers (2008).

The PLC is defined as an effective instructional approach that focuses on collaboration within the school-team and encourages teachers to collectively undertake activities and opportunities for reflection, with the goal of continuously improving student outcomes (Roy & Hord, 2006). This method adheres to three guiding principles: (1) a foundation consisting of a common mission and vision, with common and collaboratively developed values and objectives; (2) interdependent teams working together toward the same objectives; and (3) a results-based structure and a commitment toward improvement (DuFour & Eaker, 2004). Indeed, socialisation with peers on their expertise and experiences helps participants engage in building their identity through their commitment and sense of belonging to the group (Sackney, 2007; Tschannen-Moran, 2009).

The role of the principal in the PLC is to explain the standards, promote the school's values, be transparent, ethically resolve conflict, and

share information, as well as support change, creativity, and innovation (DuFour, 2004). To reach the desired objectives, PLCs go through a series of stages. Huffman and Hipp (2003) identified three levels, namely, initiation, implementation, and institutionalization. The supervision of PLCs thus represents a long-term investment before any successful sustainment can be achieved.

Several ethical practices are employed by the supervising principal in the PLC, such as communication, collaboration and support, conflict resolution, and transition management (Bouchamma & Brie, 2014). This leader-facilitator comes in to share their power and to support their teachers' autonomy, initiative, professional development, and sense of trust and professional efficacy. As a result, teachers strengthen their own sense of self-efficacy and increase their confidence in their ability to act effectively (DuFour & Eaker, 1998).

Sense of efficacy

The concept of personal or self-efficacy is explained as a person's beliefs in their abilities have an effect on their actions (Bandura, 1997). According to this author, individuals control or regulate their behaviour by creating standards to evaluate their actions. By regulating their own behaviours, they reflect on their own thoughts and actions, analyse past events, and determine future actions. These self-efficacy beliefs:

- influence their cognitive, motivational, affective, and decisional processes;
- affect their way of doing things (which may be productive or not, pessimistic or optimistic), their motivation level and their perseverance in challenging situations, the quality of their emotional well-being, their level of vulnerability toward stress and depression, and finally, the life choices made that determine the course of their lives (Bandura, 2009);
- have an impact on the attitudes and performances of those they lead (Chemers, Watson & May, 2000).

Professional efficacy refers to the positive effect that a professional individual perceives to have on their work environment, while collective efficacy refers to how an individual views the abilities of the team of professionals with whom they work (Bandura, 2003). The sense of collective efficacy refers to how a group or organisation perceives its ability to accomplish a task in a given context; it determines the level of effectiveness of the group when working together to reach its goals (Goddard, 2001).

Organisational climate of trust

In every PLC, a climate of trust must first be established (Bouchamma, 2005). Organisational climate refers to the work conditions, how the organisation's members evaluate their work environment, and how they feel they are treated or considered. Organisational climate encompasses the organisational structure, policies and regulations, support system, organisational culture, and leadership style of the principal, as well as the level of freedom and control, physical environment, level of consideration and respect within the environment, quality of intergroup relationships, and existing mobilisation system (Brunet & Savoie, 1999).

Finally, trust refers to a state of consciousness, a feeling of assurance or kinship we experience regarding another person or a group of persons. An organisation characterised by a strong climate of trust fosters collaboration and the sharing of knowledge within the group as a true working "community" (Livonen & Huotari, 2000).

Methodology

Participants

Our study was conducted with school leaders (N = 81), 56% of whom were principals and 39% were vice-principals. Among these participants, 27 were males (34%) and 47 (60%) were females. As for province of origin, 53 (67%) were from Québec (QC), while 24 (31%) hailed from New Brunswick (NB). Average age was 42. These leaders were responsible for the supervision of between 7 and 121 teachers ($\bar{x}$ = 32.36) in schools housing between 71 and 1900 students ($\bar{x}$ = 467.46).

Among the participating principals, 47% had received training on how to supervise teachers by means of a PLC. NB showed a higher proportion of principals who had received this training (84%), compared to the QC school leaders (33%).

Data collection

The participants responded to an online questionnaire composed of items presented on a six-point Likert-type scale from *Totally disagree* to *Totally agree*. For example, items were formulated as follows: "In my group supervision: (1) I provide them with available workspace; (2) I allow them time during regular work hours; (3) I encourage the sharing of knowledge".

The questionnaire, available on line on SurveyMonkey, consisted of three sections:

(1) the participants' sociodemographic factors and the school's context (achievement level, ethnicity, etc.) and characteristics (goals, types of knowledge, form, operations, types of collaboration, founding principles, norms, climate, factors likely to influence its development, level of success, challenges, etc.);

(2) the practices, a section developed from a meta-analysis by Robinson, Lloyd & Rowe, (2008) and from our previous work on leadership practices in effective schools (Bouchamma, Michaud & Lapointe, 2009); and

(3) the sense of efficacy, which is an adaptation of Goddard's 12-item model (2002). Each sense of efficacy was divided into eight items.

The questionnaire was administered to principals from QC and NB who had one or more PLCs in their school. Only the participants whose practices complied with an established and fully institutionalised PLC structure were retained.

Data analysis

The analyses were performed using SPSS Statistics version 24.0 software to produce descriptive statistics (central tendency and dispersion, minimum/maximum, mode, median value, and mean and standard deviation) to measure the different types of efficacy of the principals in regards to their supervision practices within a PLC, as well as to retrieve inferential statistics. Factorial analyses made it possible to categorise the supervision practices into factors which were then correlated with the different forms of efficacy.

Results

Sense of efficacy analyses

The first specific objective pursued in this study was to quantify the sense of personal, professional, and collective efficacy of the participating principals with regard to teacher supervision in a PLC. Table 1 presents, in order, the different items forming the factors associated with the sense of personal, professional, and collective efficacy, as well as their mean and standard deviation.

Table 1. Sense of Efficacy: Means and Standard Deviations

Items	M	SD	N
Sense of personal efficacy (mean of the items)	**4.62**	**0.48**	81
a. I possess the necessary knowledge.	4.58	0.72	81
b. I possess the necessary capabilities.	4.57	0.67	81
c. I am capable of doing it despite restrictions.	4.53	0.63	81
d. I am capable of doing it despite the resistance encountered against teamwork.	4.28	0.79	78
e. I maintain my efforts with teachers who refuse to work as a team.	4.65	0.88	79
f. I create an environment that encourages teamwork.	5.14	0.63	81
g. I know how to adjust with teachers who refuse to work as a team.	4.61	0.81	79
h. I am convinced that every teacher is capable of teamwork.	4.62	1.08	81
Sense of professional efficacy (mean of the items) *The principals:*	**4.39**	**0.62**	80
a. possess the necessary knowledge.	4.41	0.77	80
b. possess the necessary capabilities.	4.38	0.77	80
c. are capable of doing it despite restrictions.	4.34	0.87	80
d. are capable of doing it despite the resistance encountered against teamwork.	4.14	0.90	80
e. maintain their efforts with teachers who refuse to work as a team.	4.34	0.81	79
f. create an environment that encourages teamwork.	4.78	0.73	80
g. know how to adjust with teachers who refuse to work as a team.	4.48	0.83	80
h. are convinced that every teacher is capable of teamwork.	4.31	1.06	80
Sense of collective efficacy (mean of the items) *To bring our teachers to work as a PLC, we, the principals, with the help of our superior(s):*	**4.74**	**0.63**	81
a. possess the necessary knowledge.	4.80	0.73	81
b. possess the necessary capabilities.	4.79	0.75	81
c. are capable of doing it despite restrictions.	4,58	0.82	81
d. are capable of doing it despite the resistance encountered against teamwork.	4.56	0.84	78
e. maintain our efforts with teachers who refuse to work as a team.	4.68	0.74	79
f. create an environment that encourages teamwork.	5.09	0.70	81
g. know how to adjust with teachers who refuse to work as a team.	4.66	0.83	79
h. are convinced that every teacher is capable of teamwork.	4.69	1.03	81

Our analyses of the three types of efficacy with regard to teacher supervision in the PLC indicate that the collective sense of efficacy (M = 4.74; SD = 0.63) was the strongest among the three types under study. The Cronbach alpha values were respectively 0.77 for the sense of self-efficacy (satisfactory), 0.87 for the sense of professional efficacy (good), and 0.9 for the sense of collective efficacy (excellent), according to the scale developed by George and Mallery (2003). The mean and the median of the collective sense of efficacy were indeed higher than those of the other two forms of efficacy.

A statistically significant difference (t(78) = .35, p < 0.01) was observed between the mean of the sense of collective efficacy (M = 4.73, SD = .62) of the participants and that of professional efficacy (M = 4.38, SD = .62). The correlation between the two means was .694, with p = 0.00. Another statistically significant difference (t(79) = -.24, p < 0.01) was observed between professional efficacy (M = 4.39, SD = 4.39) and personal efficacy (M = 4.63; SD = .47), with a correlation of .539 and p = 0.00. However, no significant difference was recorded between the personal efficacy mean and the collective efficacy mean (t(79) = .09, p > 0.05, with a measured correlation of .658, p = 0.00 between the two means.

Relationship between the senses of efficacy and the principals' practices and perceptions

Table 2 pertains to our second specific research objective, namely, to establish connections between the three forms of efficacy (Table 1) and:

- measures aimed at improving supervision in the PLC;
- teachers' ethical collaboration practices in the PLC;
- principals' ethical practices in the PLC;
- principals' group supervision practices in the PLC;
- principals' perceptions of the effect their support had in the PLC; and
- future actions, namely, practices to develop collaboration in the PLC.

Teachers' ethical collaboration practices were represented by three factors. The first factor, *Share knowledge, practices, and resources,* consisted of 15 items, including "The teachers… work together to prepare lesson plans; share pedagogical material; and work in a climate favouring discussion". The second factor, *Ensure responsible accountability,* consisted of 10 items, including "The teachers…acknowledge the aspects they control; consult with others to make decisions; and justify their decisions". The third factor, *Comply with the group's decisions*, contained 5 items, including "The teachers… do what they say; assume their responsibilities within the group".

Principals' ethical practices had two factors. The first factor, *Establish a climate of trust*, contained 8 items, including "I establish a climate favouring work" and "I am fair in my decisions". The second

factor, *Establish active dialogue*, housed 7 items, including "I understand my teachers when they have problems" and "The teachers tell me how they feel about their work".

Principals' group supervision practices consisted of four factors. The first factor, *Communicate ethically*, contained 4 items, including "I respect certain values when guiding the actions of the group's members" and "I express my expectations to the teachers". The second factor, *Provide human, material, and temporal resources*, consisted of 8 items, including "I provide them with available workspace" and "I allow them time during regular work hours". The third factor, *Ensure shared leadership*, contained 5 items, including "I delegate my power" and "I allow the group members to make their own decisions", while the fourth factor, *Make decisions based on facts and data*, represented by 3 items, included "I justify my decisions".

Principals' perceptions of the effect of their support were divided into two factors. The first factor, *Effect on the development of teacher competency*, consisted of 12 items, including "Effect on their knowledge, practices, and attitudes", while the second factor, *Effect on team collaboration in the PLC*, contained 13 items, including "Effect on the sense of belonging of the staff" and "Effect on the quality of life in the workplace".

Future measures to develop collaboration consisted of a single factor, namely, *Openness toward collaboration*, and contained 6 items including "Positive attitudes toward teamwork" and "Open-mindedness of the participants".

Table 2

Correlation between the sense of personal, professional, and collective efficacy and the principals' practices within the PLC

Supervision practices in the PLC	SEP	PEPr	SEC
Teachers' ethical collaboration practices			
1. Share knowledge, practices, and resources.	.426**	.328**	.307**
2. Ensure responsible accountability.	.410**	.346**	.298**
3. Comply with the group's decisions.	.270*	.344**	.239**
Principals' ethical practices			
4. Establish a climate of trust.	.355**	.264*	.312**
5. Establish active dialogue.	.483**	.388**	.383**
Principals' group supervision practices			
6. Communicate ethically.	.359**	.254*	.287*
7. Provide human, material, and temporal resources.	.567**	.387**	.464**
8. Ensure shared leadership.	.327**	.285*	.278*
9. Make decisions based on facts and data.	.473**	.284*	.432**
Principals' perceptions of the effect of their support			
10. Effect on the development of teacher competency.	.631**	.371**	.417**
11. Effect on group collaboration within the PLC.	.506*	.405**	.427**
Future measures to develop collaboration			
12. Openness toward collaboration	.488**	.244*	.283*

** $p < 0.01$. * $p < 0.05$.

Our analysis of each of the 12 factors correlated with the different senses of efficacy reveals that the coefficient values indicating the effect of the connection between sense of efficacy and supervision practices were highly significant, with a very strong association.

Overall findings show that strong senses of personal, professional, and collective efficacy correlated with the principals' ethical and team supervision practices within the PLC. Furthermore, principals who displayed a strong sense of efficacy were more inclined to establish a climate of trust and have an openminded attitude to encourage collaboration.

Similarly, these senses of efficacy appeared to be more strongly associated with the teachers' ethical collaboration practices in the PLC. It is thus postulated that these enhanced ethical and collaborative practices have a positive impact not only on the sense of well-being of the PLC members but also on school climate in general.

Discussion and Conclusion

This study aimed to analyse principals' sense of efficacy regarding their teacher supervision practices in the context of a professional learning communities (PLC), and to establish correlations between these senses of efficacy and PLC supervisory practices.

Principals' sense of efficacy and teacher supervision

Our results indicate that the principals' sense of collective efficacy regarding their supervision practices in the PLC was stronger than were the other two forms of efficacy under study, namely, personal and professional efficacy. Teacher supervision in the PLC was indeed facilitated in this trusting environment, in view of the principals' positive perceptions of the group's knowledge, expertise, and attitudes. These perceptions thus supported the benefits of collaborative work, particularly when it involved choosing winning practices (Bourhis & Tremblay, 2004), actions, and experimentation (Cate, Vaughn & O'Hair, 2006). In this perspective, the principals' commitment to the PLC method would not at all be possible without their willingness to adopt this form of collaborative supervision. Their openminded attitude is thus reflected in their teacher mobilisation actions (Leclerc, 2012). This commitment is also the fruit of a shared leadership involving many stakeholders: the various school councils, principals, and teachers are all responsible for their students' academic achievement. When success is experienced as a group, the sense of collective efficacy tends to grow.

Correlations between the senses of efficacy and PLC supervisory practices

Our findings suggest that the different senses of efficacy remain connected. Indeed, the discussions and collaborative activities in the PLC make it possible to better guide teachers as they develop their professional expertise and improve their practices, which in turn contributes to strengthening their sense of self-efficacy and collective efficacy.

Our results also demonstrate that strong senses of efficacy correlate with PLC supervision practices. Regarding the principals' ethical practices in the PLC, our findings indeed show that the principals who had strong sense of efficacy established and used a trusting environment to best develop their PLC. Studies on the subject confirm that the ethical actions of school leaders contribute to reinforcing the level of trust of the school-team members as well as to improving the climate (Bouchamma & Brie, 2014). In the PLC model, these practices also have a positive effect on the members' sense of well-being. The ethical resolution of conflict in the PLC requires actions focused on establishing trust and continuous, open dialogue, which is so crucial to the healthy development and ultimate sustainment of the PLC. In some instances, arguments, friction, clans, and other challenges impeding successful facilitation and the exercise of power

can come into play to negatively affect the level of trust. Principals must therefore exercise ethical leadership practices in their PLCs by welcoming change, innovation, collaboration, support, and communication, and managing conflict (Bouchamma & Brie, 2014).

Hypothesis and avenue for future research

All things considered, similar to Hord and Sommers (2008), we hypothesise that the PLC method helps school leaders to manage conflict effectively and more ethically because it promotes a negotiated approach that uses communication and collaboration for the mutual benefit of all of its members. It must be mentioned that the present study was conducted in schools where the PLCs had been well in place for several years and had successfully reached the final level of institutionalisation (Huffman & Hipp, 2003), far from their tumultuous beginnings.

Although research has established a connection between pedagogical leadership practices, collective efficacy, and student outcomes (Bandura, 1993; Goddard *et al*., 2015; Louis *et al*., 2010), the processes through which principals develop their sense of collective efficacy and bring their teachers to develop their own are not yet fully defined. In other words, how principals go about acquiring these positive senses of efficacy with regard to their supervision practices in PLCs remains a mystery and therefore further studies are necessary.

Acknowledgement

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