Professional Learning Communities

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Abstract

Professional learning communities received a formal status in Singapore education in 2010 after the ministry of education piloted its model of professional learning community in a range of schools. Although it may seem that the ministry of education has adopted a school-based approach to professional learning community where school leaders provide the necessary structure and culture to support the practices of professional learning community, and teams of teachers called 'professional learning teams' provide the pedagogical development and innovations to impact classroom practices, the actual work of professional learning community lies in the latter. However, the implementation of professional learning community as a nationwide initiative and endeavour is not without challenges. In this chapter, a range of challenges are put forth for consideration—one of which is the importance of helping teachers to adopt a positive belief towards professional learning community, which would only come about when the wider range of challenges are addressed.

7.1 Introduction

Professional Learning Communities (PLCs) were introduced to the Singapore teaching fraternity in 2009. It was wrought out of policymakers' intent to create teaching professionals with the disposition to take the lead in collaborative

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professional learning to support school-based curricular development (Hairon and Dimmock 2012). Although the policy was introduced in 2009, the historical development of PLCs in Singapore can be traced back to the turn of the twenty-first century. In 1998, the Teachers Network (TN) was formed as a unit within the Training and Development Division (TDD) of the Ministry of Education (MOE) (Tang 2000; Tripp 2004). Its aim was to develop policies that support teacher professional development, and to build a fraternity of reflective teachers dedicated to excellent practices through a network of support, professional exchange and learning. It also aimed to serve as a catalyst and support for teacher-initiated development through sharing, collaboration and reflection leading to self-mastery, excellent practices and personal fulfilment. It advocated a bottom-up approach to change as reflected in its slogan 'For Teachers, By Teachers' (Shanmugaratnam 2005). In 2000, it introduced a protocol to support professional development conversation—coined as 'Learning Circles', in which teachers would take the lead in collaborative learning using an action research framework to improve classroom teaching and learning.

In 2011, the Academy of Singapore Teachers (AST) replaced TN. Nevertheless, the vision and mission of AST still retained the goal of teachers taking the lead in professional learning within the teaching fraternity in order to achieve high standards in teaching and student learning. The establishment of AST also coincided with the early developments of a PLC model for Singapore school. Its aims comprised the 'Three Big Ideas', namely, (1) improving student learning, (2) building a culture of teacher collaboration and (3) focusing on student learning outcome (TDD 2010). The model adapted DuFour's PLC framework (DuFour et al. 2010) relying on questions to guide PLC discussions. The model focuses on 'Four Critical Questions':

1. What is it we expect students to learn?
2. How will we know when they have learned?
3. How will we respond when they do not learn?
4. How will we respond when they already know it?

In addition, the model incorporated Fullan's 'Triangle of Success' (Fullan 1993), which includes 'School Leadership', 'System-ness' and 'Deep Pedagogy'. Professional Learning Teams (PLTs) comprising groups of teachers were created to engage in collective learning to improve teaching and learning so as to deepen their theories and practices of teaching—representing 'Deep Pedagogy' (TDD 2010). Coalition teams consisting of a group of senior leaders (e.g. principal, vice-principal and/or middle managers)—representing 'School Leadership', were also created to provide conducive school structures and culture to support PLTs—representing 'System-ness'.

The 'Three Big Ideas', 'Four Critical Questions' and 'Triangle of Success' form the key elements of the model. In this model, PLC is conceptualized as a 'whole school', whereby groups of teachers collectively learn within small groups called PLTs. Each PLT can have the option of choosing a range of collaborative learning

tools, such as Learning Circles, Action Research and Lesson Study. Learning Circles, which was introduced by TN in 2000, was subsequently subsumed under the new PLC framework and is considered as one of the learning tools to be used by teachers, along with Lesson Study and Action Research. Nevertheless, Learning Circles ostensibly bear much of the features of PLCs—broadly defined as 'professionals coming together in a group—a community—to learn' (Hord 2008, p. 10), and can therefore be considered a PLC, even though it was not referenced as such. A Learning Circle comprises a group of teachers engaging in action research to solve problems that have been collectively identified in relation to classroom teaching. This platform for collaboration, reflection and inquiry sought to help teachers enhance their teaching competency and initiate school-based curricular development and innovation with the support of school leaders.

A consistent theme that has emerged in the formation and development of TN and AST is the importance of teachers in supporting curricular and instructional development and innovation in Singapore schools. While policymakers have focused on a new set of student learning outcomes such as the twenty-first-century competencies, they continue to expect the maintenance of high academic standards in student outcomes. Attaining high standards in both academic and non-academic student outcomes is essential to maintain the country's economic competitiveness in the global market. Schools are therefore expected to provide appropriate curricula that meet a more diverse set of student outcomes. Furthermore, these student outcomes may vary from one school to another because the MOE encourages every school to establish its own unique curriculum in order to satisfy students' learning needs, and to create greater diversity in student learning experiences across the education system. Underlying these policy shifts is policymakers' awareness that the pre-occupation with preparing students to do well in the national high stakes examinations is no longer sufficient to meet the demands of Singapore's rapidly emerging twenty-first-century knowledge-based economy (Dimmock and Goh 2011). In order to achieve this, schoolteachers are obliged to invest in curricular and instructional development and innovation with the support of school leaders. With this backdrop in mind, the importance of PLCs in developing teacher capacity is amplified. This also implies the importance of enhancing PLC capacity within schools. Teachers are encouraged to have the knowledge and skills necessary for participation in PLCs. School leaders are to develop the knowledge and skills needed to support PLC practices. More specifically, the importance of teacher leaders in providing the necessary support for PLCs to function effectively.

7.2 Challenges Facing PLCs

Notwithstanding the compelling benefits of PLCs such as improvement in teaching practice and student learning outcomes, potential challenges have been raised. Based on a research study of 51 schools in 2010, PLC Hairon and Dimmock (2012) call attention to three main potential challenges to the implementation of school and

system-wide PLC policy initiative: (1) teachers' workload, (2) ambiguity of PLC processes and effectiveness, and (3) hierarchical work structure. The first challenge is understandable bearing in mind that teachers' teaching and non-teaching work has increasingly widened and intensified not only in the Singapore context, but also in countries that seek to fulfil widening student outcomes. Under such conditions, it is understandable that teachers prioritize teaching more than professional development. This mindset becomes more ingrained when professional development is perceived as not having or having weak impact on the day-to-day teaching and learning. This could be due to several factors. First, the impact of professional development on teaching and learning is indirect. Second, the impact of professional development on teaching and learning takes time. Third, the impact of professional development on teaching and learning is not fulfilling individual teachers' classroom teaching and learning needs. Fourth, the use of weak or inappropriate assessment tools to evaluate teachers' instructional practices.

The second challenge of ambiguity with regard to the PLC concept and processes also contributes to teachers' lack of interest in professional development. What really is a PLC? What are the features of PLC? What do these features look like in practice? What do we do in PLCs? Who can we follow? The ambiguity of the concept and its operations further contribute to the lack of faith teachers have in PLCs as a vehicle for improvements in teaching and learning. The third challenge raised pertains to the centralized nature of the education system. The key argument raised is that a hierarchical work culture undermines the spirit of self-directedness, which is an integral feature of PLCs. In this regard, teachers might face difficulties in reconciling the pursuit of self-directed learning through PLCs and having to show deference to the authority's and school leaders' mandate and prerogatives pertaining to teacher learning.

Further potential challenges have also been documented by Hairon et al. (2014) in their qualitative study of 11 primary government schools in 2013. First, insufficient time for quality PLC discussions among teachers necessary for deepening their pedagogical knowledge in the context of teachers' busy work schedule and their pursuit of work–life balance. Second, weak PLC group composition, whereby teachers within PLC groups may not share similar interests and goals. This could be due to differing subject specializations or varying student ability groups. Third, weak facilitation (or leadership) in PLC discussions, which potentially weakens in-depth discussion to improve teachers' pedagogy. Fourth, weak leadership support in terms of providing strategic direction for PLCs in relation to its contribution to the overall school improvement processes and outcomes. Fifth, weak organizational support for PLCs insofar as PLCs are perceived as project-based, whereby teachers are required to perform learning tasks to be delivered within a set period of time along with certain deliverables (e.g. a 4-page report). The project-based nature of PLCs does not sufficiently take into account teachers' day-to-day teaching requirements and experiences. It is not unusual therefore for teachers to ask if their involvement with PLCs is meant to serve their professional development or to serve somebody else's agenda. Sixth, teachers' lack of strong belief in the effectiveness of PLCs, which is the eventual outcome of the five potential challenges listed above.

The two case studies below seek to further contribute to our in-depth understanding of PLC enactment in the Singapore education system. For each case, we shall highlight key experiences of school leaders, specifically the voices of principals and vice-principals. The key learning experiences will address three broad research questions: (1) How are PLCs implemented in schools? (2) What are the perceived benefits of PLCs? (3) What are the potential challenges that schools faced in the implementation of PLCs? In the conclusion, we shall raise key critical questions for reflection and consideration.

7.3 Method

The findings presented below were drawn from case studies of two government primary schools in Singapore in 2014. Care Primary School is a single session primary school with a student population of about 1482 students and teacher population of about 87 teachers. Yishak Primary School is a double session school with a student population of about 1278 students and teacher population of about 85 teachers. The two schools were chosen based on purposive sampling, and participation in the study was via invitation. Both schools are onboard the PLC journey espoused by MOE, and employ key processes such as structured time for PLC discussions and learning tools such as Learning Circles, Action Research or Lesson Study. This was followed by getting informed consent from participants from the two schools. The findings from the case studies were based on interviews with the principals and vice-principals of the two schools. The interviews were conducted within a 1-year period at the start and end of one school calendar year. The interviews were audio-recorded and transcribed verbatim. Thematic coding was then done thereafter. The transcripts were then systematically coded to generate relevant themes according to the three main research questions.

7.4 Care Primary School

The school commenced its PLC journey using the MOE PLC model in 2012. The school leaders set aside one hour of curriculum time each week for teachers to collectively learn from one another in their respective small teams known as Professional Learning Teams (PLTs). The strategic direction and agenda for PLC were set by the Coalition Team comprising the principal, vice-principal and School Staff Developer (SSD). The school leaders, in consultation with the SSD, appointed facilitators to lead PLT discussions from their pool of teachers who were deemed to have potential leadership capabilities. As the key driver for the school's PLC implementation, the role of the SSD is to ensure that teachers are well supported in their PLC activities which are guided by a lesson study framework comprising lesson planning, lesson observation by peers, post-lesson discussion, revision

of lesson plan, second lesson observation by peers and final post-lesson discussion. Initially, teachers were exposed to the use of action research as a collaborative learning tool to solve problems and improve classroom teaching. This fits seamlessly with the MOE's PLC framework. Over time, however, the school leaders observed that teachers had difficulty in developing skills and expertise in action research. This led to the school leaders' decision to make use of lesson study in 2013.

7.4.1 Structure Supporting Collaborative Learning

PLC was generally well received by the school leaders. They appreciated the value of PLC in providing a supportive structure for teachers to share and learn from one another, and to develop collaborative spirit among teachers.

> I feel that when teachers come together, they value-add to each other in terms of their learning, in terms of their expertise in the classroom. By coming together and looking at it in a more consistent way using the PLC platform to discuss their teaching and learning in the classroom, I think they would have value-added to each other definitely. [Principal]

> I think PLCs put in place structures that allow for good quality conversations particularly among staff, provided they have a very clear purpose in mind and with the intent of really focusing on student learning. I feel that the collaborative spirit really helps teachers reflect on their own thinking—on the ways they actually conduct lessons in the classroom…on their own pedagogy. And generally I think they can really learn very well from each other provided that there is clarity of purpose and they're very clear about what they want to do, and the PLC structure does allow for that. [Vice-Principal]

This collaborative spirit was, however, perceived as dependent on a clear focus on student learning. In addition, it was perceived as requiring deliberate and gradual cultivation by the school leaders on teachers' way of learning.

> So through constant conversations with staff, I have touch-base sessions on a term by term basis with my staff which I use as a platform to let them know that perhaps there are better ways of doing things. So, really try to address their mental models. But it cannot be done overnight. It will slowly evolve. But there are some baby steps that we have taken in terms of trying to create that culture where there is really this collaborative spirit. [Vice-Principal]

In cultivating this collaborative spirit, the school leaders have also observed that teachers need assistance to stay focused and purposeful during the PLT discussions. Accordingly, the school leaders took several steps to encourage commitment from teachers in this particular aspect. They put in place a variety of supporting structures, norms and ground rules to help keep the PLC sessions on track. These include setting the agenda for the sessions and instituting literature review in the PLC discussions. The following comments illustrate this point:

> That's the reason why we introduce the agenda and that's why we introduce the focus because we felt that otherwise the conversations have a tendency to go in ways that are not productive." [Vice-Principal]

> We refined the structure a little bit, in the sense that we got the teachers to go through some literature review with regard to the things that they wanted to do, so that they are a bit more aligned to what the research literature has done in a particular area or what the literature says about this idea that they wanted to embark on. [Vice-Principal]

Another form of assistance is monitoring on the part of the school's management team to ensure that the whole school supports the development of PLC in the school.

> So at my management meeting, they (Senior Management Team) will know about the structure. They will also provide further inputs, further refinements to that structure before we actually let the teachers know about it. So it's not just my coalition team you know, it's my entire management team as well. [Vice-Principal]

The role of middle managers was perceived to be crucial in supporting quality teacher discussion and learning on a school-wide basis through PLCs.

> I find that the structure in our school where we have the HODs as advisors has also been quite useful, their role is really to see the direction of the PLC, the type of questions that are asked, and the engagement level of the teachers. So in a way…the structure drives the behaviour as well. [Principal]

> The idea is really to build on their strengths, that's the key idea and the PLC structure definitely allows for this to happen. I firmly believe that structure will drive the behavior. Once you put the structure in place, it will allow teachers to actually have this conversation. But the level of conversation may not be so rich because of their limited experience. [Vice-Principal]

7.4.2 Collaborative Learning for Professional Development

The PLC structure was perceived to have the potential to impact on teacher professional development.

> I felt that many of the teachers had the perception that the school doesn't look or focus on their professional development. So when some of these structures were put in place, they feel that their professional development is attended to and they do get opportunities to develop themselves. [Vice-Principal]

7.4.3 Collaborative Learning for Camaraderie

The PLC structure was perceived to enable teachers to bond together through the building of strong supportive relationships among teachers.

> When teachers see that they have peer support via [PLC] conversations, they are disposed to learn from each other. I have had teachers who gave me feedback. They experienced a lot of resource support, and emotional support as well from the teachers who say – "It's okay you know. It happens in my classroom too." And so, these kinds of conversation help to allay teachers' fears as well. [Vice-Principal]

7.4.4 Teaching Strategies for Student Learning

The collaborative learning that took place in PLCs was perceived to translate to improvements in classroom teaching strategies. The use of lesson study helped in the translation of collaborative learning to collective actions by teachers with respect to teaching strategies. The lesson study cycle helped teachers to refine not only lesson plans but also the research foci (focus of enquiry) over time in a continuous cycle—hence, a continuous cycle of reflection and application. This cycle supported the continual refinement of research focus, and therefore, lesson focus and teaching strategies, and their underlying pedagogies.

> I hope that my students benefit most, to be honest. I mean, the whole idea of this structure (PLC)…that it enhances teachers' professional development, the end product is definitely how they deliver it to the students and how it engages them in their classrooms. I think that's the key point of PLC. [Vice-Principal]

7.4.5 Assessing Effectiveness of Teaching Strategies

The school's involvement with researchers from the National Institute of Education (NIE) also exposed one PLT to the use of Rasch analysis. The Rasch analysis provided teachers with information pertaining to individual students' ability with regard to individual test items' difficulty. There was widespread affirmation from those involved in the research project that the use of Rasch analysis played a very important role in supporting teacher learning. It supported teachers in the following ways: (1) insights into test items difficulty in relation to one another, (2) insights into individual students' ability, (3) information on individual students' learning gaps, (4) identifying teaching strategies to close students' learning gaps, and (5) monitoring the growth of students' ability over time. The Rasch analysis provided teachers with a more accurate measurement of assessing students' ability. It challenged teachers' assumptions on what they think their students should and should not be able to do in assessment tasks.

> When you know how the Rasch analysis gives you feedback, then you know where a certain pupil is, or who are those that are the outliers that are performing way above the rest, or those that may not be getting it (understanding the concept). So it gives us a lot of feedback in terms of those who might need help. The other thing that we eventually got to see was the options that they chose. So, I thought it was a very detailed way of doing formative assessment. You know exactly what the child is like, what he was thinking about, or what was the routine the children were following as they were solving those questions. [Teacher]

7.4.6 Challenges

Several challenges had been highlighted by the school leaders. The first challenge was the lack of time, especially with regard to refining lesson plans and finalizing the lesson study projects. In addition to this, teachers faced the competing challenge

of engaging in PLCs in the midst of their heavy and hectic teaching schedules. It was a struggle to balance the practice of PLCs with the fulfilment of teaching responsibilities. This proved to be a challenge to support and foster quality PLC conversations—as indicated by the following comments:

> Time is always an issue. To be very honest, in order to reflect, you need a bit of time and space. If you have a whole lot of things that are waiting for you on your table, it's really not possible. You can't just say to yourself 'I'm going to sit down and reflect.' It's very artificial. [Vice-Principal]

> I think probably the first challenge I see–from the PLC meetings that I have attended—would be the quality of the conversations. At times they can be very focused on getting things done. I think probably it's the time–one hour. The teachers come in from a particular class lesson, they might have had a bad time. And then they come in, and they're supposed to engage in quality conversations. This may be also a bit of a challenge. Structure, timing, quality of conversations are some of the challenges we face. [Vice-Principal]

The second challenge highlighted by the school leaders was the lack of consistency on school-wide teacher ownership and commitment to PLC aims. Although the school leaders reported that they consulted with teachers on how best to manage the implementation process of PLC, they were cognizant of the different levels of teacher commitment and capacities on PLC matters. There was some evidence of continuing pockets of resistance to PLC implementation, especially amongst the experienced teachers.

> Teachers with more years of experience have mental models different from teachers who are new. It is really about changing the more experienced teacher – 'I've already done this, so why are we doing this?' For them it could be a waste of their time. For the younger teachers, it's a good platform because they appreciate the importance of peer support and all that's coming in. So it's really about framing their thought pattern in that sense. To be honest, not all teachers are on board. So these are key challenges. [Vice-Principal]

The third challenge highlighted was teachers' lack of skills in making effective use of data to help in constructing appropriate strategies. This was specifically with reference to the data collected from observations made on students within the lesson study process.

> Some groups (of teachers) don't use data and evidence to guide what they are doing. They often depend on their own intuitions regarding students and classroom practices. As they're not very data driven, their analysis is not in-depth enough. [Vice-Principal]

7.5 Yishak Primary School

The school introduced lesson study in 2007 and achieved some degree of success with it. However, the School Staff Developer (SSD) observed that not every member of the team was actively contributing to the process, and that the *'majority are taking a backseat'*. He therefore recommended switching to action research

which he believed to be a better tool to equip every teacher to become more engaged in inquiry, becoming reflective practitioners. Although the culture of collaborative teacher learning has been around for several years, the school only received the official status of MOE PLC in early 2013.

PLC meetings are conducted one hour weekly, out of which about a quarter of the time is spent on grade level pedagogical matters and three-quarter of it spent on action research projects. PLC meetings are led by level facilitators who are usually Senior Teachers or aspiring Senior Teachers. The Coalition Team consists of the SSD, two Senior Teachers and level facilitators. The vice-principal plays the role of advisor. The coalition team looks into matters of professional development of teachers. The principal and vice-principal have the primary role of setting the direction for PLC. Nevertheless, the vice-principal plays a more active role in supporting PLCs. This is because he was the former SSD, and in that capacity he appointed the level facilitators in 2012 after recognizing the need for more support for the PLC teams. The new SSD was appointed at the start of 2013 and plays the role of monitoring and guiding the level facilitators to ensure that the PLC processes are in place and running efficiently.

7.5.1 Structure Supporting Collaborative Learning

The school leaders saw PLCs as a structure for teachers to learn collaboratively in the pursuit of a common goal—that is, improving teaching and learning.

> We want to make every teacher innovative. In the spirit of innovation, the teacher will explore and the teacher will grow as he explores…The PLC provides a platform to support the teachers, because in the PLC structure you are not alone. You have your own group of like-minded people to discuss, to have a discourse on themes and methods. [Vice-Principal]

PLC is perceived as a platform to discuss issues other than administrative matters, and where pupils' data on learning are scrutinized to close the learning gaps through improving teachers' pedagogical knowledge. PLC affords collaborative exchange of ideas amongst experienced teachers who have years of experience behind them and beginning teachers who are armed with fresh innovative ideas. The PLC also serves as a structure for teachers to clarify their misconceptions, and for disagreements to be aired and resolved.

The collaborative learning that occurred through PLCs proved to be more relevant when compared to attending workshops conducted externally. PLCs were reported to have added value to the school's ICT programme and has contributed to the increase in the level of student engagement as reported in the Quality of Student Experience (QSE) survey.

7.5.2 Collaborative Learning for Camaraderie

PLCs were perceived to benefit teachers in helping teachers resolve conflicts and disagreements, promote staff bonding, enable sharing of resources and ideas, allow more experienced teachers to share their wealth of experience and less experienced teachers to share innovative ideas with one another.

> PLC is a platform whereby the teachers show care to one another, by giving one another support in that journey. [Vice-Principal]

PLC was generally perceived as not only fostering and nurturing staff bonding, but also rich collaborative learning amongst teachers. In this sense, rich learning and building strong relationships are tightly intertwined.

7.5.3 Assessing Effectiveness of Teaching Strategies

Similar to Care Primary school, Yishak Primary school also participated in projects with researchers from the National Institute of Education (NIE), where one PLT was introduced to the use of Rasch analysis. The exposure to the use of Rasch analysis also provided teachers with insights into areas of weaknesses of students' learning, and hence, a better understanding of their students within the level and between classes.

> I think Rasch analysis helps to give a perspective which they (teachers) never considered before. How is it that a child thought to be high performing failed to solve these questions? And vice versa, those who were thought to be less able managed to solve those question? So, the analyses helped them to understand deeper, and motivated them to question and to enquire; 'why is this so?' And I think it's good to have teachers enquiring about students' practice and students' performance. [Vice-Principal]

7.5.4 Challenges

One of the challenges faced by the school was insufficient time allotted for PLC discussions. First, PLC time spent on discussing teaching and learning in smaller groups specific to action research projects lasted about 30−40 min so as to accommodate for grade level administrative matters. Second, the double session structure was perceived to constrain timetabling for PLC meetings. Third, there was the temptation for teachers to use some of the PLC time for administrative matters. There was therefore a fight for time over matters of teaching and administration. Ensuring that time for PLC sessions would be kept sacred and devoted to only PLC conversations proved problematic.

> The only thing that I try to discourage is using these PLC sessions for administrative matters. Sometimes they try to bargain with me–how about 5, 10 min? I think 5, 10 min is all I can give them. [Vice-Principal]

The second challenge reported by school leaders was the different levels of engagement of teachers in PLCs. This was contributed by several factors. Some of the action research projects were rigorously assessed at the end of the year. Some were reported to lack substance (e.g. lacking depth in literature review). Some teachers were reported to have the view that PLC discussion was not relevant to them. They perceived that the learning that takes place through PLC discussions is intended to serve a project—an agenda that is different from their day-to-day classroom teaching and learning. Much time was used to read up on relevant literature, thinking through the research design, constructing the instrument, collecting data, analysing data, preparing the report and presenting the findings at the end of the year.

The third challenge has to do with facilitating PLC discussions, which was seen as an unenviable task. It was reported that getting every group member to agree and be accountable to one another is a very difficult task. Furthermore, although the school leaders put in place a structure where level facilitators would help to oversee the running of PLC discussions and to ensure that the discussions are directed and focused, they were nevertheless concerned about the lack of ownership amongst team members. The vice-principal was cognizant of the need to use a distributed model of leadership to help to strategically develop a collaborative learning culture.

> I think PLC can be improved by the teachers being more self-directed, rather than waiting for the level facilitators to lead them. I want to see more of that emerging from individual teachers. When someone points out something 'This is what we can do'; others can come into say 'Can we consider another method' or 'Why is this method adopted?' [Vice-Principal]

The need for each teacher having genuine ownership on learning through PLC points to the fourth and final challenge—that is, nurturing positive teacher belief on PLC and its impact on student learning.

> So along with the two concerns – new approach in how we group teachers, and teachers who are new to the level, new to the subject, new to the school – is their (teachers') belief – the strong belief in really wanting to bring out the best in every child … Because I've been with them four years already. So I know that each time right at the PLC level they started to go into identifying the real needs of the child. [Vice-Principal]

7.6 Discussion and Conclusion

The findings from the two case studies highlight how PLCs are very much shaped by context. In an education system that values standardized quality of schooling, along with the value for hierarchy, efficiency and collectivism, Singapore school leaders and teachers may feel obligated to implement PLCs using the education ministry's PLC model. The desire to make 'Every School A Good School'—a motto created by the education minister, Mr. Heng Swee Keat, resonates across the different layers of educators such as school leaders, teachers and headquarters

officials. Underlying this motto is essentially the desire to help every student learn to his or her maximum potential. This important calling provides one of several motivations for school leaders and teachers to implement PLCs in schools, and in supporting the implementation of PLCs system-wide.

The two case studies also highlight several benefits that PLCs afford, and further provide an explanation as to why PLCs are valued by both schoolteachers and leaders. PLCs provide an apt structure and culture for teacher collaborative learning with the purpose of improving student learning via improvements in teaching strategies especially with the aid of appropriate assessment tools. In the course of doing so, teachers grow in their knowledge and skills, and professional relationships among one another. The importance of building the structure and culture for teacher collaborative learning, however, cannot be devoid of leadership, albeit the more dispersed or distributed type.

Although the importance of leadership in supporting PLCs has been highlighted before (e.g. Huffman and Jacobson 2003; Hipp and Huffman, 2010; Hairon et al. 2014), the findings from the two schools suggest that challenges still persist to potentially hinder the enactment of PLCs. The findings from the study also give us a better understanding of school leaders' priorities and concerns on PLC matters. One of the priorities that school leadership has pertaining to the implementation of PLC is the provision of organizational structures in the form of timetabled time, facilitators and the choice of learning tools (e.g. action research and lesson study, or more widely known as the 'theory of action' espoused by Cochran-Smith and Lytle 2009). However, the mere existence of these structures does not necessarily lead to sustainability in terms of school-wide teacher buy-in, ownership and participation. School leaders have to become more incisive in the operationalization of PLCs in schools—and to ask more incisive questions pertaining to effective implementation of PLCs. The following are questions that school leaders need to address with regard to timetabled time for PLCs: When shall PLC meetings be conducted—at the start, in the middle or end of the school day? How often should PLC meetings be held—once a week, twice a week or once a month? How long should the PLC meetings last—30, 60 or 90 min? What is the optimal time for teacher learning in PLC meetings? Where is the appropriate venue for PLC meetings?

With regard to group composition, school leaders need to address the following questions: What is the optimal size of each PLC group—4−6, 7−8, or 9−10? How should teachers be grouped in PLC—similar subjects, grades or topic of inquiry (e.g. problem-based learning)? Should PLC group be homogenous or heterogeneous in composition? Who should be facilitating PLC meetings? On what basis should facilitators be selected—teaching experience, personality or career development? How are facilitators developed—workshops, courses, shared learning among other facilitators? What resources do they need? Who will develop them? What are the sources of their influence—experience, maturity, expertise, position? What is the title that will best reflect their role—facilitators, team leaders, supervisors, mentors? Will there be a co-facilitator, and if so, for what purpose? What motivates facilitators, and how can they be rewarded?

The importance of building facilitators is akin to the importance of building teacher leadership. This would require school leaders to enact distributed leadership which can be defined as influence-related practices emanating beyond a single leadership position. Distributed leadership has also been reported to have four dimensions—bounded empowerment, developing leadership, shared decision and collective engagement (Hairon and Goh 2014). Bounded empowerment has to do with relinquishing decision-making power to others but within a bounded scope. Shared decision has to do with promoting decision-making actions vertically and horizontally in the organization. Collective engagement has to do with promoting interactions among staff members in their day-to-day work. Lastly, developing leadership requires school leaders to invest in the development of leadership capacities in staff members. And it is in this aspect that teacher leadership is developed and enhanced. Teacher leadership can be defined as 'the process by which teachers, individually or collectively, influence their colleagues, principals and other members of school communities to improve teaching and learning practices with the aim of increased student learning and achievement' (York-Barr and Duke 2004, 287–288). Also, three dimensions for teacher leadership have been identified (Hairon et al. 2014; Hairon et al. forthcoming)—(1) building collegial and collaborative relationship, (2) promoting teacher learning and development, and (3) enabling change in teachers' teaching practices.

With regard to the use of learning tools or theories of action (e.g. action research, lesson study), the following questions need to be addressed by school leaders: Which theory of action is most suitable for teachers in their school context? What specific knowledge and skills need to be acquired by PLC group members? How do teachers develop these knowledge and skills—workshop, courses or community of practice? Who could help develop these knowledge and skills? What resources do PLC group members need to develop these kinds of knowledge and skills? How do we help teachers not to treat the use of learning tools as a project, but more of a process of teacher learning to improve classroom teaching and learning?

Beyond matters of structure, school leaders are equally challenged on matters of culture—that is, shaping teachers' beliefs and values pertaining to PLCs. In this regard, school leaders could ask the following questions: What cultural values do I want to promote that support PLCs—respecting diversity, trust, constructive criticism, consensus decision-making, lifelong learning, quest to know the truth? How can I role model these values? Who else in my school could role model and promote these values? What school policies could be put in place to promote and support these values? What existing values run contrary to the espoused values that I want to promote for PLCs? What can I do to discourage these contrary values?

It is also instructive to take note that the societal pragmatic value pervades almost all, if not all, schools in Singapore. In this regard, teachers' buy-in, ownership and participation in PLCs can be highly achieved when they can experience how PLC activities impact their classroom teaching and learning. The key question which school leaders need to ask is—What should I do to ensure that teacher learning in PLCs translates to individual teachers' classroom teaching? This question is the principle or master question undergirding all other questions that

have been raised above. For example, the optimal size of a PLC must be one that will help teachers translate teacher learning in PLCs to individual teachers' classroom teaching and learning. Likewise, the development of facilitators and their functioning must be one that will help teachers translate teacher learning in PLCs to individual teachers' classroom teaching and learning. This principle or master question basically answers the basic question that distinguishes PLCs amongst other forms of learning communities—What do PLCs seek to accomplish? The response is to improve teachers' teaching and students' learning. At the heart of our argument is that teacher learning in PLCs must translate successfully into individual teachers' classroom teaching and learning. There is no better way to bring about teachers' positive belief in PLCs, and in sustaining the practice of PLCs both school-wide and nationwide.

7.7 Questions for Reflection and Discussion

1. What do you think are the essential elements of a PLC?
2. What does your school hope to achieve through PLCs?
3. What support needs to be given for PLCs to be effective?
4. What aspects of PLCs need to be researched further?

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