**Teacher Leadership Enactment in Professional Learning Community Contexts: Towards a
Better Understanding of the Phenomenon**

Introduction

Professional learning communities (PLCs) are now recognised as having the potential to positively impact teacher knowledge and skills, and student learning outcomes through ongoing improvements in teachers' practice (Darling-Hammond et al. 2009). This is not surprising bearing in mind PLCs provide the social space for teachers to collectively interrogate and construct knowledge on teaching and learning, and translating it to improvements in teaching practice. As nation states attempt to reform their education systems, the importance of developing teacher competency through effective professional development provisions remains highly salient. Although the claims on PLCs impacting teacher and school capacity as well as student learning outcomes are attractive, more work is still needed in understanding the specific activities that teachers engage in PLCs from different settings or contexts (Bolam et al. 2005). Furthermore, more research work is needed to examine the specific interactions and dynamics in which professional community constitutes a resource for teacher learning and innovations in teaching practice, and how communities achieve their effects (Little 2003).

In this study, what is of great interest is how teacher leaders play a significant role in supporting conversations in PLCs so as to impact teaching and learning. While due attention has been given to the importance of principal leadership in supporting PLCs (e.g., Huffman and Jacobson 2003; Hipp and Huffman 2010), the role of teacher leadership supporting PLCs tends to be neglected. This could be due to the lack of agreement on the definition, conceptualisation and operationalisation of the concept for the last 20 years (Leonard, Petta and Porter 2012), leading to the weak theorisation of the construct. Understandably, this also leads to the weak empirical base supporting the claims on its effects (York-Barr and Duke 2004). The purpose of this study is to investigate how teacher leadership supports PLCs, and in doing so, further develop the substantive theory on teacher leadership. The first section of this

article discusses the theoretical scope pertaining to teacher leadership and its relationship to PLCs. The second section outlines the methodological aspects of the study comprising the design, sample, data collection, data analysis, and findings. Finally, the third section discusses the importance of teacher leadership in PLCs followed by the proposal for a tighter definition on the teacher leadership construct along three dimensions.

Teacher leadership in PLCs

The term teacher leadership is not a new concept and has been around for more than two decades emanating from the professionalisation discourse in the USA in the 1980s and 1990s (Frost 2012). Since then it has gained a footing in the educational reform discourse in varying extent but predominantly in Western Anglophone countries. Notwithstanding the lack of agreement on the definition and conceptualisation of the term for the last 20 years (Leonard, Petta and Porter 2012), the definition given by York-Barr and Duke (2004) seems to be most compelling – that is, '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' (287–288). This conceptualisation was derived from their empirical literature review on teacher leadership resulting in an overarching conceptual framework. The framework consists of seven components: 1) characteristics of teacher leaders, 2) type of leadership work engaged in teacher leaders, 3) conditions that support the work of teacher leaders, 4) means by which teachers lead, 5) targets of their leadership influence, 6) intermediary outcomes of changes in teaching and learning practices, and 7) student learning.

York-Barr and Duke (2004) were not alone in attempting to come up with a conceptual framework for teacher leadership. Muijs and Harris (2003) framed teacher leadership as containing four aspects: 1) brokering role of teacher leaders to ensure that links within and across schools are in place and that opportunities for meaningful development among teachers are maximised, 2) participative leadership role of teacher leaders where they work collegially with other teachers to encourage the examination of instructional practices, 3) mediating role of teacher leaders where they become sources of instructional

expertise and information, and 4) Teacher leaders' role in forging close relationships with individual teachers through mutual learning. Extending this conceptualisation, Harris (2005) highlighted four aspects in the definition of teacher leadership – 1) creation of collegial norms, 2) opportunities to lead, 3) working as instructional leaders, and 4) re-culturing schools. Although these conceptualisations are less overarching and consolidating than York-Barr and Duke's (2004), what is telling is that the understanding of teacher leadership and the establishment of its construct are not easily accomplished, bearing in mind the need to be encompassing yet distilling. Leonard, Petta and Porter (2012) claimed that numerous studies over the last 20 years have wrestled with the definition and conceptualisation of teacher leadership. In their analysis of selected studies that directly or indirectly pertain to teacher leadership, they concur with the definition of teacher leadership outlined by Katzenmeyer and Moller (2011) – that is, 'Teacher leaders lead within and beyond the classroom; identify with and contribute to a community of teacher learners and leaders; influence others toward improved educational practice; and accept responsibility for achieving the outcomes of that leadership' (6).

The lack of agreement amongst scholars on the precise definition of teacher leadership could be due to several reasons. First, the general leadership construct is still contested, which only serves to frustrate any attempts at clearly delineating the substantive differences among the wide array of leadership models or types, including teacher leadership. Harris (2003) asserted that the literature on school leadership contains 'a bewildering array of definitions, theories and models' (318). Second, little attempt has been made to consolidate the different models of leadership. For example, there could be differences and overlaps in the constructs of instructional, transformational leadership and distributed leadership. Third, the lack of recognition that teacher leadership is possibly a multi-dimensional construct. Fourth, the lack of both quantitative and qualitative research to explore and distil the meaning and operationalisation of the construct and its attendant dimensions or sub-constructs. Without a more parsimonious and precise conception of teacher leadership including its sub-constructs or dimensions, the potential effects of teacher leadership will remain largely in the domain of claims instead of empirical evidence. We thus found York-Barr and Duke's

(2004) teacher leadership framework attractive because it provides a holistic base to further develop a more parsimonious and precise construct of teacher leadership along with its multi-dimensionality.

The close relationship between teacher leadership and teacher learning in communities (e.g., PLCs) has been sufficiently highlighted (e.g., Lieberman and Mace 2009; Mindich and Lieberman 2012). Harris (2003) claimed that the optimal function of teacher leadership is in the direct establishment of PLCs within and between schools. This is understandable as PLCs are ideal sites for the exercise of teacher leadership to bring about teacher collegial relations, collaborative or collective engagement, and learning with the intention of bringing improvements in teaching practices and student learning. Harris (2005) asserted that PLCs embraces the notion of teacher leadership insofar as it assumes teachers to be catalysts for change and development towards a commitment to shared collaborative learning in a community.

Teacher leadership understandably provides the means for open communications, trust and rapport, and continuous inquiry and improvement of work, which are characteristics of PLCs (Childs-Bowen, Moller and Scrivner 2000). It is no wonder that some researchers argue that teacher leadership is centrally imbedded in communities – that is, it 'contributes to long-term, enhanced quality of community life' (Crowther et al. 2002, xvii). The potential benefit of exploring the enactment of teacher leadership in PLC settings is therefore huge. This study therefore made use of PLCs as the context for the investigation of teacher leadership.

The Singapore PLC Model

In 2010 the Singapore Ministry of Education (MOE) promoted PLCs as a system-wide and state-led initiative, and encouraged all schools to become PLC schools using its model which serves three aims: ensuring students learn; building a culture of collaboration; and focusing on student learning outcome (TDD 2010). The model espouses the use of four critical questions, which was adapted from DuFour et al. (2010): (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? and (4) How will we respond when they already know it?

Teacher groups, comprising a handful of teachers sharing either the same grade level students or content subject, called 'Professional Learning Teams' (PLTs), play the role of deepening pedagogical understanding and competencies using learning tools such as action research and lesson study. PLTs are supported by a Coalition Team, comprising key people in the management team such as the principal, vice-principal and school staff developer, who provide appropriate structures and culture to support the school's PLC framework (refer to Lee and Lee 2013 for a further details). Although the Singapore education system is said to be highly centralised, the implementation of PLCs has a tight-loose combination. The former is the setting aside of week 1-hour timetable time for PLCs, the latter is the choice of learning tools to be used in PLCs.

Although the PLC initiative is a recent development, Authors (2012) argued that the initial enactment of PLC started in 2000 with the establishment of Learning Circles – comprising teacher groups committed to meet regularly to collectively improve teaching and learning. Although the term 'PLC' was not used in the promotion of Learning Circles, the substantive elements of PLCs are central in Learning Circles. Research studies specifically investigating teacher leadership in PLC settings is however absent. This study sought to explore how teacher leadership supports PLC conversations, to support the generation of findings that strengthen the theorisation on the teacher leadership construct.

Method

The study employed an ethnographic case study approach (Cresswell 2013). Data was primarily taken from participation observations, and informal verbal and email communications from the fieldwork of three PLCs, known as PLTs, from three government elementary schools in Singapore over a period of eight months. The enactment of participant observations were akin to ethnographic research involving researchers participating in people's daily lives for an extended period of time gathering all available data so as to throw light on the emerging focus of inquiry (Hammersley and Atkinson 2007). Each of the three PLTs comprised primarily Grade 5 teachers focusing on improving the teaching and learning of Grade 5 student learning in mathematics. The three PLTs from their respective schools were selected based on purposive sampling where

school teachers and leaders were keen on embarking on an intervention provided by the research team to improve their PLC processes and student learning in mathematics.

The student population of the three schools – School A, B and C, ranges from 1300 to 1700. School A PLT members comprised five Grade 5 teachers – one of which is the PLT facilitator, and one Grade 6 teacher. One of the Grade 5 teachers is a Subject Head (SH) – a formal position that is one cadre lower than the department head specialising in mathematics. The PLT met on average once a week or two weeks for one-hour PLT meetings. School B PLT members comprised four Grade 5 teachers, two Grade 6 teachers – one of which is the PLT facilitator, and one Mathematics Head of Department (HOD). One of the four Grade 5 teachers is a Senior Teacher (ST) – a formal position given to experienced teachers specialising in a specific content subject, which in this case is Mathematics. The PLT met on average once a week or two weeks for one hour PLT meetings. School C PLT members comprised six Grade 5 teachers – one of which is the PLT facilitator, and another is the School Staff Developer (SSD). The PLT met on average once a week or two weeks for 45-minute PLT meetings.

The research team, comprising mainly university academics from a teacher education institute, provided the intervention framework for the three PLT facilitators. The intervention involved three months of understanding the needs and challenges faced by PLT members during PLT meetings, and another five months of using a framework of principles and processes for PLT facilitators provided by the research team based on the analytic notes drawn from the first three months. The research team participated in the PLT meetings as a participant observer. Observation notes were made during and after each PLT meeting. Informal interviews or email communications with PLT facilitators and key members of the PLT teams such as SSD and HOD were also conducted after each meeting summarising key observations and recommendations. These informal interviews and email communications had multiple purposes: 1) gain greater clarity to the research team's observations, 2) highlight critical incidences and issues, and 3) provide recommendations for improvements on facilitation. Along the way, analytic notes were also made highlighting relevant themes pertaining to teacher leadership that had

surfaced from the fieldwork. In total, 50 fieldnotes (19, 16 and 15 respectively) were generated from 50 participant observations correspondingly accompanied by informal face-to-face and email communications, when available.

By the end of the first three months, the research team established the key principles and processes that pertain to PLC facilitation forming the intervention framework. It consisted of the four aspects. The first aspect is the '3 Stages of PLC Participation' (Figure 1)

Figure 1: Stages of Participation in PLCs

The second aspect is the '15 PLC Facilitation Principles', which are categorised along the 3 Stages of Participation in PLCs (refer to Appendix 1). The third aspect is the '5 PLC Conversation Questions'. These five conversation questions intend to bring about the concomitant development of the following knowledge in teachers: 1) curriculum content knowledge, 2) pedagogical knowledge (the theories of teaching), 3) instructional knowledge (the practices of teaching), 4) assessment knowledge, and 5) knowledge of student learning

(Refer to Figure 2). The fourth aspect is the '7 PLC Conversation Activities' (refer to Appendix 2)
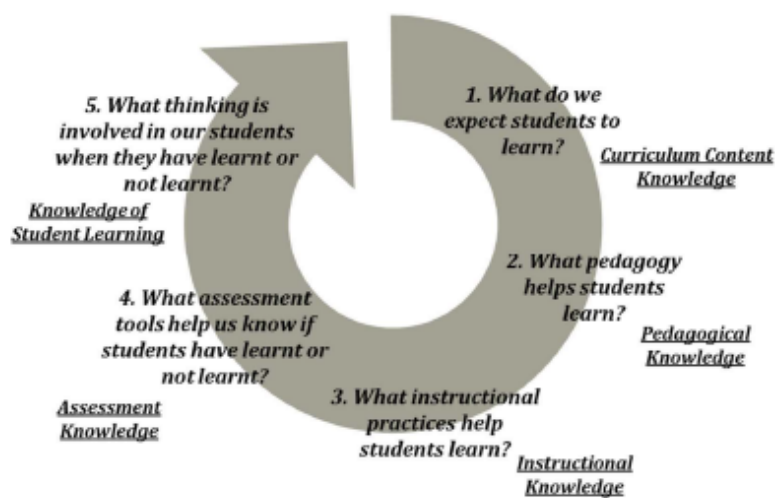
Figure 2: Five PLC conversation questions and the development of teacher knowledge

From the fourth month onwards, the three PLT facilitators were introduced to intervention framework, and were provided feedback and assistance in the applications of intervention framework. The data collected from the fieldwork in the form of fieldnotes derived from participation observations, informal face-to-face conversations and email communications were systematically coded over the 8-month period. No audio or video recording were made on observations or informal interviews. Thematic codes were progressively developed to generate findings focusing primarily on how teacher leadership supported PLC conversations, and informed by the conceptual and theoretical framework of teacher leadership outlined by York-Barr and Duke (2004).

Findings

The proceeding descriptions of situations captured in the fieldnotes were selected based on their high relevance to the core thematic codes generated pertaining to teacher leadership in PLC contexts. In total, three core findings emerged from the study. These situational descriptions were mainly taken from fieldnotes of participant observations, and supported or elaborated by informal interviews. They include the following:

1. Teacher leadership influence is to build collegial and collaborative relations.

2. Teacher leadership influence is to promote teacher learning and development.

3. Teacher leadership influence is to enable change in teachers' teaching practices.

Teacher leadership influence to build collegial and collaborative relations

One of the challenges that the PLT facilitators faced was establishing collegial and collaborative relationships among group members. While PLT group members belong to the same school, this did not automatically produce collegial and collaborative relationships. School leaders' decision to provide organisational time and space for group PLT group members to meet regularly did not translate spontaneously to collegial and collaborative relations. The main challenge for the facilitators was getting group members share their teaching practices in the open. In the initial phases of the PLT meetings, all three PLT group members showed reluctance in sharing their individual classroom teaching experiences but in varying degrees. For an example, in School C PLT, the initial group members who shared their teaching practices were an experienced teacher and the facilitator in the beginning of the year. Two group members were mostly quiet throughout the entire year. The lack of openness to share their teaching practices had affected the collegial and collaborative strength of the group. However, one of the two did start to share

his personal teaching strategies when opportunities were given to him to show how he taught his students. His lack of collaborative discussions was attributed to his belief that his students were very different to the rest of the students, and thus the lack of relevance in the PLT conversations.

The differences that existed within each of the three PLT groups played a significant part in building collegial and collaborative relations. School A PLT group was made up of not only Grade 5 teachers, but also a Grade 6 teacher. School B PLT group had two Grade 6 teachers even though the group comprised mainly Grade 5 teachers. The mixing of teachers was orchestrated by the school management taking into consideration organisational strategies, one of which was to create greater linkages between the Grade 5 and 6 curricula. What this meant was that Grade 6 teachers found difficulty in sharing the same interests, concerns and goals of the group, which inadvertently hampered their community participation. Another source of difference was that each PLT group has members teaching different ability groups – High Ability (HA), Middle Ability (MA), and Low Ability (LA), plus a Foundation group of students which have lower ability than LA students.

In response to the challenges, the research team's advice was to apply the principle of 'respecting teachers' autonomy to participate' in PLC conversations. Group members had the liberty to participate or not to participate in PLC conversations regardless whether PLCs were perceived as compulsory or not. For example, School C PLT facilitator did not coerce quieter group members to contribute to discussions. This had helped group members to accept individual differences in terms of personality. Another facilitation principle suggested is to protect individual teachers' well-being, which includes promoting psychological and emotional well-being. In School B PLT group, the Senior Teacher who joined mid-way through the year was reluctant at first to take a more active role in facilitation because she did not want to be seen as side-stepping the facilitator. The decision was for her to take the instruction by the facilitator to provide support in facilitating segments of PLT meetings. In doing so, group members' psychological and emotional well-being was preserved. Another suggestion was not to demand every group member to show video-recorded clips during PLT meetings. This took place in School C PLT group. The

HOD Math, however, volunteered to show a segment of her teaching during PLC meetings leaving the decision to teachers to do likewise or not.

Another principle to promote collegiality and collaboration was to 'promote teachers' collective identity'. The crux of this principle lies in the congealment of individual identities through shared experiences. In this aspect, facilitators were advised to give every group member opportunities to contribute to (i) the conversations; (ii) group purposes using their strengths in terms of knowledge, skills and resources; and (iii) consensus decision-making processes. In School C PLT group, one member revealed that the PLT discussions had very little relevance to his classroom teaching. However, his participation in discussions gradually grew when opportunities were given to him to share his teaching strategies to others. In doing so, other group members were better able to understand his preferred teaching approaches. Also, an experienced teacher shared her teaching strategy which another experienced teacher had also tried and found it useful. This was a starting act of building a collective identity. In one conversation, a teacher who was generally quieter than others shared that although he did not talk much, he had learnt much from others' sharing on a focused pedagogy, and had refined those ideas to be used in his own teaching practices. The connection that he had made with other group members' ideas through experience had served to build collective experiences and identity. In School A PLT group, when it was noticed that a Grade 6 member had taken a back seat in most meetings, the facilitator started to get his views in the decision-making process. This had encouraged greater collective experiences in the group.

Summary:

The findings showed that providing time and space for teachers to meet together for PLC conversations did not guarantee spontaneous collegial and collaborative relations. There were potential hindrances to collegial and collaborative relations. Group members had different levels of openness in sharing their teaching practices in the open, which affected collegial and collaborative relations. The issue has to do with trust – that is, group members feeling safe to share their teaching practices in the open without being negatively judged. This is generally consistent with the literature on PLCs (e.g.,

Lieberman and Miller 2011). A more practical and pragmatic than relational contributor to the lack of openness was the differences in group members' teaching specialisation and thus priorities First, some group members were not from the same grade level. Second, even though all group members were in the same grade level they had different ability groups of students. The findings also showed that 1) respecting group members' decision to participate or not in conversations, 2) yet still providing opportunities for open sharing, 3) protecting their psychological and emotional well-being, 4) creating opportunities for shared experiences of teaching practices towards collective identity, and 5) promoting group consensus decision-making were important to build collegial and collaborative relations especially in hierarchical social systems.

Teacher leadership influence to promote teacher learning and development

Another challenge that the PLT facilitators faced was encouraging teachers to learn from one another. What stood out was the use of action research and lesson study steps to guide teacher learning. For example, School A PLT group used the action research cycle of reflection, plan, act, observe and critical reflection. Within this framework, teachers discussed and worked together on the Area of Concern (AOC), Research Question (RQ), literature review, data collection and analysis, and report writing. Hence, discussions were centred on completing these milestone checks. School B PLT group used the lesson study 2-cycle of lesson planning, lesson observation, post-lesson discussion, which acted as foci for group discussions and milestone checks. School C PLT group had discarded the original plan to use an action research cycle with the intention of off-loading group members' work so as to focus their energy on the intervention work provided by the research team. The group had therefore decided to use the intervention framework on the 7 PLC Conversation Activities provided by the research team (Appendix 2), but not without difficulties because they were used to using a series of action research and lesson study steps in the previous years.

Essentially, the PLT facilitators were more accustomed to using the learning tools of action research and lesson study to help group members learn. However, the facilitation to influence teacher learning using these tools was

implicit and incidental rather than explicit and intentional. In other words, the PLT facilitators prioritised completing the steps in action research and lesson study over teacher learning and development. Action research and lesson study learning tools were primarily used as technical tools to accomplish milestones steps. The heavy reliance on these learning tools had also side-lined the four critical questions set out in the MOE PLC model. These questions were treated primarily as back-grounded principles rather than actual practice of questioning. In action research, the need to collectively formulate the research questions requires some form of questioning relating to what teachers expect students to learn. Likewise, the data collection and analysis answer the question whether students have learnt or not. In the lesson phase of lesson study, teachers explore what they want students to learn. The lesson observation phase allows teachers to know when students have learnt. The post-lesson observation meetings enables teachers to know how they would respond if students have learnt or not.

During the initial phase of the intervention when the facilitation required group members to consider the curriculum content to be learnt by students (refer to Figure 1), all the PLT groups expressed the same concern on mathematical word problems. However, members in all PLT groups spent time to think through and decide on the universal pedagogy, or theory of teaching, that would serve as the theoretical foundation for instructional practices. Eventually, School A and C PLT groups decided on the use of CPA approach (Concrete, Pictorial, Abstract), which is the belief that students understand concepts through the process from concrete to pictorial and finally to abstract understanding. School B PLT group, however, took slightly more time before deciding on the use of a 'hypothesising approach' to solving mathematical word problems, whereby students first hypothetically guess the answer to a mathematical word problem followed by testing that hypothesis through the drawing of models.

Besides relying on action research and lesson study tools, PLT facilitators also used a range of facilitation activities to influence teacher learning and development. Firstly, the use of questions by facilitators had helped group members explore ideas and come to decisions on instructional practices. With regard to teachers' instructional practices, the facilitation had helped group

members explored a wide range of instructional strategies by asking 'What instructional practices help students' learn?' Examples included the following: drill and practice for LA students, explaining to students the meaning of each problem statement in the word problem, highlighting key words in the word problem, writing down students' questions to answer word problems better, PowerPoint slides to show students step-by-step development of models to solve word problems, guessing the answers to the problem using a model and comparing it with the teacher's models; games to help students' understanding, and surfacing students' misconceptions. Questions raised by group members also provided the means for members to collective discuss the effectiveness these teaching strategies. As an example, in School A PLT, the effectiveness of using 'drill and practice' for LA students was proposed and contested. Some group members believed that LA students learn better using 'drill and practice' because they are not able to engage in deep thinking and that it strengthens memory in problem solving. Some, however, believed that LA students are able to engage in deep thinking using proper instructional practices. And a few believed that a mixture is needed – that is, to use 'drill and practice' but still addressing students' misconceptions.

Secondly, PLT facilitators arranged for samples of teaching materials made by group members to be discussed in the PLT meetings. For example, School C PLT facilitator arranged for an experienced teacher to show PowerPoint slides to group members along with a song to help students remember and understand the concept on decimals. She then shared how her students found the activity fun and engaging, and how they remembered the concepts because of the song. Thirdly, PLT facilitators arranged for students' results from tests to be analysed by group members. These test results provided the material for group members to raise questions such as, 'Why did these students not able to answer these test items?' Such questions then sparked a string of discussion by group members to consider in terms of possible reasons. Fourthly, PLT facilitators provided opportunity for teachers to demonstrate steps in teaching so as to encourage teacher learning. In School C PLT group, a group member was asked to show how he would teach LA students using his simplified version of teaching. He used the whiteboard to illustrate how he would teach his students while group members attempted to appreciate the teaching strategy.

Some raised questions to ask for clarity. In School B PLT group, a group member made use of a video-recorded clip to show how she had taught a concept using step-by-step model drawing in PowerPoint slides. Some group members asked questions for clarifications. A few meetings after, one group member made a comment that he would teach it to his students with slight modifications. The four facilitation activities were enacted in response to the intervention framework of the 7 PLC Conversation Activities (refer to Appendix 2).

Summary:

The findings showed that PLC facilitators unwittingly more than wittingly played an important role in enabling group members learn. In other words, the act of influence to promote teacher learning and development is more incidental than intentional. This is consistent with the influence to build collegial and collaborative relations. This is because they prioritise and are heavily dependent on the steps of learning tools to guide group members complete tasks such as action research and lesson study. This phenomenon applies to the use of the intervention processes. Nevertheless, PLC facilitators made use of a range of activities in PLC conversations to influence teacher learning and development, which included questioning, teaching samples, analysis of students' results, and demonstrations. The above four facilitation activities caused group members to learn through sharing, discussion and reflection on teaching practices.

Teacher leadership influence to enable change in teachers' teaching practices

The final challenge that PLT facilitators faced was in ensuring the translation of teacher learning from PLT conversations to classroom teaching practices. In this regard, the use of action research and lesson study tools was the default means of translating teacher learning in PLT meetings to classroom teaching practices. In School A, the use of a common set of test questions to be used by Grade 5 math teachers became the grade level teaching materials for action research. This resource immediately connected PLT conversations to classroom

teaching. In School B, group members were able to observe instructional practices conducted in members' classrooms based on the lesson plan collectively constructed during PLT lesson study meetings. Thereafter, group members talked about observations made on the research lesson in the subsequent lesson study meeting. The link between teacher learning in PLT meetings and teacher teaching was rather seamless. The downside of using lesson study was that only two cycles of lesson plan, lesson observation, and post-lesson discussion ware carried out because the cycle was scoped within a topic, and once completed group members needed to move on to other topics.

Besides the default action research and lesson study tools, the principles and processes of the intervention framework had helped facilitators guide group members translate their learning in PLT meetings to their respective classroom teaching practices. The principle on 'conversations connecting or being relevant to individual teachers' day-today classroom teaching' had helped PLT facilitators to engage group members to consider what instructional practices they had used recently to help their students grasp relevant concepts to be learnt, and what instructional practices they would want to try out in the near future for their students. In School A PLT group, when the facilitation enquired to what group members had used to help students solve mathematical word problems, the following were surfaced: drill and practice, identifying key words, understanding the demands of word problems one statement at a time, and requiring students to raise questions in the form of dialogue bubbles in connection to problem statements. In doing so, group members immediately brought classroom teaching experiences to PLC teacher learning experiences. In School B PLT group, when some group members were scheduled to use step-by-step instructional practices using model drawing, teacher learning experiences in PLCs were brought to classroom teaching experiences. This example also supports the principle on 'optimising accountability' where group members were to commit to an agreed instructional strategy at the end of PLT meetings.

From a few informal interviews, some group members reported that they were able to refine their instructional practices drawn from the knowledge shared by other group members. An example is a group member from School C who was silent most of time but paid attention to the conversations. He reported

that he tried some of the instructional practices proposed or tried out by group members but refined them to suit his classroom teaching and learning. A School B group member reported that he tried using an instructional practice proposed by another group member but intentionally discarded one step believing that his students would not have benefitted from it. What was consistent in these observations is that group members modified or refined the instructional practices proposed by others to make it suitable for their respective classroom teaching and learning. These two examples illustrate the principle on 'conversations connecting or being relevant to individual teachers' day-to-day classroom teaching'. Another principle which had helped in connecting learning in PLTs and teaching practices is 'make simple the complex' and 'produce and reproduce teaching artefacts that can be immediately be used'. In one PLT conversation at School B, group members agreed to a procedure using an acronym to help group members remember the procedures in teaching students to solve mathematical word problems. In one of the PLT conversations at School C, a group member showed how she had used a particular PowerPoint presentation to motivate her students to learn. This was immediately shared to group members via email after the PLT meeting.

Summary:

The findings showed that PLC facilitators had to be skilful in enabling group members make the translation of learning from PLC conversations to classroom teaching practices. PLC facilitators needed to help group members not only translate their learning from PLC conversation to their individual classroom teaching practices, but also bring their classroom teaching experiences back to PLC conversations for further teacher learning to take place. This is consistent with Schön's (1987) notion of reflection-on-action. Furthermore, the findings suggest that teachers were involved in some form of 'thinking through' or theorising of the knowledge shared in PLCs and trying it out in their respective classroom teaching practices in the inter-linkages between teacher learning experiences in PLCs and classroom teaching experiences – consistent with the 'theory of action' espoused by Cochran-Smith and Lytle (2009).

Discussion

The findings from the study corroborate the belief that teacher leadership does support PLC conversations in substantive ways. It does so in three major ways. First, teacher leadership builds collegial and collaborative relations. Second, teacher leadership promotes teacher learning and development. Third, teacher leadership enables change in teachers' teaching practices. However, the core finding underlying the different ways teacher leadership support PLC conversations is the intentional influence of teacher leaders on fellow teachers. The intentionality is obvious taking into account the conflicting roles between a teacher and leader in the conventional sense. The conventional mode of thinking associates teachers with teaching as opposed to leading roles, while leaders closely with department heads, vice-principals and principals in school organisations and are associated with leading roles, and therefore influencing others. In reality, however, teachers do influence other teachers in spontaneous, implicit and incidental ways. This distinction is even more marked in hierarchical societies such as Singapore.

Hence, there is the need for greater intentionality in the exercise of influence on the part of teacher leaders. In our conception, influence is the core essence of teacher leadership consistent with the mainstream leadership discourse. The study therefore highlights the importance of conceptualising the essence of leadership as an act of influence in achieving shared goals (Bush and Glover 2003). Teacher leaders' first exercise of influence is to build collegial and collaborative relations. Such intentional act of influence enables the building of a strong community, which in turn allows teachers to successfully learn in collective and collaborative manner. In other words, the strength of the community precedes and determines the quality of teacher learning. The quality of teacher learning then affects the quality of teaching practices, along with the development of teacher knowledge.

The findings from the study had helped clarify how teacher leadership relates to other models of leadership such as instructional, distributed and transformational leadership. The findings suggest that teacher leadership share similar characteristics with instructional leadership, transformational leadership, and distributed leadership. Teacher leaders have commonalities

with instructional leaders such as protecting instructional time, promoting professional development, maintaining high visibility and monitoring student progress (Hallinger and Murphy 1985). Teacher leadership also shares some features of transformational leadership such as individualised consideration / support, intellectual stimulation, modelling key values and practices, helping to build collaborative cultures, and creating structures to foster collaboration (Leithwood and Jantzi 2005). However, what decisively distinguishes teacher leadership from other mainstream leadership models?

We conclude that teacher leadership has a substantive essence different to the various mainstream leadership models. Essentially, influence in teacher leadership emanates from teachers, whose primary role is to teach and who are not school members with formal management positions (e.g. HOD, vice-principal and principal). Although they are instances where middle leaders such as department heads played a dual role of teaching and management, their core and predominant role is still management. In instances where teachers are given informal leadership positions (e.g., grade level coordinator) with the responsibility of ensuring curriculum coherence, the management function is very minimal in relation to their primary teaching function. This is consistent with the assertion that teacher leaders' work focusing on classroom level practice is likely to show student effects more readily than work focused on organisational level (York-Barr and Duke 2004). The question whether formal or informal leadership position constitutes the teacher leadership construct is less important than the core and predominant functions of these positions. In other words, teacher leaders can be formal or informal (York-Barr and Duke 2004). Further, although some observers argue that teacher leaders can influence middle and senior leaders (e.g., department heads, vice-principals and principals) (e.g., York-Barr and Duke 2004), their prevalent day-to-day interactions are with fellow teachers.

However, using the distributed perspective of leadership influence as an emergent, enmeshed work-related influence located in the interactions of school leaders, followers and their situation (Bennett et al. 2003; Gronn 2000; Spillane 2004), teachers may influence school leaders and not just their peers. Although the possibility of teachers exercising influence on middle and senior leaders (e.g., department heads, vice-principals and principals) is possible, the

actual enactment will not be prevalent. When school leaders empower by relinquishing decision-making power to teacher leaders, they give authority primarily on matters of teaching and not management. Hence, teacher leaders' enactment of influence would inevitably be towards fellow teachers pertaining to teaching matters, which is predominantly and rightly the domain of teachers' work. Simply put, there seems to be a practical division of labour between school leaders and teachers where the former focuses on strategic leadership while the latter on instructional leadership as theorised in the concept of parallel leadership (Crowther et al. 2002).

We are therefore persuaded to agree with York-Barr and Duke's (2004) definition on teacher leadership with emphasis given to teachers' primary influence on fellow teachers. Hence teacher leadership is the enactment of influence by teachers, individually or collectively, on school stakeholders but primarily fellow teachers towards shared goals pertaining to improvements in teaching and learning. Furthermore, we conclude that teacher leadership is a multi-dimensional construct consisting of three dimensions: 1) building collegial and collaborative relations, 2) promoting teacher learning and development, and 3) enabling change in teachers' teaching practices.

Conclusion

The findings from this study have given us insights into how teacher leadership supports school improvement processes, such as PLCs, to improve teaching and learning. Our operational definition of teacher leadership only departs slightly from that proposed by York-Barr and Duke (2004), but surfaced the multi-dimensionality of the construct. This will afford not only further exploration on sharpening or extending the three dimensions, but also the construction of instruments in both quantitative and qualitative research studies to further aid in investigating the relationships between teacher leadership and other related constructs such as teacher knowledge, skills and attitudes; school capacity; and student learning outcomes, which are still limited. The literature on teacher leadership is indeed relatively rich with claims on the potential and desired effects of teacher leadership and relatively

sparse with evidence of such effects, especially at the levels of classroom practice and student learning (York-Barr and Duke 2004). The potential of teacher leadership in bringing about improvements in teacher effectiveness is highly significant taking into consideration that the closer leaders are to teaching and learning, the more they are likely to make a difference to students (Robinson 2007).

A final consideration resulting from the above discussion is the importance of preparation and development of teacher leadership knowledge, skills and attitudes. This is consistent with Harris's (2003) assertion that teacher leaders need to be developed not only in terms of teaching knowledge, but also leadership roles in order to increase their confidence in leading others. While preparation and development platforms and pathways for principal and middle leaders are well established, investment in the preparation and development of teacher leaders in it diverse contexts including PLCs is much needed.

References

Authors 2012.

Bennett, N., C. Wise, P. Woods, and J. A. Harvey 2003. *Distributed Leadership*. Nottingham: NCSL.

Bolam, R., A. McMahon, L. Stoll, S. Thomas, M. Wallace, A. Greenwood, K. Hawkey, M. Ingram, A. Atkinson, and S. Smith 2005. *Creating and Sustaining Effective Professional Learning Communities* (RR No. 637). UK: Department for Education and Skills.

Bush, T., and D. Glover 2003. *School Leadership: Concepts and Evidence*. Nottingham: National College for School Leadership.

Cresswell, J. W. 2003. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 2nd ed. Thousand Oaks, CA: Sage.

Darling-Hammond, L., R. C. Wei, A. Andree, N. Richardson, and S. Orphanos 2009. *Professional Learning in the Learning Profession: A Status Report on Teacher Development in the United States and Abroad.* Dallas, TX: National Staff Development Council.

Childs-Bowen, D., G. Moller, and J. Scriver, 2000. "Principals: Teachers of Leaders." *NASSP Bulletin, 84*: 27-34.

Cochran-Smith, M., and S. L. Lytle 2009. *Inquiry as Stance: Practitioner Research for the Next Generation.* New York: Teachers College Press.

Crowther, F., S. S. Kaagen, M. Ferguson, and L. Hann 2002. *Developing Teacher Leaders: How Teacher Leadership Enhances School Success*. Thousand Oaks, CA: Corwin Press.

DuFour, R., R. DuFour, R. Eaker, and T. Many 2010. *Learning by Doing: A Handbook for Professional Learning Communities at Work*. 2nd ed. Bloomington, IN: Solution Tree Press.

Frost, D. 2012. "From Professional Development to System Change: Teacher Leadership and Innovation." *Professional Development in Education, 38*(2): 205-227.

Gronn, P. 2000. "Distributed Properties: A New Architecture for Leadership." *Educational Management and Administration, 28* (3): 317-338.

Hallinger, P., and J. Murphy 1985. "Assessing the Instructional Management Behaviour of Principals." *The Elementary School Journal, 86* (2): 217-247.

Hammersley, M., and P. Atkinson 2007. *Ethnography: Principles in Practice*. 3rd ed. London: Routledge.

Harris, A. 2003. "Teacher Leadership as Distributed Leadership: Heresy, Fantasy or Possibility?" *School Leadership and Management, 23* (3): 313-324.

Harris, A. 2005. "Teacher Leadership: More Than Just a Feel-good Factor?" *Leadership and Policy in Schools, 4*: 201-219.

Hipp, K. K., and J. B. Huffman 2010. *Demystifying Professional Learning Communities: School Leadership At Its Best*. Lanham, MD: Rowman and Littlefield Educational.

Huffman, J. B., and A. L. Jacobson 2003. "Perceptions of Professional Learning Communities." *International Journal of Leadership in Education, 6* (3): 239-250.

Katzenmeyer, M., and G. Moller 2001. *Awakening the Sleeping Giant: Helping Teachers Develop as Leaders*. 2nd ed. Thousand Oaks, CA: Corwin Press.

Lee, D., and W. O. Lee Forthcoming. *A Professional Learning Community for the New Teacher Professionalism: The Case of a State-Led Initiative in Singapore Schools*. doi: 0.1080/00071005.2013.8

Leithwood, K., and D. Jantzi 2005. A Review of Transformational School Leadership Research 1996-2005. *Leadership and Policy in Schools, 4*: 177-199.

Leonard, J., K. Petta, and C. Porter 2012. A Fresh Look at Graduate Programs in Teacher Leadership in the United States. *Professional Development in Education, 38* (2): 189-204.

Lieberman, A., and D. H. P. Mace 2011. The Role of 'Accomplished Teachers' in Professional Learning Communities: Uncovering Practice and Enabling Leadership. *Teachers and Teaching: Theory and Practice, 15* (4): 459-470.

Lieberman, A., and L. Miller 2011. The Starting Point for Professional Learning is in Schools and Classrooms: The Starting Point for Professional Learning is in Schools and Classrooms. *Journal of Staff Development, 32* (4): 16-20.

Little, J. W. 2003. Inside Teacher Community: Representations of Classroom Practice. *Teachers College Record, 105*(6): 913-945.

Mindich, D., and A. Lieberman 2012. *Building a Learning Community: A Tale of Two Schools*. Stanford, CA: Stanford Center for Opportunity Policy in Education.

Muijs, D., and A. Harris 2003. Teacher Leadership – Improvement Through Empowerment? *Educational Management and Administration, 31* (4): 437-448.

Robinson, V. 2007. *School Leadership and Student Outcomes: Identifying What Works and Why.* Australian Council for Educational Leaders (ACEL). 41. October. NSW, Australia.

Schön, D. A. 1987. *Educating the Reflective Practitioner*. San Francisco, CA: Jossey-Bass Publishers.

Spillane, J. P. 2004. *Distributed Leadership: What's All the Hoopla?* Working paper. Northwestern University, Institute for Policy Research. http://www.ipr.northwestern.edu/publications/…/Spillane _DistribLead.pdf.

Training and Development Division (TDD) 2010. *Schools as Professional Learning Communities*. Singapore: Training and Development Division, Ministry of Education.

York-Barr, J., and K. Duke 2004. *What Do We Know About Teacher Leadership? Findings from Two Decades of Scholarship*. Review of Educational Research 74 (3): 255-316.

Yukl, G. 1994. *Leadership in organizations*. 3rd ed. Englewood Cliffs, NJ: Prentice Hall.

Appendix 1

PLC Facilitation Principles

The information contained in this facilitator's guide is based on three stages of participation in a learning community: 1) I want to participate, 2) I want to learn, and 3) I want to change.

1. I Want to Participate

Aim: I want to be a member of the community of learners.

Question: How do we encourage teachers to want to be a member of professional learning communities?

Principle 1: Assert leadership.

Principle 2: Respect individual teacher's autonomy.

Principle 3: Protect individual teacher's well-being.

Principle 4: Promote teachers' collective identity.

Principle 5: Encourage values of inclusion.

2. I Want to Learn

Aim: I want to learn in the community of learners.

Question: How do we encourage teachers to learn in professional learning communities?

Principle 6: Conversations are to connect or be relevant to individual teachers' day-today classroom teaching.

Principle 7: Conversations are to create dissonance in individual teachers' current knowledge on teaching.

Principle 8: Conversations are to create explicit-differentiated knowledge from implicitundifferentiated knowledge on teaching.

Principle 9: Conversations are to sharpen epistemological competency.

Principle 10: Conversations are to deepen curricular content, instruction, pedagogical and assessment and student learning knowledge.

3. I Want to Change

Aim: I want to transfer what I have learnt in the community of learners to my professional practice.

Question: How do we ensure that teachers transfer the learning in professional learning communities to their daily classroom practice?

Principle 11: Make simple the complex.

Principle 12: Focus on universal pedagogical foundations.

Principle 13: Maximise coherent inter-linkages between teacher knowledge in curricular content, pedagogy, instruction, assessment and student learning.

Principle 14: Produce and reproduce teaching artifacts that can immediately be used.

Principle 15: Optimise accountability.

Appendix 2

Seven PLC Conversation Activities

1. Map out and delineate the curricular content that students are to acquire.

2. Decide on a specific universal pedagogy that seeks to enable students acquire the curricular content, and provide reasons why the specific universal pedagogy would enable effective learning to acquire the desired curricular content.

3. Select specific instructional practices that enable students acquire the curricular content, are sensitive to individual student learning needs, and support the specific universal pedagogy.

4. Test out the effectiveness of specific instructional practices – *the use of a) instructions, b) teaching tools, c) learning tools, d) classroom environment, and e) learning activities* – through deductive analysis of observed student learning over time using appropriate assessment tools.

5. Generate possible explanations on the effectiveness of specific instructional practices through inductive analysis of observed student learning over time using appropriate assessment tools.

6. Sharpen specific instructional practices through –

• Teacher demonstrations (*e.g., video recordings or live demonstration of STs, HOD, peers, or outsiders' teaching showcasing language, teaching and learning materials and activities*).

• Feedback on teacher demonstrations (*e.g., given by STs, HOD and peers on instructions, teaching tools, learning tools, classroom environment, and learning activities*).

• Teacher reflection of classroom teaching and learning (*e.g., teachers' reflective notes on instruction, teaching and learning materials, classroom environment, and learning activities*).

• Teacher feedback on reflection of classroom teaching and learning (*e.g., given by STs, HOD and peers on instruction, teaching and learning materials, classroom environment, and learning activities*).

• Continual explicit development of teachers' understanding of instructional knowledge.

7. Deepen pedagogical knowledge by –

• Re-visiting key features of the pedagogy.

• Making additions to key features of the pedagogy.

• Making amendments to key features of the pedagogy.