Title	Tensions in distributed leadership
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Tensions in Distributed Leadership

Abstract

Purpose: Distributed leadership has grown in popularity over the past decade. Much of the literature to date has presented distributed leadership as a desired leadership practice and generally unproblematic. This paper suggests that the distribution of leadership encounters tensions within the hierarchical structure of schools, when leaders are faced with conflicting or overlapping goals, and organisational norms which govern the behavior of actors by prescribing role relations. The value of this paper is that it adds to the body of knowledge of distributed leadership, illustrating contexts in which leaders encounter tensions and how they resolve these tensions.

Research Methods: The study adopted a naturalistic inquiry approach involving the case study of a school in the process of implementing a project using Information Technology (IT) for instruction. The setting involved an elementary school in Singapore which was at the start of implementing an IT project at the Grade 4 level. The leaders identified included the principal, vice principals, and middle managers, including a senior teacher. Activity theory was used as the interpretative lens for data analysis. .

Findings: Tensions were identified between activity systems at the structural and at the process levels, mainly as a result of conflicting or overlapping needs or objectives. However, the existence of tensions also gave rise to innovative solutions to resolve such tensions. This paper highlights three ways in which tensions were balanced in the distribution of leadership.

Introduction

When Gronn and Spillane first proposed their conceptions of distributed leadership, what was revolutionary was a shift from focusing on the leadership actions of an individual as sole agent to analysing the "concertive" or "conjoint" actions of multiple individuals interacting and leading within a specific social and cultural context (Bennett, Wise, Woods, & Harvey, 2003; Gronn, 2002b, p. 250; 2008; Spillane & Orlina, 2005; Woods, Bennett, Harvey, & Wise, 2004). As explained by Gronn and Ribbins (1996), "context is the vehicle through which the agency of particular leaders may be empirically understood" (p. 454).

Gronn (2002a) argued that Engestrom's activity theory offers advantages in the study of distributed leadership. He observed that activity theory recognises that activity is jointly performed and involves a division of labour. In addition, activity theory incorporates a range of contextual dimensions which impact the activity, and which are simultaneously impacted by the activity, contextual dimensions which Gronn (2002a) commented had been missing from much of the earlier literature on leadership. This interdependency between the context and the activity in focus is reflected in Spillane's argument that the situation in which distributed leadership is practised "both defines leadership practice and is defined through leadership practice" (Spillane, 2006, p. 4). Multiple leaders interact with one another as well as with specific contextual dimensions in the activity system, giving rise to particular leadership actions which in turn impact the activity system. Furthermore, Gronn (2002a) proposed that the activity system model enables researchers to track how the actions of leaders are enabled or constrained by the organisation structures within which they work. This resonates with activity theory, which seeks to understand structural contradictions or

tensions, with the purpose of generating innovative solutions to resolve these contradictions and enable the activity system to evolve (Hartley, 2009; Barab, 2002).

Both Gronn and Spillane indicate that distributed leadership has its theoretical roots in activity theory (Gronn, 2000; Spillane, Halverson, & Diamond, 2001, 2004). However, in actual practice, empirical studies on distributed leadership have to date rarely used activity theory as an interpretive lens to analyse the concept of distributed leadership (Harris, 2005; Hartley, 2010; Mayrowetz, 2008). This paper suggest that there is merit in using activity theory to examine the construct of distributed leadership, in order to understand the interplay amongst the various contextual dimensions and leadership practice. In particular, we suggest that the use of activity theory as an interpretive lens would enable us to surface constraints on distributed leadership and how these are overcome, through the analysis of structural or systemic tensions within or between activity systems.

Literature Review

The following section presents a literature review of distributed leadership. In addition, since distributed leadership's concept of leadership as a dynamic and collectively performed activity has its theoretical roots in activity theory (Gronn, 2002b; Spillane, et al., 2004), the literature on activity theory is also examined, with the focus on understanding the concept of system tensions or contradictions in activity systems.

Distributed Leadership and Activity theory

According to Bennett, Newton, Wise, Woods and Economou (2003), what distinguishes distributed leadership from similar conceptions of leadership, such as shared leadership, is that it emerges from the interactions of a network of individuals, from conjoint as opposed to individual agency. Therefore, what distinguishes distributed leadership is its concept of leadership as a dynamic and collectively performed activity (Gronn, 2002b;

Spillane et al., 2004). Based on such a concept of leadership, the unit of analysis is the leadership activity, and the interactions amongst the multiple leaders involved in leadership practices within a specific social and cultural context (Copland, 2003; Spillane, 2005; Spillane & Orlina, 2005; Timperley, 2005)

Distributed leadership is positioned as having its theoretical roots in activity theory. In activity theory, human actions are meaningfully understood only within the context of an activity system, which includes the subject whose motivation is to transform an object into an outcome, which can be either material or intangible in nature (Barab, Barnett, Yamagata-Lynch, Squire, & Keating, 2002; Engestrom, 1999). Activity theory, which takes as its unit of analysis a collectively performed activity system, incorporates the concept that labour is divided amongst various individuals, and takes into consideration varied contextual dimensions which dynamically impact leadership practices and the division of such leadership practices (Gronn, 2002a; Spillane et al., 2001).

In activity theory, these dimensions include the community, tools, and rules (Yamagata-Lynch, 2003). The community refers to the social group that the object identifies being a member of while participating in the activity. Rules, which can be explicit or implicit, include norms, policies or conventions of the community which can constrain or enable actions and interactions within the activity system (Kelceoglu, 2006; Marken, 2006). Tools include physical and conceptual artifacts, such as sign and language systems, and structures such as a timetable schedule, or a scheme of work. Similar to rules, tools can simultaneously enable and constrain relations between subject and object, or between the other dimensions (Barab, Barnett, Yamagata-Lynch, Squire, & Keating, 2002). In addition, activity theory recognises potential constraints on interactions in a collectively performed activity, which distributed leadership is defined to be. These are known as tensions, or contradictions, which

are explained further in the subsequent section of the literature review. Figure 1 illustrates the structure of an activity system as presented by activity theory (Engestrom, 1999):

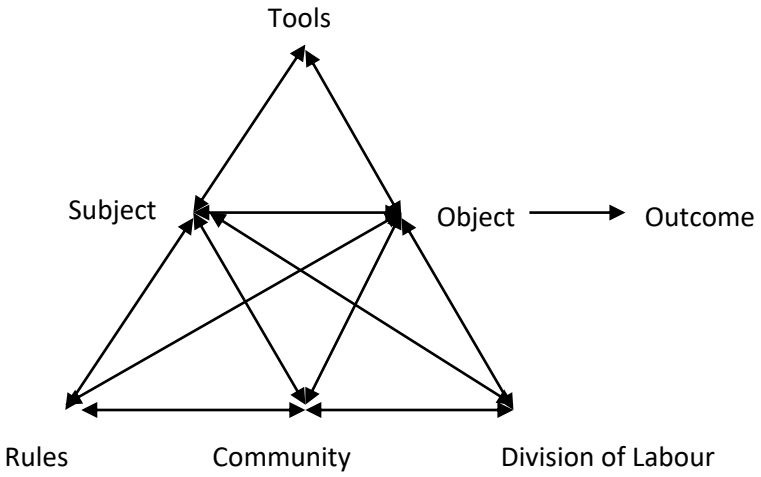

Figure 1. Model in Engestrom (1999)

Tensions in Distributed Leadership and Activity Theory

Inherent in the notion that activity systems are dynamic systems, activity theory postulates the concept of structural or systemic tensions, which arise due to overlapping or conflicting needs that drive an activity system and which need to be balanced in order for the system to continue to develop and evolve (Barab, Barnett, & Squire, 2002; Barab, Barnett, Yamagata-Lynch, et al., 2002). Tensions, also known as contradictions, can occur within or between activity systems (Engestrom, 2001, 2008; Marken, 2006; Yamagata-Lynch, 2003).

As the dynamic components of an activity system (subject, object, tools, rules, division of labour and community) continuously interact with the other components, tensions may occur between or within any of these components. In a rare study which used activity theory as a lens to examine distributed leadership, Vennebo (2016) observed that even when leaders work towards a common overall purpose, differences in motives can result in tensions, whether in the object under construction, the choice of tools, or in the existing

division of labour. However, tensions are not necessarily negative in impact. Researchers propose that tensions play a critical role in that they can drive innovation and change within the system, as the system evolves to resolve or balance these tensions (Barab, Schatz, & Scheckler, 2004; Engestrom, 1999; Yamagata-Lynch, 2003). Vennebo (2016), in discussing the role of tensions in distributed leadership, observed that tensions can be "springboards for the expansion of organizational routines and the transformation of …practices" (p. 5). Gronn (2002a) also suggested the utility of identifying the tensions in workplace activity systems, which would assist in the development of intervention strategies to resolve or circumvent these tensions.

Although tensions were mentioned in the literature on distributed leadership by some researchers (Storey, 2004; Torrance, 2013), these tensions were not explicitly linked to the concept of system tensions in activity theory. Tension was used generically to refer to conflicts or friction between individuals. However, there is suggestion that certain tensions were due to the changing (or dual) role of the teacher who had to take on leadership roles, or due to struggles for power/control as a result of conflicting needs/objectives (Timperley, 2005). This perspective of tensions resonates with activity theory's concept of system tensions as "dualities", as arising due to conflicting needs within the system. Usually the conflicts/frictions identified in the literature on distributed leadership are between "competing leaders", often between the Principal and middle managers/teacher leaders(Storey, 2004, p. 250; Timperley, 2005; Torrance, 2013), generally because of competing visions or priorities.

Even though Spillane and Gronn attribute the origins of distributed leadership to activity theory, Engestrom's concept of system tensions/contradictions is missing from much of their work. Hartley (2009, p. 145) observed that though Spillane referred to Engestrom, there was "an absence of any consideration of contradictions". Nevertheless, Spillane and

Orlina (2005) did acknowledge that a distributed perspective includes situations where leaders have different or "contrary goals" (p. 152).

Similarly, although he did not refer specifically to activity theory, Gronn highlighted tensions between "central control" and "local discretion"(Gronn, 2008, p. 145), which resonates with activity theory's concept of conflicting needs, or dualities, within the system. Gronn (2002a) also referred to tensions arising due to a duality of roles, tensions arising due to differences in status although there may be no difference in expertise, or tensions due to differences in objectives. He refers to the latter as a "pluralistic domain of multiple agents pursuing different objectives" (Gronn, 2002b, p. 441). In addition, both Gronn and Spillane view structure as both enabling and constraining human agency, suggesting a constant tension between structure and human agency (Gronn, 2002b; Spillane, et al., 2004; Spillane & Orlina, 2005)

Purpose of Paper

We propose that there is merit to identify and examine tensions in distributed leadership, which has its roots in activity theory and is a collectively performed activity. Tensions, or contradictions, are inherent to activity systems. Tensions are critical to understanding what motivates particular actions and to understanding the evolution of the activity system as innovative effort is made to resolve/negotiate the tensions (Engestrom, 1999, 2000, 2001). In this paper, we argue that a challenge for researchers and Principals who are interested in distributed leadership is to recognise or even anticipate the tensions, understand how they impact the distribution of leadership, balance their influence, and enable distributed leadership to evolve further. A similar argument was presented by Vennebo (2016) who suggested that in exploring how distributed leadership is enacted in innovative,

work, the question of whether tensions occur, and how these tensions are worked on, is important. Therefore, this paper adds value to the growing literature on distributed leadership, by illuminating how leaders overcome tensions arising from conflicting or overlapping goals.

Methodology

The basis of distributed leadership is the leadership activity itself and the interactions amongst leaders, followers and the situation (Spillane, et al., 2004). To enable an in-depth analysis of the leadership activity and interactions involved, this study adopted a naturalistic inquiry approach (Creswell, 2005; Lincoln & Guba, 1985) involving the case study of a school in the process of implementing a project using Information Technology (IT) for instruction. The study encompassed the preparation and implementation time frame of the IT project, which spanned 16 months from August 2006 to November 2007.

The main research question was "How was distributed leadership practised in a school reform involving the use of IT for instruction?" Activity theory was used as a lens to examine the activity systems involved, comprising the subjects, objects, tools, rules, division of labour and communities, which enabled an understanding of the different leadership tasks performed by various leaders and their interactions (authors, 2015). This paper focuses on what tensions were encountered in the distribution of leadership and how these tensions were resolved. The research questions asked were as follow:

1. What were the tensions encountered in the distribution of leadership?
2. How were these tensions resolved?

Tension is defined as dualities which arise due to overlapping or conflicting needs that drive a system and which need to be balanced in order for the system to continue to develop and evolve (Barab, Barnett, & Squire, 2002; Barab, Barnett, Yamagata-Lynch, et al., 2002). These dualities could refer to a duality of roles, of objectives/goals/visions, or of boundaries

of influence/responsibility. Tensions can occur within or between activity systems, within or between the components of the activity system: subject, object, tools, rules, division of labour and the community.

Distributed leadership is defined as the distribution of tasks and the distribution of influence processes (Robinson, 2008). The first definition is based on the theorisation of leadership as the performance of particular tasks, specifically the use of "social, material and cultural resources necessary to establish the conditions for teaching and learning" (Spillane, et al., 2004, p. 11). The second concept is based on the view that leadership involves deliberately exerting some form of *influence* on people in an attempt to *impact* their beliefs, values, and actions, so as to achieve *desired* and presumed shared organisational outcomes (Pounder, Ogawa, & Adams, 1995; Yukl, 2001). In the context of schools, leadership often involves the effort to influence the motivation or practice of teachers to improve instructional practice (Gronn & Hamilton, 2004; Harris, 2003; Harrison, 2005; Spillane, Diamond, & Jita, 2003). In our specific case study, the identified leaders sought to influence the teachers concerned to use IT to improve their teaching practice, through performing various tasks such as coaching, modelling the process of developing IT lesson plans, providing professional development, and providing access to IT resources (authors, 2015).

Based on the distributed leadership perspective, leadership is best understood through examining the execution of leadership actions and the 'theories-in-use' of the practitioner (Agyris and Schon, 1974, as cited in Spillane, et al., 2004, p. 15). From a methodology perspective, this translates into the need to observe leadership in action, and to interview leaders for their explanations and interpretations of the actions observed. To observe leadership in action, the case study involved observations of 49 meetings, during which many instructional and other decisions were made, and analysis of over 150 email correspondences

related to the IT project. The 49 meetings were scheduled during curriculum time (referred to in Singapore schools as Timetabled Time) mainly to enable the teachers involved in the IT project to discuss the IT lessons they were developing, and to share how the IT project was progressing. All the 6 teachers involved in the IT project were interviewed at least once. Identified leaders were interviewed at least twice during the course of the study. Leaders were identified in two ways. First, the formally appointed leaders were interviewed to understand the thinking behind their observed actions as well as behind actions which the researchers did not have the opportunity to observe (Seidman, 2006). Second, all the participants, including the teachers and formally appointed leaders, were asked who they felt had provided leadership for the IT project, what leadership tasks were performed, and who had influenced the teachers in their use of IT in the IT project. Possibly due to the hierarchical nature of Singapore schools, in which authority and leadership is accepted and expected from officially appointed leaders (Dimmock & Tan, 2013; Goh, 2009; Hairon & Goh, 2014; Hallinger & Kantamara, 2000; Koh, Gurr, Drysdale, & Ang, 2011), the leaders identified by participants were the formal leaders. A total of 7 formally appointed leaders were interviewed at least twice, including the principal, the two vice-principals, the HOD/Mathematics, the HOD/IT, the senior teacher in charge of the project, and the level manager of grade 4.

All interviews were semi-structured in nature (Merriam, 1998), in that the key questions were planned prior to the interviews but questions were crafted during the interviews to probe or build on the participants' responses to the set questions (Seidman, 2006). In interviewing the identified leaders, besides asking leaders for their interpretations of their roles and their observed actions, leaders were asked about their working relationship with the other leaders, and about any challenges which they faced or support which they

received, in an attempt to surface tensions and how such tensions were resolved. One question asked of all the leaders was "What are the challenges and issues that you have faced so far? How did you go about resolving them?" A question asked of both the principal and vice principals was "What do you see as your role in the implementation of the IT project?" This question was triangulated by asking middle managers what they perceived to be the roles played by the senior managers.

Data Analysis

An inductive approach (Patton, 2002) to coding tensions was adopted. With activity theory's concept of system tensions as a "sensitising concept" (Charmaz, 2006, p. 17), the researchers were alerted to contexts involving conflicting or overlapping needs, for example where an individual played dual roles (for example the same person as subject teacher and as the person in charge of the IT project), where different participants had different objectives (for example the heads of the subject departments as opposed to the heads in charge of the IT project) or where different participants had overlapping roles or boundaries of responsibility (e.g. the senior teacher in charge of the IT project and the head of IT who is in charge of IT aspects in the entire school). Analysis of such contexts, including the challenges highlighted by the various leaders through interviews, helped to surface the key tensions and attempts to work on these challenges. The tensions surfaced and strategies adopted to balance these tensions were then mapped against the activity theory components, to enable a visual analysis of where the tensions manifested within the activity system(s). Table 1 illustrates the study's use of activity theory as an analytical lens, and how the key components were aligned to the distributed leadership perspective. Objects differ depending on the activity system.

Table 1. Use of activity theory as a lens to analyse distributed leadership

Activity theory	Interpretation for the study	Distributed leadership perspective
Subjects	The leaders involved	Multiple leaders
Outcome	The desired change in the follower or organisation	Leadership as a deliberate attempt to influence people to achieve desired outcomes (Yukl, 2001)
Division of Labour	Horizontal and vertical roles and relationships that impact how leadership actions are distributed	Multiple leaders in various positions performing various leadership tasks (Spillane, 2006)
Tools	Tools used by the leaders to achieve the desired changes	Included in the situation in which leadership is enacted, also referred to as artifacts (Spillane et al., 2001, 2004)
Rules/norms	The relevant rules/norms which enabled and or constrained the leadership actions	Social norms and organisation routines are mentioned as shaping leadership practice and being reshaped by leadership practice (Spillane et al., 2001, 2004; Spillane, 2006)
Tensions/ contradictions	Tensions between activity systems or between the components of an activity system which constrain the subject from accomplishing their intended outcomes	Consideration of how the cultural and social situation, including organisational structure, can enable or constrain leadership activity (Gronn, 2002b; Harris, 2005; Spillane & Orlina, 2005; Woods, et al., 2004)

In the case study, the division of labour refers to horizontal and vertical roles and relationships within the community that affect the division of leadership tasks. The horizontal divison of labour refers to actions spread across members of the community who have equivalent status, such as the various heads of departments, while the vertical division of labour refers to actions which are distributed up and down divisions of power, such as the division of labour between the head of department and the level head of the same subject. The tools, which could be material or psychological, would depend on the object and the desired outcome. For example, if the outcome is to influence teachers' use of IT, possible

tools could include IT lesson plans and IT infrastructure. Rules can include organisation rules embedded in formal structures which govern the behavior of people within the community.

Selection of Case Study

Stake (1995) identified two main types of case studies: instrumental and intrinsic. The approach selected for this research was instrumental case study, as selection of the case was deliberate to answer specific research questions related to distributed leadership. The school, Greenville Elementary, was chosen from 66 schools which wrote in to the Ministry of Education, Singapore in 2006, to propose an Information Technology (IT) project that they would like implement. In their proposals, schools outlined the specific IT projects that they intended to implement, including subject area(s) and the intended roles of various school personnel.

Based on Spillane's and colleagues' argument that their theory of distributed leadership focuses on how leadership practice is distributed amongst both positional and informal leaders (Spillane et al,. 2001, p.24), one main criterion for case selection was an indication that at least two people would be involved in the conceptualisation and implementation of the IT project. At the selection of case stage, our assumption was that the principal, HOD/IT and the subject heads of department would be potential leaders. This assumption was based on leadership sources identified in the literature on technology implementation in schools (Creighton, 2003; Divaharan, 2007; Langran, 2006). In Greenville Elementary, the person indicated as being in charge of the IT project was a senior teacher, and the team members, at the time of the proposal, included the principal, the two vice-principals, the HOD/Mathematics and the HOD/IT.

The other key assumption made was that in implementing a new IT project, there would be a need to influence the teachers concerned to use IT in their lessons, which

suggested that leadership practices were likely to be observed. Although there are multiple interpretations of leadership in the literature, there appears to be concurrence that leadership involves deliberately exerting some form of *influence* on people in an attempt to *impact* their beliefs, values, and actions, so as to achieve *desired* and presumed shared organisational outcomes (Pounder, et al., 1995). Thus, the case was selected on the basis that there was potential to study the leader-plus aspect (multiple individuals functioning as leaders) and the practice aspect (interactions amongst the leaders) of distributed leadership (Tian, Risku, & Collin, 2015).

Brief Description of School

In this section, a brief description of the school is provided to provide the context, together with the official leadership hierarchy in Greenville Elementary as well as the main leaders involved in the IT project. All names are pseudonyms to protect the identities of the participants and the school.

At the senior management (SM) level, Greenville Elementary had a principal and two vice-principals (VPs) from 2005-2006. Middle management (MM) in the school included the heads of departments (HODs), subject heads (SHs), level heads (LHs), and level managers (LMs). The title "level head" needs to be clarified as it is misleading. As opposed to the level manager who is in charge of all the core subjects for one grade level, the level head is officially the second-in-command for a subject, just below the HOD, across all the grade levels. The level head involved in the IT project was Sarah, LH/Science, who was simultaneously the level manager for the primary 4 level (grade 4), which was the level at which the IT project was first implemented. As level manager, Sarah was responsible for overseeing the three core subjects (english, mathematics and science) at that level. She joined the IT project mid point as she was on course till June 2007. The main heads of department

involved in the IT projects were the HOD/IT, Ida, who is overall in charge of all IT-related programmes in the school and Ben Ling, the HOD/Mathematics, since the IT project started with the use of IT to teach mathematics. In addition, Ben Ling was deployed by the principal to teach primary 4 the year the IT project was first implemented. Supporting the HOD/IT was a Subject Head/IT, Lai Ling, who was also deployed by the principal to teach primary 4.

Besides the various heads, Greenville Elementary also had a number of senior teachers (ST), one of whom, Cassie, was the person officially appointed by the principal to be in charge of conceptualising and leading the IT project. The post of senior teacher was relatively new and was created by the Ministry of Education as part of a parallel teaching track to the traditional leadership track of HOD, vice principal and principal. The leadership track is "the track for leadership positions in the schools" while the teaching track provides "advancement opportunities for teachers who make teaching excellence in the classroom the primary focus in their careers" (Ministry of Education, 2006). Positions on the leadership track, including the HOD, the LH and the SH, are the ones expected to provide 'leadership'. The senior teacher is described as a "mentor and role model" but the terms 'leader' and 'leadership' are not mentioned (Ministry of Education, 2006.).

Figure 2 illustrates the hierarchical structure of the school to show the official difference in rank of the various positions. The roles of individuals in the IT project are indicated. The level manager position is indicated in brackets as unlike the other roles, the level manager position in 2008 was an internal school appointment while the other roles were official appointments recognised by the Ministry of Education. Although senior teachers reported to the vice principals, similar to the various heads, the position of ST was considered to be lower in the organisational hierarchy compared to the role of a head. Figure 2 attempts to represent this difference in status by placing the senior teacher below the level of heads,

and above the teachers. In Singapore, the principal and vice-principals are generally addressed by their surnames as a sign of respect for their higher hierarchical position, while heads and senior teachers are addressed by names or surnames, depending on who is addressing them, and the latter's position in the organisation hierarchy relative to the former.

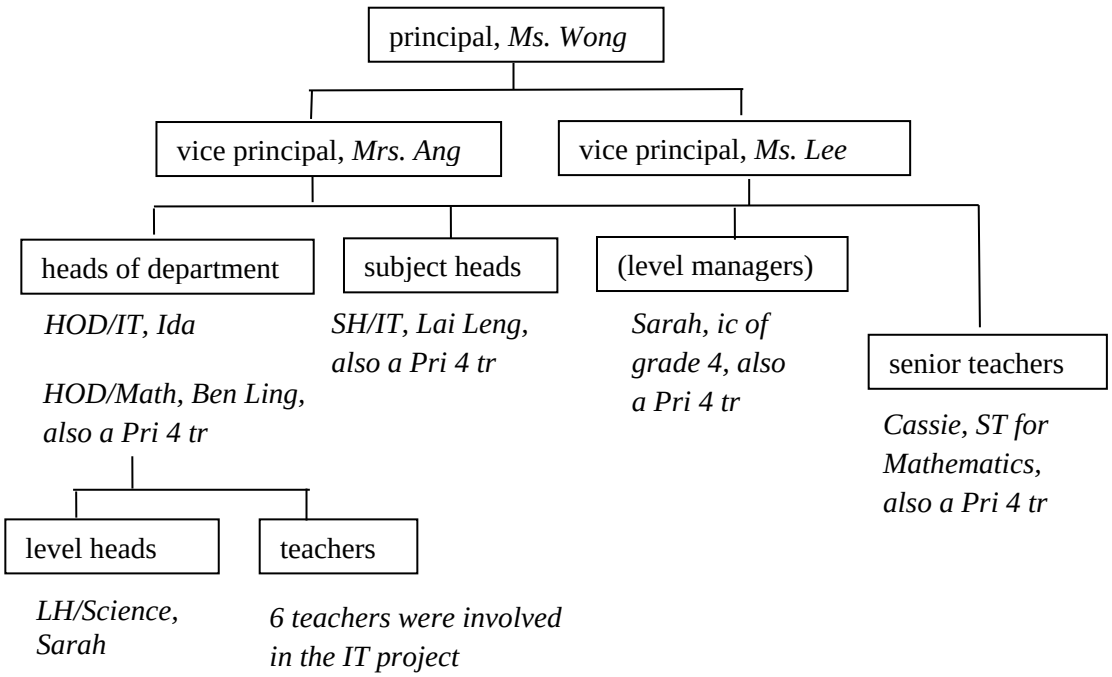

Figure 2. Hierarchical organisational structure in Greenville Elementary and staff involved in the IT Project

In 2006, the Lead IT scheme was introduced by the Ministry of Education, Singapore. Lead stands for Leading Experimentation and Development in IT. The aim of the scheme was to support schools which were ready to achieve a higher level of IT use by providing funding and other support from the Ministry. The principal of Greenville Elementary applied for the scheme. The school's decision at that time was to begin with the primary 4 level and with the mathematics subject, with Cassie, ST/Mathematics, appointed to be in charge of the project. The Lead IT project was implemented in 2007 and the researchers observed the

project from preparations in August 2006 till the end of the academic year in 2007. Although the project started with the mathematics subject, it evolved to include science from June 2007 when Sarah, LH/Science, returned from a course and was tasked to assist in incorporating science into the IT project.

Findings and Discussion

Tensions in the distribution of leadership

The use of system tensions as a sensitizing concept (Charmaz, 2007) revealed some tensions, particularly between the middle managers who were directly involved in the IT project, and middle managers who were less directly involved in the IT project. These tensions were not simply personal in nature but arose due to existing norms or rules with respect to the perceived authority or spheres of influence of different roles within a school setting. Individuals, including middle managers, who simultaneously played multiple roles in different activity systems, felt obliged to abide by certain norms and rules.

Our case study surfaced four interrelated activity systems with regard to the use (or lack of use) of IT in the school:

- at the organisation level (school level)
- at the process level (IT project)
- at the structural level (IT Department) and
- at the structural level (Subject Departments)

The four activity systems were interrelated in that the individuals involved had working relationships across the systems, and these relationships were influenced by the individuals' multiple roles in the different activity systems.

The main tensions which were surfaced were a) between the subject department activity and the IT project activity and b) between the IT department activity and the IT project activity. The tensions arose partly because members of one community were simultaneously members of another community, but the social norms or rules or the intended outcome of each community differed.

Tension between subject department activity (structural level) and IT project activity (process level). The main tension surfaced was that between the heads of subject departments (HODs), who required their department teachers to carry on with the dominant department activity of teaching their subject area(s), with or without the use of IT as a tool, and Cassie (senior teacher) and Sarah (level manager) who had the mandate of getting the primary 4 teachers to use IT to teach mathematics and science. Using the language of activity theory, this meant that the object and outcome of the department activity differed from the object and outcome of the IT project activity, and the value of IT as a tool also differed in the two activity systems. These differences, together with entrenched norms in the subject department, including the norm of heads holding more authority than a senior teacher or level manager, resulted in tension between the subject department activity and the IT project activity.

At the process level, the primary 4 teachers who were involved in the IT project community, including Cassie and Sarah, were simultaneously members of the subject department community at the structural level, and thus had to abide by their subject

department norms and rules. With respect to organisation structure, the primary 4 teachers reported to their various heads of department although they were simultaneously involved in the IT project. Amongst middle management, while Cassie's foremost responsibility was the IT project and to influence the primary 4 teachers to teach using IT, the heads of the various subject departments had other priorities, including ensuring that their teachers taught the subject effectively, with or without the use of IT. This fundamental difference in the leaders' intended outcomes and the sharing of the primary 4 teachers as objects resulted in tensions between the IT project activity (process level) and the subject department activity (structural level), manifested in tensions between the various middle managers. Both Cassie and Sarah mentioned that they faced constraints as the desired outcome of the IT project activity system was perceived as clashing with the subject department's priorities and alternative outcome.

Figure 3 illustrates the two activity systems and the key components which experienced tensions. Tension is represented by a double sided arrow.

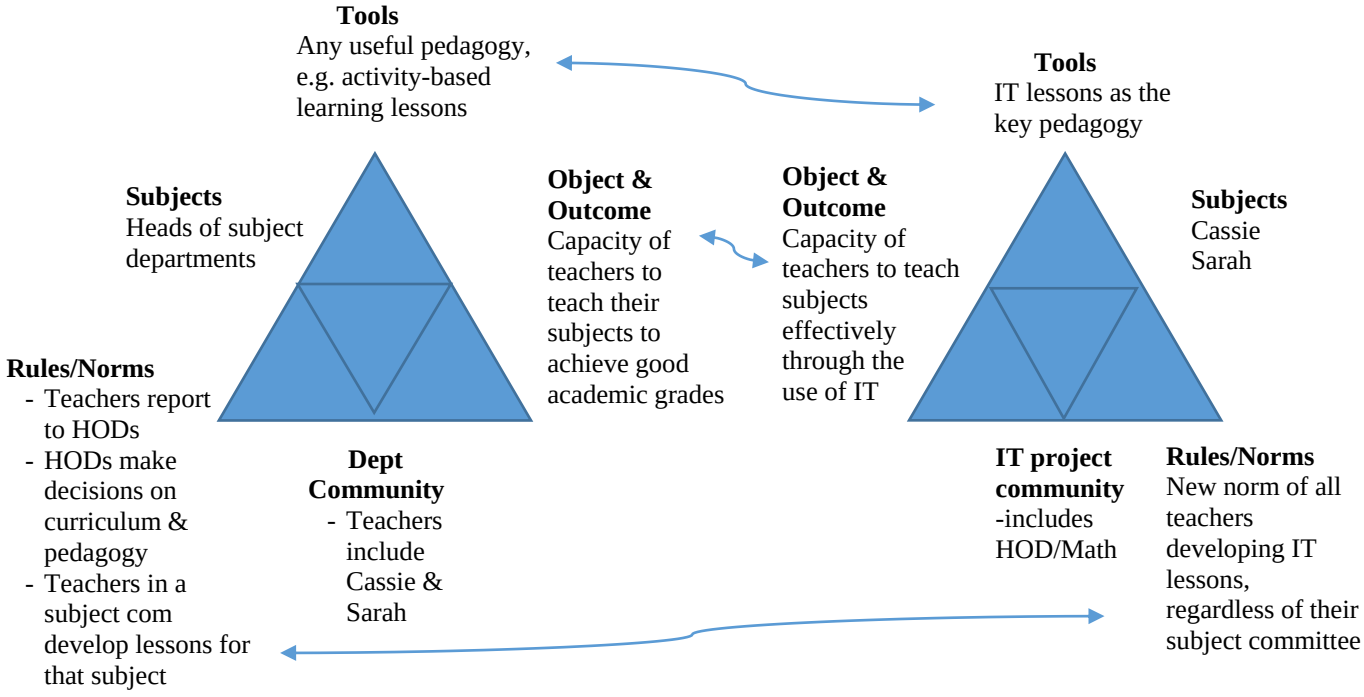

Figure 3: The Subject Dept and IT project activities and the key tension points

The subjects in each activity system were the leaders with their desired outcomes and the key tools they used to influence teachers to achieve their outcomes. An example where there was a clash between the two sets of leaders was in the choice of instructional strategy or tool to teach the subject areas. In Greenville Elementary, before the IT project, the HODs had started to implement activity-based learning as the key pedagogical tool to influence and guide teachers in the design of lessons. According to Cassie, the activity-based lessons were the "brainchild" of all the HODs (2nd interview). Thus, Cassie felt that if she wanted to replace an existing activity-based lesson with an IT lesson, she needed the support of the vice-principal, Mrs. Ang, to get the approval of the HODs:

> "because sometimes in our school, we implement activity-based lessons for the primary 4, so certain things if you want to change, for example, this topic, … if you want to [incorporate] IT, you must get the consensus of the HODs … so Mrs. Ang [VP] will sort of come in to help the HODs see certain aspects because certain things it's not so nice for me to say." (2nd interview).

> "Normally Lead IT is led by an IT HOD or a HOD so they may not have some problems which I face because I'm a senior teacher, all right? Because as a senior teacher, your empowerment sometimes is not there, right, so certain things I know is a bit touchy or sensitive, it's easier to work through Mrs. Ang [VP]." (2nd interview).

Although she was officially assigned by the principal to lead the IT project, Cassie was simultaneously a senior teacher and a mathematics teacher, whose status was lower in the school hierarchy structure compared to a head of department. In addition, while she did not 'report' to the heads in that they were not her reporting officers and were not involved in

appraising her performance, she was nevertheless a subject discipline teacher who had to abide by subject department norms and rules. In addition, her sphere of influence was mainly confined to the use of IT for mathematics. Mathematics-related curriculum decisions had to be made by the HOD/Mathematics. For example, Cassie had to seek the HOD/Mathematics' approval for the mathematics topics to include in the IT project:

> "I did talk to Ben Ling, I mean, Mathematics HOD, about … which topics [we can teach using IT]" (Cassie, 2nd interview).

Cassie's explicit reference to Ben Ling as HOD/Mathematics was revealing because she knew that the researcher interviewing her was by then aware of Ben Ling's official position, and it was not necessary to enlighten the researcher as to Ben Ling's position. There was another incident when Cassie, in referring to Ben Ling, implied that the latter's higher status in the school's hierarchy structure placed some constraint on Cassie's leadership effort to influence Ben Ling, who was also deployed by the principal as a primary 4 teacher, to use IT. Cassie shared her reluctance to ask Ben Ling, who is her HOD/Mathematics, to develop IT lesson plans although she had asked the other primary 4 teachers to do so:

> "You know the people I asked… I asked the beginning teachers or the very young teachers….I also feel bad to tell… middle management what you need to do, so you noticed I didn't tell Ben Ling [to develop IT lessons]." (Cassie, 3rd interview).

Thus, it was clear that Cassie felt her ability to influence the teachers was constrained by the higher authority of the heads of department, and she also felt that she needed the assistance of the vice-principal to influence the HODs to support the teachers' use of IT.

In the case of Sarah, although Sarah's role as level head of Science was officially regarded as being higher in the organisation structure than Cassie's role as a senior teacher,

Sarah also felt that "my role there are limitations because I'm still under the HOD" (1st interview). Sarah was "under the HOD" in more sense than one. Like the other primary 4 Science teachers, Sarah reported to the science HOD and her role as level head of science was lower in the organisation hierarchy compared to a head of department:

> "It's very hard, you know. Because their own department [referring to the HODs] they also protect their own, you know. You see, they have their own programmes [such as the activity-based lessons] …they don't want you to upset their programmes." (Sarah, Level Head/Science 1st interview).

Sarah, like Cassie, felt that if the school wanted IT to "move", senior management had to get the "buy in from the [subject] HOD first" (1st interview) since HODs report to senior management. The existing HODs were "not so advanced in thinking when you talk about IT" (Sarah, 1st interview). They were acknowledged by both Mrs. Ang and the principal to be "very safe people" (Mrs. Ang, VP, 2nd interview) who were "conservative" (Ms. Wong, P, 2nd interview) and did not like to take risks, such as using IT when other traditional instructional tools, such as activity-based learning, had served their needs well. Similar to Cassie, Sarah felt there was a limitation to her influence on both the teachers and on the HODs.

In activity theory, while tensions generate conflicts and disturbances, they also generate innovative attempts to balance these tensions (Engeström, 2008; Murphy and Manzanares, 2008). Although the findings suggest that Cassie's and Sarah's leadership actions and sphere of influence were to some extent constrained by the department structure and norms, there was evidence of senior management using the organisation/department structure and norms to counter anticipated tensions and achieve the desired outcome of teachers using IT. This is consistent with the understanding in activity theory that the

relations between subject and object are not direct or static, but are continuously mediated by various components of the activity level (system), including rules/norms (Yamagata-Lynch, 2001).

Effort to Resolve the Tension between the Outcomes.

The key tension was between the outcomes of the two activity systems, which arose due to the conflicting needs/motives of the two systems. Cognizant that the heads of the subject departments had other priorities, and that there was some resistance amongst the heads to the use of IT, one critical role which senior management played was to work with or through the various HODs to provide teachers and the other middle managers with the necessary support. The principal agreed that it was the role of senior management to speak to the HODs if they posed obstacles to the efforts of the other middle managers in championing the use of IT. She made it clear to the HODs that they "have to keep abreast", "have to run faster" and that despite their lack of IT knowledge, they "mustn't be seen as an obstacle" but could seek to "help in other ways", such as applying for money and helping with procurement (principal, 2nd interview).

At the September 15 meeting in 2006, Ms. Wong, the principal, assured the teachers that senior management would to the following:

> "keep on consistently reminding the [subject] HODs … there's the Lead IT project … please, you know, where primary 4 is concerned, give priority [to the use of IT] .... But we try not to add in any more new [initiatives]…at least for primary 4." (Sep 15)

Similarly, the vice-principal, Mrs. Ang, shared that she had spoken to the HODs of the need to moderate their expectations of teachers, to be willing to let go of what they

normally expect the primary 4 teachers to do, because of the extra time and effort which the primary 4 teachers were spending on the Lead IT project:

> "If you [the HODs] keep expecting the teachers to do the SAME things and yet carry out Lead [the IT project], it is just impossible. We are just … setting the teachers up for failure. So I actually say to the HODs that you must empower, let the teachers try [using IT] and let's say if they don't do certain things [such as the activity-based lessons], let them be. As long as they are responsible, the children are learning, let it be….." (Mrs. Ang, VP, 2nd interview)

Mrs. Ang also reassured both the relevant heads and the teachers that it was acceptable if there was an initial drop in academic results as a result of the teachers spending more time and effort to use IT to engage the students in learning:

> "Whether the results will drop or not, is really not a top priority. We want them [the teachers] to really use this Lead IT [project] to promote greater engagement in the classroom." (Liz, VP, 2nd interview).

Thus, senior management played an important role in managing organisation boundaries in order to support middle managers who were leading the use of IT but were lower in the organisation hierarchy, by reinforcing the school's priority in pushing for the use of IT. Senior management were able to play such a role by deliberately harnessing their higher authority in the organisation hierarchy to influence the middle managers.

In addition, senior management strategically deployed the head of the mathematics department to teach primary 4, thus assigning her the simultaneous role of a primary 4 teacher (a subordinate member role) in the IT Project community. This was an example where the duality of role was deliberate and was engineered by leaders higher up in the

hierarchy – senior management. The mathematics head's involvement in both the subject department (structural level) and the IT project (process level) communities and activities resulted in her supporting the IT project as a HOD at the department level, thus minimising potential tensions between the mathematics department activity and the IT project activity, enabling Cassie to lead the IT project. That this was a deliberate decision was revealed by both Ben Ling, the head of the mathematics department, and senior management. Ben Ling revealed that "Actually in the first place, both of us [herself and the level head for mathematics] were not [deployed to teach] in primary 4 at all, then Ms. Wong [the principal] insisted that one of us go there" (2nd interview). When senior management were asked why Ben Ling was deployed to teach mathematics at the primary 4 level, three reasons were given, one concerning her professional growth, with the other two reasons related to the need for the HOD/Mathematics to provide support and monitor the IT project, by being personally involved in the IT project as a teacher:

> "So we told our HODs: "Look, you cannot be behind. You have to come along." That's why Ben Ling is pulled in." (Ms Wong, principal, 2nd interview)

> "She [Ben Ling] needed to know what is happening … Even [when deployed] to teach primary 4, she just knows what is happening. She really doesn't have a very active role in it. So can you imagine if she's not even there? [as in not even teaching the primary 4 pupils mathematic]" (Mrs. Ang, vice-principal, 2nd interview).

By deploying Ben Ling to teach mathematics, she became a member of the IT project community and her outcome as a head of mathematics was expanded to include getting her teachers to teach mathematics effectively using IT, which was part of the outcome of the IT project activity. That this became an important part of her outcome was clear when she made

the decision to remove one topic, 'tessellation', from the mathematics examination at the end of the year, so that the teachers had more time to use IT to teach the existing topics, without having to worry about the students' performance at the examination.

Effort to Resolve Potential Tension between Rules/Norms

In activity theory, it is suggested that when an activity system adopts a new element from the outside, it can lead to tensions and attempts to change the activity (Engestrom, 2001). When Greenville Elementary decided to participate in the Lead IT project, the IT project was the new element within the school activity system. At the school level, senior management used their institutional authority to create a new division of labour to cater to this new element. They assigned to Cassie, a senior teacher, the official title of being in charge of the IT project. They also assigned to Sarah the role of the primary 4 level manager, in addition to her existing role as level head of science, to support their aim to develop more teachers to use IT in different subject areas. This seemingly minor leadership action in terms of staff deployment was critical because of the social norm in Greenville Elementary, which is arguably the norm in many Singapore schools, in which teachers generally show respect for authority and rank and will follow instructions given by people with official roles and positional authority (Chew & Andrews, 2010; Dimmock & Tan, 2013; Goh, 2009; Hallinger, 2010). Dimmock and Tan (2013) refer to this in their conceptual paper on what contributes to educational success in Singapore as the leader-teacher social compact. Certainly, while the teachers acknowledged Cassie's expertise in IT, which is necessary for IT leadership, they also referred to and deferred to her as being "in charge" of the IT project (Azman, interview; Dean, 2nd interview). Thus, while Cassie experienced some constraint in her exercise of leadership for the IT project with respect to the heads of departments, she did not encounter much resistance from the primary 4 teachers.

At the IT project level, Sarah exerted her influence on the new role of level manager, which senior management had assigned to her, by interpreting it in a way that broke away from the established norm/rule in Greenville elementary of subject committee members developing lesson plans only for their respective subjects. A potential barrier to the primary 4 teachers' development of ICT lessons lay in the norm/rule in Greenville Elementary that only teachers who belong to a subject committee would be involved in developing lesson plans for that subject. This was a potential tension between an accepted department structure and norm of distributing work, and the object of teachers' increased competency in developing IT lessons for all subjects.

This "practice" or "structure" (email from Cassie to researcher on 5 Feb 2008) began way back in the 1990s. That this was an integral and unquestioned norm was evident in the discourse during the key planning meeting on the 19th of August, 2006. Even Cassie did not question this territorial mentality:

"Now you have to think in terms of the mathematics committee, you know, because crafting lessons is always done by the mathematics committee. The mathematics committee should be helping to craft [the IT lessons for mathematics]." (Cassie, Aug 19, 2006).

There was no doubt expressed during this meeting, held the year before the IT project was implemented, that it would be the mathematics committee teachers who would be crafting the IT lesson plans. There is also evidence that Mrs. Ang, the vice principal, was aware and concerned that if the IT Project were positioned as purely a mathematics project, it could limit the development of IT lessons to mathematics lessons and by only the teachers who were members of the mathematics committee, since this was aligned to the established working norm:

> "Actually I think it started with mathematics and we wanted the IT project to be spearheaded by the mathematics committee… but I feel that if we go in that direction, then the ownership by the primary 4 teachers may not be so great …I told Cassie .. I think we don't go that way. Let's take this whole project as the P4 teachers' project. Whether it's mathematics, english or science, never mind. It's the P4 teachers' projects, and not just the mathematics committee project." (Mrs. Ang, VP, 2nd interview)

Once the IT project started, the researchers observed that all the primary 4 teachers, regardless of the subject committees they belonged to, were involved in developing IT lesson plans for both mathematics and science. In appointing Sarah as the primary 4 level manager whose 'official' responsibility was to "oversee the three subjects [english, mathematics and science]" (Email from Sarah to researcher on 4 February, 2008), senior management invested Sarah with the 'power' and authority to work with the teachers who were from different subject committees. The role of primary 4 level manager is similar to a "restructured leadership role" (Little, 2005) which spans subject boundaries. This was another strategy by which senior management managed organisation boundaries.

Although school leaders harnessed the hierarchical structure to legitimise Sarah's work with the primary 4 teachers, Cassie realised that it was Sarah's agency in interpreting her role as a level manager in such a way that it enabled her to involve the teachers in developing IT lesson plans for different subjects, regardless of the subject department they belonged to. As Cassie pointed out, it was possible for Sarah, as the level manager, to have simply continued with the traditional norm of working by saying "If english [committee member], you must develop english [resources]. Cassie realised that it was partly due to Sarah's personal agency in being willing to break out of the traditional silo department

mentality and norm that the position of the level manager enabled her to provide leadership for the IT project across subjects. Sarah's interpretation of the role of level manager illustrates how the leader could innovatively go against norms to impact his/her relationship with the followers. In fact, Sarah initiated a new norm when she involved all the Primary 4 teachers, regardless of their subject departments, in the development of IT lessons across all subjects, although this was not part of the department activity system's outcome. The teachers' acceptance of this new norm could explain why, at the teachers' level, although they played the dual roles of IT project member and subject department teacher, the teachers did not express any feeling of tension between these two roles.

Tension between IT department activity (structural level) and IT project activity (process level). Another tension which arose was due to the existence of two simultaneous activity systems which supported the use of IT in the school, one at the process level and one at the structural level: the Primary 4 IT project activity and the IT department activity. In this situation, although both activity systems shared the same object and outcome, the intended complementary division of labour failed to materialise as some subjects lacked the relevant expertise to carry out the required tasks. In addition, the leader (subject) of the IT project activity was simultaneously a member in the IT department community, who as a rule reports to the head of the IT department.

Based on the school's organisational structure and officially espoused roles, the HOD/IT (Ida) and subject head of IT (Lai Ling) , both leaders of the school's IT department, should have been taking the lead in planning and providing relevant IT resources for the overall implementation of IT in Greenville Elementary, including the Lead IT project. Ideally, the division of labour should be complementary in nature, as described by Azman, a teacher:

> "Because Mrs. Sng [Cassie] is the one in charge of the IT project with her knowledge of IT, but in school,… the one in the IT department will be Mrs. Tan [Lai Ling]. So she [Cassie] has to be backed up by Mrs. Tan, whatever Mrs. Sng wants, Mrs. Tan can also help." (Azman, interview).

If we analyse the IT Department and the IT project activity systems, from the perspective of the designed organisation (Spillane et al,, 2008), there should be no tension between the systems as they are intended to be complementary in nature, since they share the same intended outcome of teachers using IT in their lessons. Figure 4 shows the two activity systems and the tensions which surfaced in the division of labour despite the shared outcomes in this context.

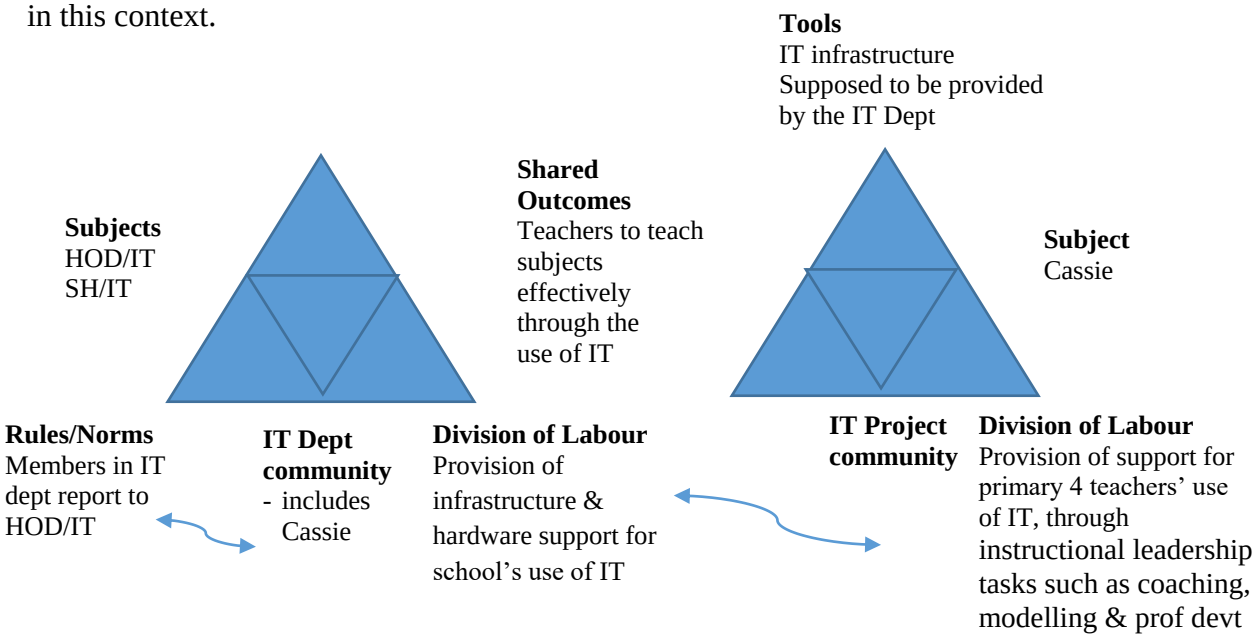

Figure 4: The ICT department and ICT Project activities: officially shared outcomes & tools

In reality, in what Spillane and associates (Spillane, Camburn, & Pustejovsky, 2008) refer to as the "lived" organisation, perhaps "because the HOD/IT is not entirely into the IT part" and "may not be very familiar with IT" (Ms, Lee, VP, 1st and 2nd interviews), from Cassie's perspective as the person leading the IT project, the IT department was slow in

providing the IT resources she required. That is, from her perspective, the official division of labour as implied by the designed organisation was not working.

Effort to Resolve the Tension in the Division of Labour

As the leader in charge of the IT project and since she possessed the relevant expertise, Cassie thus often stepped in to get things moving on the infrastructure side although her official role was to provide instructional support to the teachers:

> "Frankly speaking, she [Mrs. Ang, the VP] wants me to focus more on the teachers...she has been harping on that, but I have told her if infrastructure is not in place, I also cannot move much." (Cassie, email to Researcher 1 dated Nov 3).

In addition, Cassie resolved her problem by approaching the principal or vice-principal for help when she had difficulty going through the "right channel" (2nd interview). She thus harnessed the norm that the school leaders possess the most authority in a school's context, to override the authority of the HOD/IT and SH/IT. Unfortunately, one result of Cassie intervening in the infrastructure aspect was the creation of tension between her and Lai Ling, Subject Head/IT, who felt that Cassie was "STILL the mathematics senior teacher and not [overall in charge of] IT although she is in the IT department" (Lai Ling, 3rd interview). Lai Ling in a sense identified the conflict that Cassie experienced in her dual roles as a member in the IT department community, who should defer to the HOD/IT and the SH/IT, and as the person in charge of the IT project who reports directly to senior management. If one follows the norm of the school, HODs and SHs are higher in the hierarchical structure, and thus Cassie should not be overriding the former.

> "She's [Cassie is] a member there [in the IT department]. But she is somehow the mathematics senior teacher so to a certain extent if you would look at the hierarchy, it

> would be Ida [HOD/IT] then me, then she will be below … but she is doing everything that we are, above us and certain things she doesn't [get permission from the HOD/IT], she gets permission from the top [senior management]… So sometimes, we don't know who is the HOD/IT right? [laughed]" (Lai Leng, third interview)

As one of the researchers observed in her analysis of the third interview of Lai Ling, there seemed to be a tension between two roles: "the leader of an initiative [the IT project] vis a vis the hierarchical organisational role [HOD/IT and SH/IT]". Cassie herself felt frustrated that she could not rely on the official division of labour; she felt the need to interfere with the infrastructural set up for the IT project but she felt that this interference took time away from her role as a senior teacher, which was to develop the teachers:

> "I must call myself a 'kaypoh' [a colloquial term for someone who interferes when it is not his business to do so] in this area... perhaps it is wiser to leave it to the HOD to see to such matters. With Lead IT, there is actually a lot of work to be done... better not to give myself additional stress." (Cassie's email dated July 27)

> "[Infrastructural issues] take up time and … that is also not my territory you see, so I have to go through so many channels to get things done." (Cassie, 2nd interview)

In summary, there was a tension between the two activity systems, when the IT department activity system (structural level) failed to deliver the support and resources required for the IT project activity (process level), resulting in Cassie feeling 'compelled' to take on a role which was not within her role as the person in charge of the IT project and in discord with her role as an IT department member. The intended division of labour between the IT department leaders and the IT project leaders did not materialise. In addition, the tension was a result of the perception that the IT department and the IT project constituted

different territories/boundaries of responsibility, which were not meant to overlap. Cassie's interference in the management of IT resources was perceived by the IT department as an invasion of their "territory" (Cassie, 2nd interview). If the designed organisation had worked as intended, as shown in Figure 3, the two territories would have had complementary functions. However, when the intended division of labour did not materialise, and Cassie had to take over tasks which did not belong to her boundary of responsibility and which went against the norm of her reporting to the HOD/IT, this resulted in tensions between the two activity systems.

Conclusion

This paper provided a depiction of tensions in the distribution of leadership in the context of an IT project. It is possible that tensions were accentuated in the case study because a tool like IT can be used in various subject areas, spanning subject boundaries. Consequently, the person(s) assigned to lead in the use of IT has what is known as a "restructured" leadership role, with the potential to clash with the roles of the more established subject department heads (Little, 1995).

This structural related tension is exacerbated when the officially appointed leaders lack the expertise to exercise their leadership roles. In the case study, the head of the IT department and the heads of the mathematics and science departments lacked the expertise to promote the use of IT, resulting in a situation where a senior teacher and level head who were lower in the organisational hierarchy had to be assigned to lead the IT project. This unusual division of labour created disturbances, and thus tensions, in the leadership activity system.

In general, the tensions surfaced were mainly due to conflicting priorities, perceived distinct boundaries of responsibility and organisational norms which regulated how

individuals were expected to behave depending on where they were in the organisation chart. The first two tensions resonate with two of the three issues which Storey (2004) surfaced in a rare study focusing on the problem of distributed leadership in schools These tensions also resonate with activity theory's proposition that tensions arise due to conflicting or overlapping needs.

The tensions related to organisational norms are not new in that the literature has long acknowledged that organisational rules govern the behavior of actors by prescribing role relations (Ogawa, 2004). When there is an attempt to distribute leadership in a school based on expertise, beyond the traditional formal roles, it is not surprising that tensions arise (Oswald & Engelbrecht, 2013). The contribution of this paper is in identifying the tensions encountered and resolved by multiple leaders in the distributed leadership process. This is different from the hierarchical leader (e.g. principal/school head)-subordinate (e.g. subject head) tension that the literature has mainly focused on (Brown, Rutherford, & Boyle, 2000; Storey, 2004; Torrance, 2013). The distribution of leadership also disrupted the principles of chain of command and of the unity of command, giving rise to role conflicts and ambiguities (Rizzo, House, & Lirtzman, 1970). This was particularly evident in Cassie's and Sarah's dual roles in the IT project activity as leaders and in the department activity as teachers who normally defer to the subject head. It was also evident in Cassie's dual roles as leader in the IT project and as a member in the IT department activity who normally defers to the HOD/IT. In both these cases, Cassie and Sarah traded in their subordinate roles in their respective departments to become leaders in the IT project. The hierarchical positional leaders HOD/IT, Ida, and HOD/Math, Ben Ling assumed subordinate roles in the IT project. Although the HODs appeared to be taking on subordinate roles, the reality is that they still retained their positional roles as leaders. In this sense, the tensions encountered were between leaders,

specifically between leaders appointed to lead a process (Cassie and Sarah appointed to lead the IT project) and positional leaders who are part of the organisation structure (Ida and Ben Ling).

While tensions may constrain the distribution of leadership, the existence or possibility of tensions can also give rise to innovative solutions to balance such tensions, so that the activity system can continue to function and evolve. The findings from this study highlight three ways in which the leaders attempted to resolve tensions in the distribution of leadership. First, senior management used mainly the contextual influences of organisation structure, cultural norms and staff deployment (Gurr, Drysdale, & Mulford, 2005, p. 10) to counter tensions which they had anticipated could arise due to the existing hierarchical structure & differences in power between the different middle managers. They did this partially by enabling a spanning of organisation boundaries, for example through creating the restructured role (Little, 1995) of the primary 4 level manger, which enabled Sarah to provide leadership across the three core subjects. The level manager position enabled Sarah to play the role of a 'boundary spanner' to connect different communities (Coldren & Spillane, 2007) to support the use of IT, with the different communities being the three subject departments.

Second, senior management themselves also played the role of boundary spanners, between heads of department and lower ranking middle leaders, as well as between heads and teachers. In the literature on middle management in schools, it is usually the heads of department who act as the bridge between top-down initiatives and implementation by teachers in the classrooms (Busher & Harris, 1999; Gunter, 2001; Timperley, 2005). However, such a relationship is based on the assumption that initiatives are driven by senior management, usually the principal. When it comes to instructional reforms which require specific expertise, particularly IT innovations, it is very likely that the initiative is driven by a

middle manager, or even by a teacher (Collis & Moonen, 1994). In such a scenario, coupled with a hierarchical society in which positional authority is important (Ng et al., 2005) and in which zones of indifference are wide (Blackbourn & Wilkes, 1987; Henderson, 1990; Morris, 1990; Wilkes & Blackbourn, 1981; Wilkes & Love-Wilkes, 1989), it makes sense that senior management has to play an active role in supporting leadership by those who are lower in the hierarchy, by playing the role of mediator between the latter and heads of department, who currently occupy the highest position amongst middle management in a school setting.

Third, there was evidence that the agency of individual leaders could be used to challenge existing norms and create their own norms, enabling them to lead. While senior management created new roles to distribute leadership to those with expertise and interest in IT, human agency was observed in Sarah's use of her role as level manager to involve all the primary 4 teachers in developing IT lessons, contrary to the established norm of teachers developing lessons only for their main subject areas. This case study confirms the importance of studying the relation between structure and human agency in examining the distribution of leadership (Gronn & Ribbins, 1996; Spillane, et al., 2004). The study showed how structure, mainly organisation structure and its accompanying norms and rules, constrained human agency. At the same time, the case study showed how agency could act through structure (Spillane, et al., 2001). Spillane and colleagues (2001) note that while organisation structures and routines constitute school leaders' activities, these structures are also created/recreated by the actions of leaders and others who work in schools. Similarly, Harris (2013) shared research by Day et al, 2011 that heads in schools orchestrated the structural and cultural conditions which supported the distribution of leadership. The concept of heads orchestrating further suppports the importance of agency.

In this paper, the sensitizing concept of system tensions in activity theory was used to analyse a particular case of distributed leadership to shed some light on the kinds of tensions which arose, and how such tensions were balanced. It is important for leaders to be cognizant of contextual factors which can give rise to tensions in the distribution of leadership, and possible ways to balance such tensions, so as to support the further evolution of distributed leadership.

References

Barab, S. A., Barnett, M., & Squire, K. (2002). Developing an empirical account of a community of practice: Characterizing the essential tensions. *Journal of the Learning Sciences, 11*(4), 489-542.

Barab, S. A., Barnett, M., Yamagata-Lynch, L., Squire, K., & Keating, T. (2002). Using Activity theory to understand the systemic tensions characterizing a technology-rich introductory astronomy course. *Mind, Culture and Activity, 9*(2), 76-107.

Barab, S. A., Schatz, S., & Scheckler, R. (2004). Using Activity theory to conceptualize online community and using online community to conceptualize Activity theory. *Mind, Culture and Activity, 11*(1), 25-47.

Bennett, N., Newton, W., Wise, C., Woods, P., & Economou, A. (2003). The role and purpose of middle leaders in schools. Nottingham, United Kingdom: National College for School Leadership.

Bennett, N., Wise, C., Woods, P., & Harvey, J. A. (2003). Distributed Leadership Retrieved July 28, 2006, from http://www.ncsl.org.uk/media/3C4/A2/distributed-leadership-literature-review.pdf

Blackbourn, J. M., & Wilkes, S. T. (1987, November). *The prediction of teacher morale using the supervisory conference rating, the zones of indifference instrument and selected personal variables.* Paper presented at the Annual Meeting of the Mid-South Educational Research Association, Mobile, AL.

Bolden, R., Petrov, G., & Gosling, J. (2009). Distributed Leadership in Higher Education: Rhetoric and Reality. *Educational Management Administration & Leadership, 37*(2), 257-277.

Brown, M., Rutherford, D., & Boyle, B. (2000). Leadership for school improvement: The role of the head of department in UK secondary schools. *School Effectiveness and School Improvement, 11*(2), 237-258.

Bush, T. (2010). The significance of leadership theory. *Educational Management Administration and Leadership, 38*(3), 266-270.

Bush, T. (2013). Distributed Leadership: The Model of Choice in the 21st Century. *Educational Management Administration & Leadership, 41*(5), 543–544.

Busher, H., & Harris, A. (1999). Leadership of school subject areas: Tensions and dimensions of managing in the middle. *School Leadership and Management, 19*(3), 305-317.

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. London: Sage Publications Ltd.

Chew, J. O. A., & Andrews, D. (2010). Enabling teachers to become pedagogical leaders: Case studies of two IDEAS schools in Singapore and Australia. *Educational Research for Policy and Practice, 9*(1), 59-74.

Coldren, A. F., & Spillane, J. P. (2007). Making Connections to Teaching Practice: The Role of Boundary Practices in Instructional Leadership *Educational Policy, 21*(2), 369-396.

Collis, B., & Margaryan, A. (2004). Applying Activity theory to computer-supported collaborative learning and work-based activities in corporate settings. *ETR & D, 52*(4), 38-52.

Copland, M. A. (2003). Leadership of inquiry: Building and sustaining capacity for school improvement. *Educational Evaluation and Policy Analysis, 25*(4), 375-395.

Creighton, T. (2003). *The principal as technology leader*. Thousand Oaks, California: Corwin Press, inc.

Creswell, J. W. (2005). *Educational research : planning, conducting, and evaluating quantitative and qualitative research* (2nd ed.). Upper Saddle River, NJ: Merrill.

Dimmock, C., & Tan, C. Y. (2013). Educational leadership in Singapore: Tight coupling, sustainability, scalability, and succession *Journal of Educational Administration, 51*(3), 320-340

Divaharan, S. (2007). *Secondary school socio-cultural context influencing teachers' type of ICT use - A case study approach.* doctorate dissertation, Nanyang Technological University, Singapore.

Engestrom, Y. (1993). Developmental studies of work as a testbench of activity theory: The case of primary care medical practice. In S. Chaiklin & J. Lave (Eds.), *Understanding practice: Perspectives on activity and context* (pp. 64-103). Cambridge: Cambridge University Press.

Engestrom, Y. (1999). Expansive visibilization of work: An activity-theoretical perspective. *Computer Supported Cooperative Work, 8*, 63–93.

Engestrom, Y. (2000). Activity theory as a framework for analyzing and redesigning work. *Ergonomics, 43*(7), 960-974.

Engestrom, Y. (2001). Expansive learning at work: toward an activity theoretical reconceptualization. *Journal of Education and Work, 14*(1), 133-156.

Engestrom, Y. (2008). Weaving the texture of school change. *Journal of Educational Change, 9*, 379–383.

Ghamrawi, N. (2010). No teacher left behind: Subject leadership that promotes teacher leadership. *Educational Management Administration and Leadership, 48*(3), 304–320.

Goh, J. W. P. (2009). 'Parallel leadership in an “unparallel” world'—cultural constraints on the transferability of Western educational leadership theories across cultures. *International Journal of Leadership in Education, 12*(4), 319 - 345.

Gronn, P. (1986). Politics, power and the management of schools. In E. Hoyle (Ed.), T*he world yearbook of education 1986: The management of schools* (pp. 45-54). London: Kogant Page.

Gronn, P. (1999). *The Making of Educational Leaders*. London: Cassell.

Gronn, P. (2000a). Distributed properties: A new architecture for leadership. *Educational Management and Administration, 28*(3), 317-338.

Gronn, P. (2000b). A realist view of leadership. *The Practising Administrator, 22*(1), 24-27.

Gronn, P. (2002a). Distributed leadership. In K. Leithwood & P. Hallinger (Eds.), *Second international handbook of educational leadership and adminstration* (Vol. 2, pp. 653-693). Norwell, MA: Kluwer Academic Publishers.

Gronn, P. (2002b). Distributed leadership as a unit of analysis. *The Leadership Quarterly, 13*, 423–451.

Gronn, P. (2003a) *The new work of educational leaders: Changing leadership practice in an era of school reform*. London: Paul Chapman.

Gronn, P. (2003b). Leadership: who needs it? *School Leadership & Management, 23*(3), 267–290.

Gronn, P. (2008). The future of distributed leadership. *Journal of Educational Administration, 46*(2), 141-158.

Gronn, P., & Hamilton, A. (2004). 'A bit more life in the leadership': Co-Principalship as distributed leadership practice. *Leadership and Policy in Schools, 3*(1), 3-35.

Gunter, H. (2001). *Leaders and leadership in education*. London: Paul Chapman Publishing.

Gurr, D., Drysdale, L., & Mulford, B. (2005). Successful principal leadership: Australian case studies. *Journal of Educational Administration, 43*(6), 539-551.

Hairon, S., & Goh, J. (2014). Pursuing the Elusive Construct of Distributed Leadership: Is the Search Over? *Educational Management Administration & Leadership*, 1-26.

Hallinger, P. (2010). Making education reform happen: Is there an 'Asian' way? *School Leadership & Management, 30*(5), 401-418.

Harris, A. (2003). Teacher leadership as distributed leadership: Heresy, fantasy or possibility? *School Leadership & Management, 23*(3), 313-324.

Harris, A. (2005). Leading or misleading? Distributed leadership and school improvement. *Journal of Curriculum Studies, 37*(3), 255-265.

Harris, A., Leithwood, K., Day, C., Sammons, P., & Hopkins, D. (2007). Distributed leadership and organizational change: Reviewing the evidence. *Journal of Educational Change, 8*, 337–347.

Harris, A., & Spillane, J. P. (2008). Distributed leadership through the looking glass. *Management in Education, 22*(31), 31-34.

Hartley, D. (2009). Education policy, distributed leadershipand socio-cultural theory. *Educational Review, 61*(2), 139–150.

Hartley, D. (2010). Paradigms: How far does research in distributed leadership 'stretch'? *Educational Management Administration & Leadership, 38*(3), 271-285.

Heller, M. F., & Firestone, W. A. (1995). Who's in charge here? Sources of leadership for change in eight schools. *The Elementary School Journal, 96*(1), 65-86.

Henderson, J. C. (1990, November). *The relationship between teachers' personality factors and Their compliance with administrative directives.* Paper presented at the Meeting of the Mid-South Educational Research Association, Louisiana, New Orleans.

Kelceoglu, I. (2006). *An exploratory study of first year elementary teachers' utilization of technology.* Doctorate dissertation, Ohio State University, Ohio. Retrieved from https://etd.ohiolink.edu/!etd.send_file?accession=osu1164813945&disposition=inline

Langran, E. (2006, March). *Technology leadership: principals and technology coordinators working together.* Paper presented at the Society for Information Technology and Teacher Education International Conference, Orlando, FL.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic Inquiry*. Beverly Hills, C.A.: Sage Publications, Inc.

Little, J. W. (1995). Contested ground: The basis of school leadership in two restructuring high schools. *The Elementary School Journal, 96*(1), 47-63.

Lumby, J. (2013). Distributed Leadership: The Uses and Abuses of Power. *Educational Management Administration & Leadership, 41*(5), 581-597.

Marken, J. A. (2006). *Activity theory as a lens for considering culture: A descriptive case study of a multinational company developing and supporting training around the world.* Indiana University.

Martinez, M. C., Firestone, W. A., Mangin, M. M., & Polovsky, T. (2005). *Leadership alignment: The challenge of distributed leadership.* Paper presented at the Annual Meeting of the American Education Research Association, Montreal.

Merriam, S. B. (1998). *Qualitative research and case study applications in education: Revised and expanded from case study research in education*. San Francisco: Jossey-Bass.

Merriam, S. B. (2002). Assessing and evaluating qualitative research. In S. B. Merriam (Ed.), *Qualitative research in practice: Examples for discussion and analysis* (pp. 18-33). San Francisco: Jossey-Bass.

Morris, H. J. (1990, November). *Administrative directives: A measure of the degree of acceptance as perceived by classroom teachers in public community colleges in Mississippi.* Paper presented

at the Annual Conference of the Southern Regional Council on Educational Administration Atlanta, GA.

Murphy, J., Smylie, M. A., Mayrowetz, D., & Louis, K. S. (2009). The Role of the principal in fostering the development of distributed leadership. *School Leadership and Management, 29*(2), 181-214.

Ng, D., Nguyen, D. T., Wong, B., & Choy, W. (2015). A review of Singapore principals' leadership qualities, styles, and roles. *Journal of Educational Administration*, *53*(4).

Ng, D., Jeyaraj, S., Lim, S. P., Lee, B., Goh, J., & Chew, J. (2005, May). *Parallel leadership for school improvement in Singapore: A case study on the perceived roles of school principals.* Paper presented at the International Conference on Education: Redesigning Pedagogy: Research, Policy, Practice, Singapore.

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks: Sage Publications, Inc.

Pounder, D. G., Ogawa, R. T., & Adams, E. A. (1995). Leadership as an organisation-wide phenomena: Its impact on school performance. *Educational Adminstration Quarterly, 31*(4), 564-588.

Pustejovsky, J., Spillan, J. P., Heaton, R. M., & Lewis, W. J. (2008). Understanding teacher leadership in middle school mathematics: A collaborative research effort Retrieved 15 August, 2008, from http://www.sesp.northwestern.edu/docs/Understanding_Teacher_Leadership_in_Middle_School_Mathematics.pdf

Seidman, I. (2006). *Interviewing as Qualitative Research* (3rd ed.). New York: Teachers College Press.

Sentoènik, S., & Rupar, B. (2009). School leadership for the future. *European Education, 41*(3), 7-22.

Siskin, L. S. (1991). Departments as different worlds: Subject subcultures in secondary schools. *Educational Adminstration Quarterly, 27*(2), 134-160.

Southworth, G. (2002). Instructional leadership in schools: Reflections and empirical evidence. *School Leadership & Management, 22*(1), 73-91.

Spillane, J. P. (2005). Primary school leadership practice: How the subject matters. *School Leadership & Management, 25*(4), 383-397.

Spillane, J. P. (2006). *Distributed leadership*. San Francisco: Jossey-Bass.

Spillane, J. P., Camburn, E., & Lewis, G. (2006). Taking a distributed perspective in studying school leadership and management: Epistemological and methodological trade-offs (draft) Retrieved 4 June 2006, from http://hub.mspnet.org/index.cfm/12853

Spillane, J. P., Camburn, E., & Pareja, A. S. (2007). Taking a distributed perspective to the school principal's workday. *Leadership and Policy in Schools, 6*, 103-125.

Spillane, J. P., Camburn, E., & Pustejovsky, J. (2008). Taking a Distributed Perspective: Epistemological and Methodological Tradeoffs in Operationalizing the Leader Plus Aspect Retrieved 15 August, 2008, from http://www.sesp.northwestern.edu/docs/FINAL_Operationalizing_DL-4_Mar0620_08_1_.pdf

Spillane, J. P., Diamond, J. B., & Jita, L. (2003). Leading instruction: The distribution of leadership for instruction. *Journal of Curriculum Studies, 35*(5), 533-543.

Spillane, J. P., Hallet, T., & Diamond, J. B. (2003). Forms of capital and the construction of leadership: Instructional leadership in urban elementary schools. *Sociology of Education, 76*(1), 1-17.

Spillane, J. P., Halverson, R., & Diamond, J. B. (2001). Investigating school leadership practice: A distributed perspective. *Educational Researcher, 30*(3), 23-28.

Spillane, J. P., Halverson, R., & Diamond, J. B. (2004). Towards a theory of leadership practice: a distributed perspective. *Journal of Curriculum Studies, 36*(1), 3-34.

Spillane, J. P., & Orlina, E. C. (2005). Investigating leadership practice: Exploring the entailments of taking a distributed perspective. *Leadership and Policy in Schools, 4*, 157–176.

Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage Publications.

Storey, A. (2004). The problem of distributed leadership in schools. *School Leadership & Management, 24*(3), 249-265.

Tian, M., Risku, M., & Collin, K. (2015). A meta-analysis of distributed leadership from 2002 to 2013: Theory devlopment, empirical evidence and future research focus. *Educational Management Administration & Leadership*, 1-19. Retrieved from doi:10.1177/1741143214558576

Timperley, H. S. (2005). Distributed leadership: developing theory from practice. *Journal of Curriculum Studies, 37*(4), 395–420.

Torrance, D. (2013). Distributed leadership: challenging five generally held assumptions. *School Leadership & Management, 33*(4), 354-372.

Wilkes, S. T., & Blackbourn, J. M. (1981). The design of an instrument to measure zones of indifference of teachers to directives issued by administrators (pp. 1-31): Mississippi State University.

Wilkes, S. T., & Love-Wilkes, R. (1989, 20 July 2008). The relationship of administrators' experience and teachers' acceptance of authority in Mississippi schools. Retrieved April 13, 2009, from http://search.ebscohost.com.libproxy.nie.edu.sg/login.aspx?direct=true&db=eric&AN=ED312759&site=ehost-live

Woods, P. A., Bennett, N., Harvey, J. A., & Wise, C. (2004). Variabilities and Dualities in Distributed Leadership *Educational Management Administration and Leadership, 32*(4), 439–457.

Yamagata-Lynch, L. (2003). Using Activity theory as an analytic lens for examining technology professional development in schools. *Mind, Culture and Activity, 10*(2), 100-119.

Zepke, N. (2007). Leadership, power and activity systems in a higher education context: will distributive leadership serve in an accountability driven world? *International Journal of Leadership in Education: Theory and Practice, 10*(3), 301-314

Barab, S. A., Barnett, M., Yamagata-Lynch, L., Squire, K., & Keating, T. (2002). Using Activity Theory to understand the systemic tensions characterizing a technology-rich introductory astronomy course. *Mind, Culture and Activity, 9*(2), 76-107.

Bennett, N., Wise, C., Woods, P., & Harvey, J. A. (2003). Distributed Leadership Retrieved July 28, 2006, from http://www.ncsl.org.uk/media/3C4/A2/distributed-leadership-literature-review.pdf

Blackbourn, J. M., & Wilkes, S. T. (1987, November). *The prediction of teacher morale using the supervisory conference rating, the zones of indifference instrument and selected personal variables.* Paper presented at the Annual Meeting of the Mid-South Educational Research Association, Mobile, AL.

Brown, M., Rutherford, D., & Boyle, B. (2000). Leadership for school improvement: The role of the head of department in UK secondary schools. *School Effectiveness and School Improvement, 11*(2), 237-258.

Busher, H., & Harris, A. (1999). Leadership of school subject areas: Tensions and dimensions of managing in the middle. *School Leadership and Management, 19*(3), 305-317.

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. London: Sage Publications Ltd.

Collis, B., & Moonen, J. (1994). Leadership for transition: Moving from the special project to systemwide integration. In G. Kearsley & W. Lynch (Eds.), *Educational technology leadership perspectives* (pp. 113-135). Englewood Cliffs, NJ: Educational Technology Publications.

Copland, M. A. (2003). Leadership of inquiry: Building and sustaining capacity for school improvement. *Educational Evaluation and Policy Analysis, 25*(4), 375-395.

Creighton, T. (2003). *The principal as technology leader*. Thousand Oaks, California: Corwin Press, inc.

Dimmock, C., & Tan, C. Y. (2013). Educational Leadership in Singapore. *Journal of Educational Administration, 51*(3), 320-340.

Divaharan, S. (2007). *Secondary school socio-cultural context influencing teachers' type of ICT use - A case study approach.* doctorate dissertation, Nanyang Technological University, Singapore.

Engestrom, Y. (1999). Expansive visibilization of work: An activity-theoretical perspective. *Computer Supported Cooperative Work, 8*, 63–93.

Engestrom, Y. (2001). Expansive learning at work: toward an activity theoretical reconceptualization. *14*(1), 133-156.

Goh, J. (2009). 'Parallel leadership in an "unparallel" world'— cultural constraints on the transferability of Western educational leadership theories across cultures. *International Journal of Leadership in Education: Theory and Practice, 12*(4), 319–345.

Gronn, P. (2000). Distributed properties: A new architecture for leadership. *Educational Management and Administration, 28*(3), 317-338.

Gronn, P. (2002a). Distributed leadership. In K. Leithwood & P. Hallinger (Eds.), *Second international handbook of educational leadership and adminstration* (Vol. 2, pp. 653-693). Norwell, MA: Kluwer Academic Publishers.

Gronn, P. (2002b). Distributed leadership as a unit of analysis. *The Leadership Quarterly, 13*, 423–451.

Gronn, P. (2008). The future of distributed leadership. *Journal of Educational Administration, 46*(2), 141-158.

Gronn, P., & Hamilton, A. (2004). 'A bit more life in the leadership': Co-Principalship as distributed leadership practice. *Leadership and Policy in Schools, 3*(1), 3-35.

Gronn, P., & Ribbins, P. (1996). Leaders in context: Postpositivist approaches to understanding educational leadership. *Educational Adminstration Quarterly, 32*(3).

Gunter, H. (2001). *Leaders and leadership in education*. London: Paul Chapman Publishing.

Gurr, D., Drysdale, L., & Mulford, B. (2005). Successful principal leadership: Australian case studies. *Journal of Educational Administration, 43*(6), 539-551.

Hairon, S., & Goh, J. (2014). Pursuing the Elusive Construct of Distributed Leadership: Is the Search Over? *Educational Management Administration & Leadership*, 1-26.

Hallinger, P., & Kantamara, P. (2000). Educational change in thailand: Opening a window onto leadership as a cultural process. *School Leadership & Management, 20*(2), 189–205.

Harris, A. (2003). Teacher leadership as distributed leadership: Heresy, fantasy or possibility? *School Leadership & Management, 23*(3), 313-324.

Harris, A. (2005). Distributed leadership. In B. Davies (Ed.), *The essentials of school leadership* (pp. 160-172). Thousand Oaks, CA: Sage Publications, Inc.

Harrison, N. L. T. (2005). *The impact of distributed leadership on teachers.* doctorate dissertation, Indiana University, Bloomington.

Hartley, D. (2010). Paradigms: How far does research in distributed leadership 'stretch'? *Educational Management Administration & Leadership, 38*(3), 271-285.

Henderson, J. C. (1990, November). *The relationship between teachers' personality factors and Their compliance with administrative directives.* Paper presented at the Meeting of the Mid-South Educational Research Association, Louisiana, New Orleans.

Koh, H. H., Gurr, D., Drysdale, L., & Ang, L. L. (2011). How school leaders perceive the leadership role of middle leaders in Singapore primary schools? Retrieved 6 August, 2011

Langran, E. (2006, March). *Technology leadership: principals and technology coordinators working together.* Paper presented at the Society for Information Technology and Teacher Education International Conference, Orlando, FL.

Little, J. W. (1995). Contested ground: The basis of school leadership in two restructuring high schools. *The Elementary School Journal, 96*(1), 47-63.

Mayrowetz, D. (2008). Making sense of distributed leadership: Exploring the multiple usages of the concept in the field. *Educational Administration Quarterly, 44*(3), 424-435.

Ministry of Education. (2006). Three career tracks in the education service Retrieved 29 January, 2008, from http://www.moe.gov.sg/corporate/contactonline/2006/issue09/sub_glossary.htm

Morris, H. J. (1990, November). *Administrative directives: A measure of the degree of acceptance as perceived by classroom teachers in public community colleges in Mississippi.* Paper presented at the Annual Conference of the Southern Regional Council on Educational Administration Atlanta, GA.

Ng, D., Jeyaraj, S., Lim, S. P., Lee, B., Goh, J., & Chew, J. (2005, May). *Parallel leadership for school improvement in Singapore: A case study on the perceived roles of school principals.* Paper presented at the International Conference on Education: Redesigning Pedagogy: Research, Policy, Practice, Singapore.

Ogawa, R. T. (2004). Leadership as a social construct: The expression of human agency within organizational constraint. In F. W. English (Ed.), *The Sage Handbook of Educational Leadership* (pp. 89-108). Thousand Oaks, California: Sage publications.

Oswald, M., & Engelbrecht, P. (2013). Leadership in disadvantaged primary schools: Two narratives of contrasting schools. *Educational Management, Administration and Leadership, 41*(5), 620-639.

Pounder, D. G., Ogawa, R. T., & Adams, E. A. (1995). Leadership as an organisation-wide phenomena: Its impact on school performance. *Educational Adminstration Quarterly, 31*(4), 564-588.

Rizzo, J. R., House, R. T., & Lirtzman, S. I. (1970). Role conflict and ambiguity in complex organisations. *Administrative Science Quarterly, 15*(2), 150-163.

Robinson, V. M. (2008). Forging the links between distributed leadership and educational outcomes. *Journal of Educational Administration, 46*(2), 241-256.

Seidman, I. (2006). *Interviewing as Qualitative Research* (3rd ed.). New York: Teachers College Press.

Spillane, J. P. (2005). Primary school leadership practice: How the subject matters. *School Leadership & Management, 25*(4), 383-397.

Spillane, J. P. (2006). *Distributed leadership*. San Francisco: Jossey-Bass.

Spillane, J. P., Camburn, E., & Pustejovsky, J. (2008). Taking a Distributed Perspective: Epistemological and Methodological Tradeoffs in Operationalizing the Leader Plus Aspect Retrieved 15 August, 2008, from http://www.sesp.northwestern.edu/docs/FINAL_Operationalizing_DL-4_Mar0620_08_1_.pdf

Spillane, J. P., Diamond, J. B., & Jita, L. (2003). Leading instruction: The distribution of leadership for instruction. *Journal of Curriculum Studies, 35*(5), 533-543.

Spillane, J. P., Halverson, R., & Diamond, J. B. (2001). Investigating school leadership practice: A distributed perspective. *Educational Researcher, 30*(3), 23-28.

Spillane, J. P., Halverson, R., & Diamond, J. B. (2004). Towards a theory of leadership practice: a distributed perspective. *Journal of Curriculum Studies, 36*(1), 3-34.

Spillane, J. P., & Orlina, E. C. (2005). Investigating leadership practice: Exploring the entailments of taking a distributed perspective. *Leadership and Policy in Schools, 4*, 157–176.

Storey, A. (2004). The problem of distributed leadership in schools. *School Leadership & Management, 24*(3), 249-265.

Tian, M., Risku, M., & Collin, K. (2015). A meta-analysis of distributed leadership from 2002 to 2013: Theory devlopment, empirical evidence and future research focus. *Educational Management Administration & Leadership*, 1-19. Retrieved from doi:10.1177/1741143214558576

Timperley, H. S. (2005). Distributed leadership: developing theory from practice. *Journal of Curriculum Studies, 37*(4), 395–420.

Torrance, D. (2013). Distributed leadership: challenging five generally held assumptions. *School Leadership & Management, 33*(4), 354-372.

Vennebo, K. F. (2016). Innovative work in school development: Exploring leadership enactment. *Educational Management, Administration and Leadership, 1*(18), 1-18. Retrieved from doi:10.1177/1741143215617944

Wilkes, S. T., & Blackbourn, J. M. (1981). The design of an instrument to measure zones of indifference of teachers to directives issued by administrators (pp. 1-31): Mississippi State University.

Wilkes, S. T., & Love-Wilkes, R. (1989, 20 July 2008). The relationship of administrators' experience and teachers' acceptance of authority in Mississippi schools. Retrieved April 13, 2009, from http://search.ebscohost.com.libproxy.nie.edu.sg/login.aspx?direct=true&db=eric&AN=ED312759&site=ehost-live

Woods, P. A., Bennett, N., Harvey, J. A., & Wise, C. (2004). Variabilities and Dualities in Distributed Leadership *Educational Management Administration and Leadership, 32*(4), 439–457.

Yukl, G. A. (2001). *Leadership in organisations* (5th ed.). Upper Saddle River, NJ: Prentice Hall.