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Chapter 6

Educational Change for the 21st Century: "Leadership from the Middle"

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In this chapter, we propose a hypothesis that "leadership from the middle" (LftM) facilitates the change process of the Singapore education system to stay relevant to current trends and needs while maintaining a balance between old performative (teaching to the test) and new inquiry-based, student-centred pedagogies. LftM provides a context that will help the reader to appreciate how coherent alignments can be made across the multiple layers within the system, and where school leaders, teacher leaders and champions of Curricular Innovations (CIs) take the lead from such a middle.

INTRODUCTION

The words of our founding Prime Minister Lee Kuan Yew spoken in 1967 ring true even today:

> *Change is the very essence of life. The moment we cease to change, to be able to adapt, to adjust, to respond effectively to new situations, then we have begun to die.* (Lee, 1967)

Singapore's education system is no stranger to change. It began with the phase of standardisation of education in the mid-1960s through the nation's independence from Malaysia, with survival as its main

challenge. Standardisation across schools and central control from the Government were necessary to heighten the base of literacy of the nation as quickly as possible to counter severe unemployment and supply the necessary labour for industrialisation. The system then shifted to the phase of local accountability at the school level in the mid-1980s in the light of the 1985 global economic crisis, when the standardised system was found wanting in supporting the nation's shift from a labour-intensive to a capital and skill-intensive economy. Schools were decentralised and given more autonomy in curricular and pedagogical matters but remain accountable to the Ministry headquarters for the results. The mid-1990s then saw the beginning of the phase of diversity and innovation, with the system moving in tandem with the world's shift towards a global knowledge economy (Ng, 2008; Ng, 2010).

Our Singapore education system is always a work in progress. The system changes whenever necessary to stay relevant to current trends and needs, which in themselves are changing at a faster pace than ever before in this day of globalisation. However, we suggest that there are features in the system that we must keep as constants. We must cultivate the ability for lifelong learning dispositions amongst our learners that include our students, teachers and educators. Our learners must be adaptable to multiple contexts and challenges across the different stages of their lifespans. To stay the course and be clear of one's purpose, we must cultivate character; especially amidst change, we need stability and maturity of character. With the constant bombardment of stimuli from all corners, it has become more critical that this generation of learners possess the strength of character and rootedness to values, moral purpose, and ethical principles. In 21st century learning, we face a paradox. On the one hand, we need to be adaptable, but yet, on the other hand, we need to anchor ourselves to a set of moral-ethical principles.

Despite the need for change, it is never easy to do so as a system, especially a system that has developed into one that is well-oiled to produce students who excel in almost all international benchmarking exams. Because of the success of the Singapore education system, many other systems are inspired to learn from it and model after it. We find

that Singapore teachers have to manage a balance between the tension of preparing students well for high stake national examinations and responding to the call of the Ministry to move towards new pedagogies and inquiry in classrooms. Most parents tend to stick to championing teaching-to-the-test methodologies so that their children will be able to follow the tried and tested success trajectories to examination success instead of encouraging their children towards inquiry-based learning, in schools or at home. In the midst of research and experimentation, our education system takes into account these tensions and seeks to maintain a balance between keeping the portions that are working and introducing new pedagogies that will help meet the needs of the 21ˢᵗ century learning.

In the past decade, while the education system has been infusing and spreading pedagogies for the 21ˢᵗ century learning over the major subject disciplines, the momentum for diffusion and scaling of such pedagogies has been far from simple. There are many tensions and misalignments in the system — the translation from policy to practice, the assessments of content that relate to 21ˢᵗ century competencies, and the disparities between teacher capacities and desired outcomes for learning, amongst others. In this chapter, we will attempt to show how *leadership from the middle* via a cluster or network of schools is managing the tensions. By leveraging *leadership from the middle*, we can facilitate the diffusion of Curricular Innovations (CIs) within and across schools, and develop sustainability mechanisms that will aid in the balancing of performative (i.e. teaching to the test) pedagogies, inquiry-based learning and student-centred designs.

LEADERSHIP: CRITICAL FOR MANAGING TENSIONS

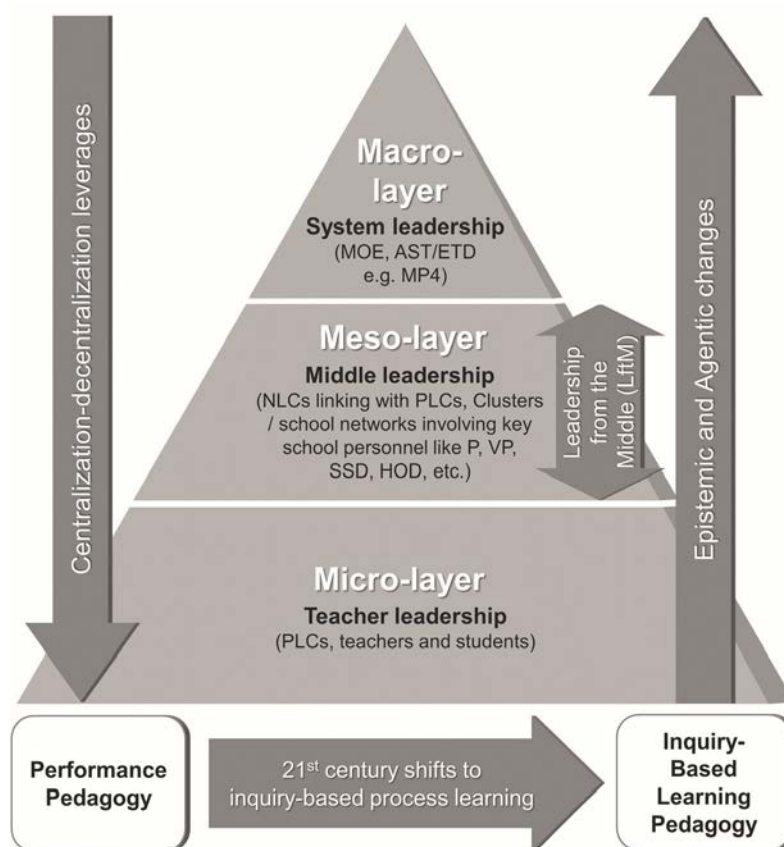In managing the tensions of reform-change and epistemic change for school improvement, we postulate that a centralisation-decentralisation mechanism in the Singapore education system can offer a coherence and alignment of actions between three layers of the system — the macro-layer, meso-layer and the micro-layer as depicted in Figure 1. Moving top-down at the macro-layer, we note that the change process takes into

account the localised context of the various schools in Singapore and the setting up of structures that would "fill the gap" in achieving the outcome of the change reform. This change process will take time. From the bottom-up at the micro-layer, we see teachers at the heart of change, where epistemic changes in their beliefs involving the balancing of performative (teaching to the test) and inquiry-based pedagogies in teaching and learning will reform and even revolutionise the entire system, enabling the spread of innovative cultures. At the meso-layer of top-down and bottom-up, Networked Learning Communities (NLCs, *across schools*) which link to the Professional Learning Communities (PLCs, *within schools*) in supporting school leadership will enable the development of teacher leaders who champion the innovative pedagogies. Epistemic change of teachers occurs at these communities with the supporting processes of teacher apprenticeships; teachers are taking the 'leap of faith' with support by more experienced teachers who might engage in some form of apprenticeship learning with the less experienced ones.

Middle Leadership: Moving Schools in Certain Directions

We define middle leadership as teachers or teacher leaders (or teacher champions) leading from the middle — in a middle-out fashion. While we conceptually link middle leadership to distributed leadership, it is narrower than teacher leadership as it focuses on the formal leadership positions at the middle management and subject leadership levels (Heng & Marsh, 2009). Hargreaves and Braun (2010) first described the concept of leadership from the middle (LftM), and Fullan (2015) subsequently appropriated it for change relating to school improvement purposes. In adapting this middle leadership from Ontario to Singapore's context, we refer to "the middle" as the cluster system of school networks like the NLCs which potentially facilitate the development of teacher leaders who can champion innovations in educational practices.

Figure 1: Ecological System of Coherence and Alignment at the Macro,
Meso and Micro layers as an integrated whole for the Change Process.

The goal of LftM is to develop greater overall system coherence by
strengthening the focus of the middle in working towards system goals
and local needs. Collaborative cultures are core to improving the
performance of the whole system which requires the teachers to support
and take ownership of the reform agenda. We postulate that change
would occur if we can find leaders at every middle level in the multiple
layers of the system.

Schools are the middle when it comes to being a partner upwards to the
school cluster. Principals are the key to changes that enable the middle

leadership to build the necessary skills needed to support capacity building at the school level, changing practices and increasing coherence for sustainability and deep learning (Fullan & Quinn, 2016). Heads of Department (HODs) in a school are often the middle-level leadership participants in distributed leadership contexts (Heng & Marsh, 2009). As leadership becomes a distributed concept in practice, the HODs and School Staff Developer (SSD) (a Head of Department level appointment responsible for professional learning in a school) emerge as change agents in schools and they serve as the bridges between school leaders and classroom teachers. They are also the curriculum leaders (Tan *et al.,* 2017) in fostering learning with alignments in schools' missions and visions. They can act as role models apprenticing less experienced teachers (Heng & Marsh, 2009; Hung, Jamaludin, & Toh, 2015; Hung, Jamaludin, & Shaari, 2016).

Apprenticing Leadership (Horizontal Percolation)

The apprenticing process requires teachers to be very open about listening to other colleagues and learning to accept the need for change. In one of our findings, a teacher was assigned to join as a participant in a CI (curricular innovation) agenda but was an 'unwilling' participant. She tolerated going to the NLC to plan, dialogue, design, and enact the lessons according to the innovation. However, although the starting point was deference to authority, she later went on from unwilling and tolerated to accepting and even 'taking joy in acceptance'. The transformational journey by this teacher is consistent with the theory of peer apprenticeship learning where teachers undergo an epistemic change through learnings consistent to apprenticeship principles. Hung (1999) described apprenticeship to be a journey of change in beliefs, contrary to the traditional reference to skills and competencies.

We kindle epistemic change in teachers when they derive observable positive outcomes of students showing conceptual understanding and developing a critical voice in the way they ask questions through their formative assessments. We revolutionise teachers' mindsets, skills and their classrooms when they undergo a learning trajectory towards an

epistemic change. Teachers develop a sense of ownership and are excited when they see the CIs work for their students; students' engagement and development motivate and help them to gain implicit confidence in how the interventions work to improve teaching and learning. The process of apprenticing leadership for epistemic change requires a change in the mindset of teachers to be willing to build open communication, collaboration and shared decision-making with the middle leaders who in turn empower fellow teachers. As such, we postulate that if teachers undergo a genuine epistemic shift in their belief and identity to what learning for students can potentially be, this shift will yield the highest leverage point for sustainability.

The apprenticing process is similar to Koh, Gurr, Drysdale, & Ang's (2011) notion of "the 'mentor system' pair[ing] less experienced middle leaders with more experienced colleagues who will provide them with support and guidance, 'someone to show them the ropes'" (p. 616). Likewise, when paired with more experienced teachers and middle leaders, this process contributes critically to teachers "attaining autonomy and taking on leadership roles" (Heng & Marsh, 2009, p. 532) in bringing about sustainable change within their schools. Brown, Rutherford, & Boyle (as cited in Lee & Nie, 2015) noted that it is especially efficacious for teachers when we pair them with middle leaders who are their immediate supervisors; whom they are already working closely with to address everyday classroom and student issues.

Ecological Leadership (Vertical Percolation)

The school and teacher leader in-the-middle plays a critical role in alignment and coherence upwards and downwards for ecological consistency (Toh, Jamaludin, Hung, & Chua, 2014). This role is important because good work can occur at the level of the department and the classroom which senior school leadership may be unaware. Ecological leadership exhibits the characteristics of forging alignments and convergences in the different ecological layers, mitigating systemic paradoxes as well as local within-school and cross-school tensions (Hung *et al.,* 2015). While there is upward percolation, the degree of downward

percolation and horizontal percolation (through apprenticing leadership) appears to more significant. We perceive that upward percolation is more difficult to enact in East Asian cultures. School leaders need to remain grounded while teacher leaders need to develop trust with their school leaders. However, we think that there is a need to practice culture building through upward and downward percolation to achieve distributed leadership.

In the context of diffusion, upward percolation is imperative in a system that undergoes change rather than adhering strictly to higher forms of power distance traditionally and culturally. Based on the notion of ecological leadership (Toh *et al.*, 2014), there must be continuous bi-directional upward and downward percolation.

In the context of change, teachers undergo significant changes in the enactment and constantly have to adapt to co-evolving elements in the system. Hence, it is important that middle-level leaders and school leaders are cognisant of what is happening. Alignments need to be constantly meted out for coherence-making as the upper levels i.e. the macro layer downward percolate and the lower levels i.e. the micro level upward percolate to co-inform across the levels to build a coherent framework.

For a better catering of students' learning needs for the 21st century, ecological leadership will be needed to mitigate tensions at the meso-layer of the schools from relooking at the planned curriculum to the enacted curriculum based on an evaluation of student voices offering constructive feedback for practical refinement of pedagogies. School leaders need to percolate upwards to their superintendents and even to policymakers at the MOE to formulate the appropriate policies. Because of the close and tight ecology of the Singapore education system, it is often possible to have school leaders represented in MOE committees. However, these school leaders will need to overcome higher power distance and communicate upwards. For alignment in vertical percolation, the communication should not be just at the school leadership level but ideally at all levels (from teachers to the MOE).

INTERVIEWS CONDUCTED

Middle leadership in the schools tell different stories about how they manage structural changes in curriculum and time constraint on curriculum to encourage change in teachers' mindset to incorporate non-linear inquiry-based pedagogy into traditional performative pedagogy. We have conducted numerous interviews with teachers and school leaders, and we have included some representative examples in this chapter. Based on our interviews with seven middle leaders (1 Principal, 1 Vice-principal and 5 teachers) from 5 research projects about the challenges faced by teachers, the "time constraint on curriculum" was mentioned 12 times, being the most frequently occurring quote. The next most frequently occurring quotes were "teachers' mindset" and "lack of guidance to teachers" that were mentioned 6 times in the interview transcripts. With regards to 21ˢᵗ century competencies, "critical and inventive thinking" (24 times), "self-directed learner" (12 times) and "active contributors" (11 times) were the most frequently occurring quotes in the interview transcripts. As such, the voices from the middle have surfaced the struggles of overcoming time constraint on curriculum, lack of guidance to teachers and encouraging change in teachers' mindset to foster critical and inventive thinking in learners for them to contribute actively as self-directed learners.

In an interview with a vice-principal of a primary school, she highlighted that unless the structure were to change, the pedagogy in class would rarely change. She also stressed that, while school leaders would tell the teachers to change and the teachers themselves know about the need to change their pedagogy to increase students' voices, the problem was that the required change became difficult to implement when everything comes in. Hence, for the leadership in the middle in schools, they look at it structurally as a curriculum with a macro view of how the NIE research partnership fits into the bigger piece of work for children. Teachers face time constraints in delivering their best when they only have half an hour for one period of a lesson. They are often worked up with different routines in the school. Quoting the interview excerpt of the vice-principal, "time is limited in the curriculum, and the teacher has to

find that space to do the rest of the thing that would have taken the curriculum time to do". Teachers were willing to negotiate on time required to participate in research so that their children do not learn less as they develop collaborative skills in flipped pedagogy for student-directed learning. But, at the same time, they would be expected to teach the core curriculum and to deliver the syllabus outcome. Teachers are more willing to buy into curriculum changes when they see researchers, with a heart and purpose to help students, do something different in their collaboration with the schools as a strategic partner.

In an interview with a Physical Education (PE) lead teacher of a secondary school, he felt that, in a class of 40, they face time constraint on top of space and environmental constraints in schools. He also felt that the explorative method would take more time and would also require a lot more facilitation from the teacher. Teachers would have to manipulate the constraints in non-linear pedagogy by mixing traditional method with facilitation for a certain time. He pointed out that he would try to overcome the constraints by doing some close skill grips for the different abilities and situations. As a lead teacher, his role was to share teaching practices in the PLC department and with the cluster at the end of the year.

In an interview with a former Level Manager of a primary school, he felt that level managers are in the middle between their level teachers and Level Advisors who were the HODs. His role as the level manager comprised two-sides of the coin where he was empowered by the Level Advisor but burdened with heavy responsibilities of managing administrative matters for the level that ranged from coordinating learning journeys and infusing innovations from PLCs into the Primary 2 level that he taught. He highlighted that curriculum and time constraints were the main challenges faced by middle leaders to encourage bottom-up initiatives to infuse innovations into the curriculum design. He voiced out that more support needs to be given from the top for teachers to explore and incorporate curricular innovations into their teaching and learning.

SCHOOL-TO-SCHOOL NETWORKS HYPOTHESIS

In a series of interviews conducted with school leaders and Ministry of Education officials, we have increasingly converged upon the notion that school-to-school networks for innovation and CI uptake to be the "middle" of the system driven by leadership.

It is not uncommon in East Asian cultures to have a healthy respect for power distance between persons within the numerous levels of the organisational hierarchy. Power distance typifies deference to authority where leaders 'give instructions' based on their positional authority. In an interview with a former Cluster Superintendent, we find that the indigenous (native) understanding is that school leaders are the ones that direct and move matters in the local situations. Power distance can inhibit innovation expressions, and this phenomenon can result in teachers typically giving over deference to authority and hence misalignments may occur due to a lack of feedback to one's superiors. Another interesting phenomenon in East Asian cultures is collectivism — rallying for the common good. However, this can also inhibit innovation because one may not develop a strong personal innovation coherence and zeal leading to "busy-ness", procedural 'obedience'. In the concluding section, we will elaborate on how we can leverage these traits for innovation spread.

We recognise that school leaders can align policy and teacher goals with school's mission to overcome narrow views of power distance and collectivism through distributed leadership, but the down-side is that an individual school may have resource constraints. We propose a hypothesis on a network of schools' approach where experimentation can begin with one nodal school (e.g. an experimental or future school) but there should be a deliberate mandate to implement diffusion as a strategy for sustained pedagogical change following a successful experimentation. In Chapter 4, Toh and her colleagues discussed carryover effects between schools. We believe that we can develop teachers' design capacity through such leadership from the middle approach. Leadership from the network of schools' middle can aid to align teachers' professional development goals in their networked learning communities with the school-to-school

agendas, and also build coherence between individual school missions and MOE policies.

CONCLUSION

From the interviews, it is clear that teachers face many constraints and challenges. While they can envisage in theory what they might need for a change process, they can be overwhelmed by the everyday practices and routines that we expect of them. As such, these interviews concur with the need for epistemic change before they can accept their role in the change-agenda. They also recognise that leadership is imperative in the context of the Singapore school system. Power differentials is also a very real phenomenon.

However, we can leverage such notions of power distance to our advantage for the diffusion of educational innovations and improvement. It can begin with an upward percolation from the nodal school to the Superintendent, which is then subsequently followed by a downward percolation or downward distribution of leadership. We observe an apprenticing process at each of the levels. Based on our observations of numerous interventions across the system, we observe that downward percolation is significantly higher than upward percolation. This observation has significance to ecological leadership, which we postulate as an important orientation for mitigating power distance.

School leaders set the tone for teacher experimentation and culture. The belief in distributed leadership for ownership and agency is also set about not just in rhetoric but in actual day to day routines, organisational norms, and experiences. Teacher experimentations as apprenticed enables teachers to develop not just routine expertise in canonical pedagogies but facilitates the development of a wider repertoire of abilities and inquiry pedagogies enabling them to be adaptive experts (Darling-Hammond & Bransford, 2005).

To reiterate the point that we had made at the beginning of the chapter, all levels of the system need to change to stay relevant to the times. Change, however, is complex. While we have found that the teacher's epistemic change is very high leverage in the whole dynamics and complexity of the system-ness, we note that teacher change alone cannot sustain system change, unless we progressively work at aligning all levels of the system (see Figure 2).
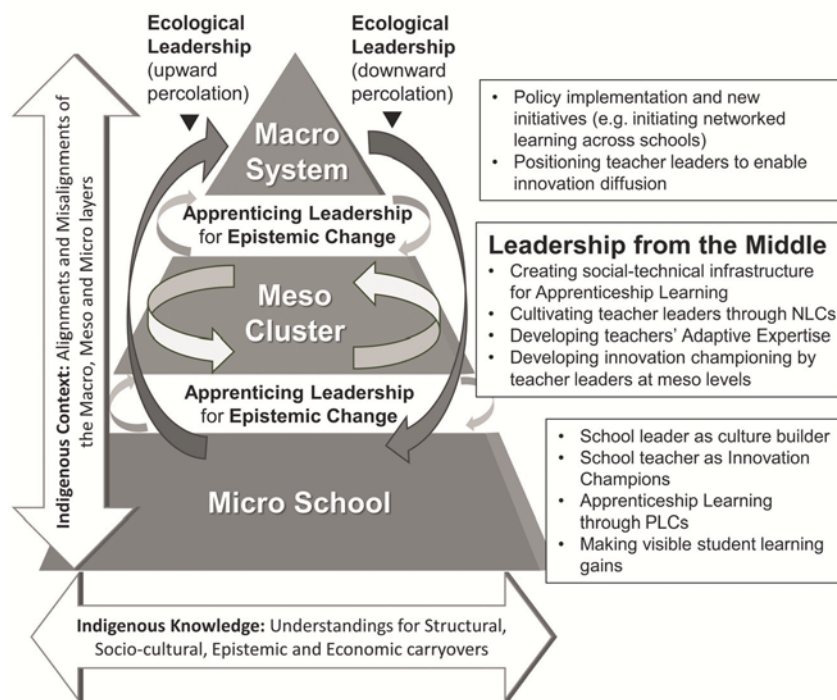
Ownership by school leaders and teachers to the change process is imperative where school contexts differ for situated adaptations to any particular school's vision and mission. We have to recognise that with greater ownership of CIs, we will not necessarily compromise the need for consistent fidelity to the original intervention. Schools may be able to achieve better sustainability with customised adaptations to their respective contexts. Hence, teacher leaders should be empowered to lead pedagogical change in classrooms and be participative in curricular level decision makings and to percolate and communicate both upwards and downwards. Pedagogical experimentation is the key leverage of teacher learning and agentic behaviour. Generally, teachers' agentic behaviour is affected by the constant sense-making of the curriculum. It is important therefore to nurture networks amongst teachers during the curricular innovations processes for greater collaboration, sharing and documentation of artefacts of the CI.

We require ecological leadership with ownership from the middle, in particular teacher leaders, to mitigate the high power distance that exists within the system, as well as apprenting leadership to facilitate the needed epistemic change. School leaders, teacher leaders and champions of CIs have to be encouraged to take the lead from the middle in aligning upwards and downwards in this journey of educational change, preparing our students for the unknown and increasingly unpredictable future.

In the next chapter, Tan and her colleagues will discuss how we explicate teacher leadership in implementation. They have argued that we cannot foster teacher leadership simply by instituting leadership positions and different career paths but we require a deliberate effort to build a culture

for self-improvement. They suggest that we need to build a culture that emphasises pedagogical inquiry in teachers' work and provides space to promote ownership and agentic behaviours. They have identified three pathways through which we can develop teacher leadership. They then share insights from their study on a system-level professional development programme that aims to engender a culture of teacher leadership. Finally, they highlight the issues and challenges in implementation.

Figure 2: Alignments needed as a System with Ecological and Apprenticing Leadership (Toh *et al.*, 2016)

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