CHAPTER 10:

Knowledge Management, Sustainable Innovation and Pre-service Teacher Education in Singapore

Taken from:

In 1997, Singapore’s Ministry of Education (MOE) committed itself to an ambitious program of pedagogical reform in Singaporean schools in anticipation of the kind of institutional challenges – particularly those in increasingly globalized labour markets – that young Singaporeans were likely to face in the coming decades. Since then, the Ministry has designed and implemented a series of initiatives that, the authors suggest, will go a considerable distance to achieve its objectives. These initiatives focus on substantial changes in the system of ‘instructional governance’ in Singapore over the past decade, and efforts to change the pattern of classroom pedagogy. But while these represent a good start, the authors argue that these initiatives do not go quite far enough to close the gap between policy and practice. And while the improvement of classroom pedagogy in the long run will depend on the improvement of initial teacher education, it is also the case that, given what is known about the circumstances that optimize professional learning in both pre-service and in-service programs,
the improvement of teacher education will depend substantially on the prior improvement of classroom pedagogy. How Singapore might escape this conundrum is the central focus of this paper.

Keywords: teacher education; knowledge management; sustainable innovation; professional learning communities

THE HIATUS BETWEEN POLICY AND PRACTICE IN SINGAPORE

Policy settings

Educational policy in Singapore for the past decade has been dominated by a policy document – Thinking Schools, Learning Nation (TSLN) – released in 1997 by the then Prime Minister, Goh Chok Tong, at the opening of the 7th International Conference on Thinking. Goh acknowledged the robustness of the Singapore education system and its many achievements, yet went on to insist that the successes of the past are unlikely to prove sufficient for an unpredictable future in a rapidly changing and globalizing world. For the Prime Minister, Singapore needed ‘thinking schools’ to be test-beds of inquiry and promote innovation at every level to develop a ‘learning nation’ (Goh, 1997).

For the past decade then, since the launch of TSLN in 1997, educational policy in Singapore has been dominated at the broadest level by a vision of ‘a nation of thinking and committed citizens capable of meeting the challenges of the future, and an education system geared to the needs of the 21st century’ (Gopinathan, 1999;
MOE, 2008). The Ministry has been strongly committed to the development of an education system that (1) prepares young people for the worksites of the knowledge economy, (2) promotes innovation and creativity rather than simply learning and memorization, (3) recognizes and rewards a plurality of talents rather than a singularity of merit (namely, performance on high-stakes assessment), (4) offers a broader diversity of choices and pathways for students in and through schooling, and (5) generally prepares young people to successfully negotiate the more complex institutional demands of a rapidly globalizing and ‘postmodern’ world, and to do so without a loss of civic attachment or a clear normative framework.

The Gap between Policy and Practice

While there is a lot of very good pedagogy in Singaporean classrooms, and some very high quality student outcomes, instructional practice in Singaporean classrooms falls short of what the government would like to see. For example, research conducted by CRPP staff since 2004 suggests that the enacted curriculum in Singaporean classrooms is characterized by limited disciplinarity as indicated by a limited focus on advanced concepts, knowledge application, validation of knowledge claims, and generation of knowledge that is new to students (Tables 10.1 and 10.2). Teacher-dominated instructional practices prevail within classrooms (Table 10.3). There is very little evidence of formative assessment and differentiated instruction but considerable evidence of a very tight coupling between the high stakes summative assessment system and classroom instruction. Finally, in a large representative study of 2500 primary-school teachers from 49 schools, we found that while self-reported levels of teacher content knowledge and pedagogical content knowledge are
reasonable in the case of math, they lag somewhat in the case of science, and, especially, English (Table 10.4).

**Closing the Gap: MOE Initiatives**

The Ministry of Education is more than a little aware of the distance between its policy priorities and classroom practices and has consciously endeavoured to devise strategies to narrow the gap. Over the past three or four years, the centrepiece of this initiative has been the *TLLM* strategy, announced by Prime Minister Lee Hsien Loong in 2004 to signal a shift from ‘quantity’ to ‘quality’ education by shifting the focus of classroom instruction away from the usual practice of teaching students for examinations, and finding better ways of teaching to truly engage ‘the hearts and minds’ of students. The following year, the Minister for Education, Tharman Shanmugaratnam amplified this in a statement that suggested that *TLLM* rested on two principles. The first, he said:

… is to give teachers and school leaders more space and support so that they can focus on improving the quality of interaction with their students, both in the classroom and beyond. To prepare our students for life, more than for examinations, teaching must be aimed at touching their hearts and engaging their minds. (Shanmugaratnam, 2005)

[INSERT Table 10.1. Disciplinarity: The enacted curriculum.]

[INSERT Table 10.2. Two pedagogies.]

[INSERT Table 10.3. Classroom organization.]
The second principle ‘was to continue to provide more flexibility and choice to our learners.’ The Minister also indicated that the government’s preferred implementation model for these two principles was the provision of ‘top-down support for bottom-up initiatives’ from schools. Going forward, quality education will have to be driven by bottom-up initiatives that are school-based and teacher-owned. Figure 10.1 diagrammatically illustrates the Ministry’s TLLM framework.

Since 2005, the Ministry has sponsored a range of specific policy initiatives to promote TLLM, including critically, a ‘white space’ initiative that reduced curriculum content by 10–20% and granted teachers ‘the autonomy to use the “white space” provided to customize lessons, using a variety of teaching and assessment methods to better meet the needs of their students.’ In this spirit, in 2006, and again in 2007, the Ministry has supported action-research orientated school-based curriculum development (SBCD) initiatives in some 60 prototype schools over the two years (Tan, Ee, Lee, & Lam, 2007). Related initiatives are reported on the Ministry’s website (http://www.moe.gov.sg/bluesky/tllm.htm).

[INSERT Figure 10.1. The Ministry of Education’s Teach Less, Learn More framework.]
Next Steps: Building Professional Learning Communities

The Ministry’s recent initiatives are valuable and certainly signal its commitment to closing the gap between policy and practice. Whether they are sufficient to achieve the goals laid out in TSLN policy statement, however, is another matter. Indeed, in our view, the initial TLLM initiatives need to be supplemented by a range of further innovations that focus in a single minded way on the improvement of instructional practices in classrooms organized as epistemic communities embedded in schools organized as professional learning communities with a strong commitment to knowledge management and sustainable innovation.

The starting point of this conception of instructional improvement is a theory of professional learning (what is sometimes termed the ‘new consensus’) that has reshaped contemporary understandings of professional development (Ball & Cohen, 1999; Bransford et al., 2005, 1999; CERI/OECD, 2000; Elmore, 2004b; Fullan, 2007; Hamermas, Darling-Hammond, Bransford et al. 2005; Hamermas, Darling-Hammond, Grossman et al. 2005; Huberman, 1992; Ingvarson, 2003; Little, 1993, 1999; McLaughlin & Talbert, 2006; Meiers & Ingvarson, 2005; Richardson & Placier, 2001; Rowan, Camburn, & Barnes, 2005; Smylie, Allensworth, Greenberg, Harris, & Luppescu, 2001; Villegas-Reimers, 2003; Wilson & Berne, 1999). On this account, professional learning is optimized under the following (non-exhaustive) conditions:

- when it treats teachers as active learners engaged in concrete tasks of teaching, assessment, observation, and reflection in situ;
- when it is grounded in participants’ questions, inquiry, and experimentation, as
well as research on effective practice;

- when it is iterative and extended over time and supported by follow-up activities including coaching and mentoring;

- when it is deprivatized, collaborative, and embedded in schools functioning as communities of learners and communities of inquiry;

- when it is linked systematically to curriculum, assessment and instructional innovation, and cultural change at the school level; and

- when it is focused on developing teacher expertise in content knowledge, pedagogical content knowledge, assessment literacy, classroom inquiry, curriculum knowledge, and pedagogical judgment.

This kind of professional learning is obviously very difficult to achieve, let alone sustain on an ongoing basis. It is particularly unlikely to happen in conventional forms of professional development (one-off workshops, courses) and more likely to occur when schools are organized as professional learning communities and the professional development is focused on highly interactive and authentic forms of *in situ* professional learning. As Elmore (2004b) recently noted:

> Improvement is more a function of learning to do the right things in the setting where you work…The problem is that there is almost no opportunity for teachers to engage in continuous learning about their practice in the setting in which they actually work, observing and being observed by their colleagues in their own classrooms and classrooms of other teachers in other schools confronting similar problems of practice. (p. 127)
And this kind of professional learning happens when schools are characterized by shared goals and sense of direction, a broad collective responsibility for teaching and learning, a shared commitment to de-privatized practice, engage in systematic inquiry, professional dialogue and collective collaboration, and develop expertise which is regarded as a collective good rather than the private property of teachers and which is based in knowledge shared and developed through collaboration (Elmore, 2004b; Fullan, 2007; Hargreaves, 2003; McLaughlin & Talbert, 2006). In a representative judgment, McLaughlin and Talbert (2001, p. 22) conclude that in schools characterized by high levels of successful pedagogical innovation and student performance, ‘a collaborative community of practice in which teachers share instructional resources and reflections … is essential to their persistence and success in innovating classroom practice.’

Within the contemporary professional development community, these principles are broadly understood and widely shared. We too share them, although we are not convinced that they are adequate to fully constitute the classroom and the school as learning communities of the kind necessary to sustain continuous innovation and improvement. As Fullan, Hill, and Crevola (2006) recently commented, continuous professional learning:

… is not just a matter of teachers interacting; they must do so in relation to focused instruction. Professional learning communities…can contribute mightily to altering school conditions, but, by themselves, they do not go deep enough into classroom practice, and they can even be (unwittingly)
counterproductive if their interactions reinforce teaching practices that are ineffective. (p. 25)

What is also required is a strong commitment to the development of knowledge management and sustainable innovation systems within and across schools as aspects of a broader and deeper conception of the school as a learning organization of the kind that the Center For Educational Research and Innovation (CERI) within OECD has been promoting vigorously over the past half dozen or so years (CERI/OECD, 2000, 2004). Contemporary schools as they are currently organized, CERI/OECD asserts, are not yet ‘Schumpeterian’ institutions organized to promote systematic innovation that will properly prepare young people for the many institutional demands and challenges of the twenty-first century (CERI/ OECD, 2004, p. 7). Indeed, it asserts elsewhere:

The rapidly rising expectations of parents and politicians about what students should achieve and what educational organizations should do to guarantee these achievements are putting teachers under heavy pressure to find much more effective ways of teaching and of managing educational organizations. Teachers cannot do this by working harder, but by working smarter, which means achieving higher productivity through knowledge creation and application, which in turn is likely to mean re-conceptualizing the nature of educational organizations and re-structuring and re-culturing them accordingly. (CERI/OECD, 2000, p. 69, emphasis added)

Above all, the CERI/OECD report goes on, the ‘schools of tomorrow’ will need to be institutions that are especially adept and effective, not merely in transmitting knowledge
to the next generation, but in producing, disseminating, applying, and institutionalizing knowledge that increases the effectiveness of contemporary schooling and promotes the development of knowledge societies. The heart of this new conception of schooling is a vision of the school (or, for that matter, institutes of education) as a knowledge-based or knowledge-intensive community that recognizes that the principal source of innovation in organizations is knowledge or ‘intellectual capital.’ Indeed, successful programs of organizational innovation require a well thought-out system of ‘knowledge management’ and ‘innovation’ (CERI/OECD, 2004, p. 70; see also CERI/OECD, 2000, pp. 21–22).

From our perspective, it is important that knowledge management and innovation systems focus on all forms of knowledge production that demonstrably enhance the productivity of instruction as well as sustain innovation through time. But, as CERI/OECD (2004) and Hargreaves (2000) in particular have been at pains to point out, knowledge production in education takes a variety of forms: conventional ‘off-line’ supply side, theory-driven academic research conducted by university-based researchers; decentralized, ‘on-line’ demand side in situ knowledge production undertaken by classroom practitioners ranging from engaging in informal ‘tinkering’ to more formalized action research initiatives; horizontal networks that share, codify, and evaluate pedagogical knowledge; and the codification, validation, and dissemination of expert teachers’ ‘tacit knowledge.’

Not all forms of knowledge production in education are created equal, however: practitioner classroom knowledge production, CERI/OECD argues, is more directly
useful to classroom practitioners and more productive of sustainable improvement in instructional practice. We agree! We also agree that teachers, schools, and systems engage in innovations (‘tinkering’) all the time. Importantly, however, too little of all this activity has a single-minded focus on instructional improvement. Even less of it is sustainable let alone scale-able: too often innovations are one-off wonders that reflect the well-intentioned (but often poorly designed) initiatives of committed teachers, exercises in symbolic compliance, or opportunities for visible busy work for ambitious principals. Instructional innovation is technically difficult and emotionally demanding, institutionally challenging, and risky for both teachers and schools since innovations often fail, are hard to sustain, and hard to scale-up. The holy grail, of course, is achieving scalability with sustainability, but very few instructional innovations achieve either sustainability or scalability.

In our view, the probability of achieving sustainability (and a measure of scalability) in the Singaporean context will be significantly enhanced (but by no means guaranteed) by the development of instructionally focused knowledge management and innovation systems with three objectives: (1) to produce, codify, verify, operationalize, disseminate, apply, and institutionalize expert teacher pedagogical knowledge; (2) to establish a comprehensive diagnostic student data system based on continuous formative assessment data at the classroom and school level; (3) and to use the two data systems to develop an evidence-based pedagogy that supports differentiated instructional practice according to student understandings.

The case for the importance of expert knowledge has been made by researchers over
the past decade or so, broadly with respect to the nature of expertise in general, and specifically, with respect to the nature and importance of expert teaching (Anderson & Krathwohl, 2001; Bransford et al., 2000; Bransford et al., 2005, 2006; Dall’Alba & Sandberg, 2006; Ericsson, 2006; Hattie, 2003; McNaughton, 2006). It is for no little reason then that Fullan et al. (2006) conclude:

We see classroom instruction as an activity that can be improved by making expert knowledge available to all teachers … We believe that there is such a thing as expertise in teaching: that the nature of this expertise can be made explicit, so that it is capable of being replicated and validated; and that expert teaching translates into improved learning. (p. 47)

The case for the importance of formative assessment has been amply demonstrated by an exceptionally impressive body of research (Black & Wiliam, 1998a, 1998b; CERI/OECD, 2005; Fullan et al., 2006; Gardner, 2006; Hattie, 2003; Hattie & Timperley, 2007; Linn, 2000; MacMillan, 2007; Pellegrino, Chudowsky, & Glaser, 2001; Sheppard, 2000; Sheppard et al., 2005; Stiggins, 2002). Indeed, Fullan et al. (2006, chapters 4, 5) develop a model of knowledge management and innovation that focuses on codified expert knowledge, continuous formative assessment, and differentiated instruction. We represent a slightly modified version of Fullan, Hill, and Crevola’s model of two key features of their model – ‘cycle of assessment and instruction’ – in Figure 10.2. We will report own model of knowledge management and sustainable innovation in a later publication.
To summarize: while the Ministry of Education has responded energetically in recent years to the gap between policy settings and classroom practices with a range of initiatives, in our view a sustainable (not to mention) scalable innovation strategy will require an array of additional measures that focus principally on expanding the operational meaning of the school as a professional learning organization through the development of a knowledge management and sustainable innovation system that supports systematic ‘on-line’ classroom inquiry, the codification of expert teacher pedagogical knowledge, continuous assessments for learning, and then focuses them on the development of evidence-based differentiated instruction and knowledge building in technologically enriched learning environments. We do not promise that such a strategy will deliver the pedagogical holy grail, but we do believe that it is a very promising strategy to take Singaporean schools forward. But it also has important implications for Singapore’s system of teacher education, to which we now turn.

INITIAL TEACHER EDUCATION

Current Practices

Singapore’s teacher education and professional development models draw its assumptions and practices, not surprisingly, from the UK. The National Institute of Education (NIE) is the single source of initial teacher education graduates and is responsible for almost all educational research and between 70% and 80% of professional development courses. Critically, it teaches both content and pedagogy.

[INSERT Figure 10.2. Slightly modified version of Fullan, Hill, and Crevola’s Classroom Cycle of Assessment and Instruction.]
courses in some (but not all) of its pre-service programs, and it has its own dedicated content and methods faculty. The Practicum is designed to ensure that students reach acceptable standards for core teaching skills and many curriculum studies (methods modules), and to link theory and practice more closely. Benefiting from the willingness of schools to share in teacher preparation, the assessment of a student-teacher’s practical skills involves close liaison with the cooperating teacher and principal; the latter’s approval is needed for the final grade. Experienced school teachers and retired principals are actively encouraged to co-teach with NIE faculty and to assist with tutorials and supervision (Gopinathan & Sharpe, 2002).

The current organization of initial teacher training incorporates some valuable and useful design principles. In particular, we believe that the formal incorporation of content knowledge and pedagogical studies into some of the initial teacher education programs offers a rich opportunity to effectively integrate content and pedagogical content knowledge. After all, achieving this integration is at the heart of Lee Shulman’s view developed some 20 years ago (Shulman, 1986, pp. 25–26) that teacher education (and classroom pedagogy) is in desperate need of a ‘new paradigm’ that successfully develops and integrates content knowledge and pedagogical content knowledge. But while there is some evidence of this integration in some Singaporean classrooms, there is still room for improvement.

**What’s Next?**

One of the central challenges confronting teacher education is to design teacher education systems that prepare future teachers for effective and productive membership
of schools organized as professional learning communities, characterized by a strong commitment to knowledge management and sustainable and focused instructional improvement. In our view, while the current system of initial teacher education in Singapore has many strengths, there is still room for improvement. These goals include a stronger focus on the systematic interrogation of background assumptions (schemas, beliefs) about the nature of teaching and learning, developing richer initial teacher understandings of disciplinary knowledge, curriculum design and assessment, achieving effective integration of domain-specific content and pedagogical content knowledge, and adequately preparing beginning teachers to participate effectively in knowledge management and sustainable innovation systems. Achieving these goals will require some changes in the university-based component of the initial teacher education program, but critically, it will also require a significant alteration in the nature of the practicum experience. While this might involve more time in schools, it is the quality of the professional learning experiences that students have in schools that is the more important issue. While we remain extremely wary of ideologically driven apprenticeship models of initial teacher education of the kind developed under Thatcher in England, we are convinced that student-teachers need to spend substantial amounts of time in schools learning by observing and doing and that they need far more coaching and mentoring than they currently get. Such an approach is strongly indicated by contemporary community of practice theory and, broadly, by theories of situated cognition and socio-cultural theories of learning. However, teacher education initiatives based on these principles will not realize fruit unless and until student-teachers have appropriate learning experiences in the schools in which they undertake their practical work. More than 30 years ago, Dan Lortie observed that teacher
education programs were much less potent than ‘the apprenticeship of observation’ in shaping teacher’s understandings of, and attitudes towards, teaching (Lortie, 1975). We think this is true now as it was then. But if this is the case, the improvement of teacher education in Singapore will depend substantially on, and will need to go hand in hand with, the prior improvement of classroom pedagogy and the organization of schools as professional learning organizations. In effect, improving the quality of pre-service education depends very considerably on improving the quality of in-service professional learning. This obviously leaves us with something of a chicken-and-egg conundrum, although we are convinced that by giving beginning and experienced teachers a rich and meaningful access to the systematic codification of expert teacher knowledge, might also provide a possible, if partial, solution to the enervating hiatus between current classroom practice and the organizational arrangements that optimize professional learning.

The theoretical foundations for an expanded model of authentic in situ professional learning principally reside in recent accounts of situated cognition, cognitive apprenticeship community of practice theory, and socio-cultural theories of learning (Brown, Collins, & Duguid, 1989; Collins, Brown, & Newman, 1990; Ford & Forman, 2006; Lave, 1988; Lave & Wenger, 1991; Wenger, 1998) as well as the research noted earlier on professional learning. Broadly, situated cognition is a theory of instruction that repudiates conventional juxta-positions of learning and use, knowing and doing, and claims that student engagement and learning are significantly enhanced and deepened when they are embedded in authentic ‘activity, context, and culture.’ If student-teachers are going to learn how to become effective teachers, let alone expert
teachers, they need to learn from expert teachers in authentic teaching contexts, on the one hand, through close observation and a gradually expanding supporting role in the classroom, and, on the other hand, being coached and mentored, and their learning being appropriately scaffolded by expert teachers/mentors. Teachers learn to become good teachers principally (but not exclusively) by engaging in the key tasks of teaching in authentic classroom settings under the tutelage of expert teachers. Indeed, this kind of authentic professional learning in pre-service education programs precisely parallels, and draws on, the international ‘new consensus’ view on the importance of authentic in situ professional learning in in-service professional development programs discussed earlier. This is also strongly indicated by changing expectations about the nature and importance of knowledge production and management in schools that are organized as professional learning communities and by growing calls for new forms of professional apprenticeship in pre-service education similar to professional training in medicine and engineering underwritten by theories of situated learning and community of practice theory (CERI/OECD, 2000, pp. 83–84). CERI/OECD, for example, emphasizes in particular the critical role that mentoring, modelling, and coaching by expert teachers might play in a restructured system of professional learning in education comparable to the role that expert practitioners play in other professions (CERI/OECD, 2000, p. 86).

We are broadly persuaded by this argument, as far as it goes. This is not to say that university-based components are unimportant; as Kennedy (1999) has shown, they can have a very significant impact. But it is not without its difficulties. In particular, it assumes a broadly distributed system of expert teachers across the system. While there are many outstanding teachers in Singapore, and while we believe that current
pedagogical practices are as much a function of institutional arrangements (for example, the tight coupling of high stakes summative assessment and classroom instruction) as they are of current levels of pedagogical capacity, we do not believe that there is sufficient pedagogical capacity across the system to support this model of professional learning. Since a professional learning apprenticeship model of the kind mapped out above depends for its success on a broadly distributed system of teacher expertise, simply waiting until such time that in-service professional development builds sufficient capacity across the system poses a real and daunting challenge to policy makers. However, our early emphasis on the importance of codifying expert teacher knowledge provides an opportunity to craft a possible, if partial, solution to the hiatus between the optimal conditions of professional learning and current levels of pedagogical capacity in the schools. Lee Shulman and others have made similar arguments. Shulman (2005) argues, for example, that one of the key challenges confronting the design of initial teacher training programs in the future will not only involve developing – and integrating – teacher expertise in both content and pedagogical content knowledge, but providing beginning (and experienced) teachers continuing access to what we have termed the codified knowledge of expert teachers in domain-specific areas and what he refers to ‘signature pedagogies:’

I would respectively propose that a major challenge for the education of teachers and the professional development of teachers for this next generation will be to recognize that what we desperately need is a suite of signature pedagogies that are routine, that teach people to think like, act like, and be like an educator. We need signature pedagogies that respectfully recognize the
difference between pedagogical thinking associated with promoting deep understanding in mathematics, and doing it deeply in English literature, or in history. And that we build our programs of teacher education around these kinds of signature pedagogies …. (Shulman, 2005, p. 15)

We have already indicated our strong sympathy for this view of professional learning as it offers a possible, although partial, solution to the tension between the design principles and organizational arrangements that optimize professional learning and current levels of pedagogical capacity among Singapore’s teachers that, as we indicated earlier, provides little evidence of rich evidence-based disciplinary pedagogies at the classroom level. Of course, there may be other solutions as well, but all things considered, we think this one has much to recommend it. And while we recognize that this approach raises some difficult issues regarding professionalization and teacher autonomy, in our view the key desideratum is not so much enhancing the autonomy of individual teachers, but to enhance the collective professional authority and responsibility of teachers at the school level over pedagogical matters and to increase their commitment to knowledge production, continuous professional learning, and evidence-based pedagogy. In the long run, what matters is the opportunity and capacity for sustainable and informed innovation and the social authority of expert professional knowledge rather than reinforcing privatized pedagogical practice. Elmore (2004a, p. 3; but see also Elmore, 2004b, pp. 73, 127) puts the argument in these rather forceful terms:

Educators equate professionalism with autonomy – getting to use their own judgment, to exercise discretion, to determine the conditions of their own work
in classrooms and schools. In fact, professionalism outside of education is exactly the opposite of this definition. Professionals gain their social authority not by exercising autonomy, but by subscribing to an externally validated body of knowledge, by agreeing to have their discretion limited by that knowledge, and by facing sanctions if they operate outside that body of knowledge.

CONCLUSION

In a series of important publications over the course of the past 15 or so years, David Cohen and his colleagues have mapped the changing terrain of what they term the system of ‘instructional governance’¹ in the USA (Cohen & Hill, 2001; Cohen & Spillane, 1992; Spillane, 2004). Prior to the early 1990s, instructional governance in the USA was decentralized, dispersed, fragmented, determinedly localistic, highly political, and weakly coupled (Bidwell, 1965, 2001; Cohen & Hill, 2001; Cohen & Spillane, 1992; Spillane, 2004; Weick, 1976). Above all, US educational governance has functioned historically within a ‘weak-state’ institutional environment that granted substantial organizational autonomy to instructional matters in ‘loosely coupled’ institutional environments, although this situation has changed significantly in recent decades as state and federal governments have become far more assertive in the exercise of state power by sponsoring an ambitious standards movement and extending standardized assessments of student progress. The passage of the No Child Left Behind Legislation in 2001 accelerated the process of centralization and standardization (Cochran-Smith, 2005). By 2007, America’s traditional system of weak state instructional governance was no more: a new configuration of power and policy has centralized instructional governance at both the state and federal levels, with the
federal government relying on punitive standardized testing and accountability mechanisms to hold the feet of teachers, local school officials, and state policy makers to the fire.

The political culture of educational governance in Singapore is quite different from that of the USA – or the UK for that matter. Since independence in 1965, school governance has operated within an ideological and political environment of what we might term post-colonial ‘high statism’ – the exercise by the Singaporean state of substantial, political, bureaucratic, and other forms of power and authority over the organization, funding, administration, and distribution of schooling and instructional practices within schools (Gopinathan, 1985, 2007; Gopinathan & Sharpe, 2002; Hogan & Gopinathan, 2007). The resulting system of instructional governance was anything but ‘loosely coupled’ – bureaucratic authority at the school level if anything amplified systemic bureaucratic control and other forms of control rather than mediated or ‘buffered’ exogenous institutional processes and demands on instructional practice. Since the launch of the TSLN initiative in 1997, however, the government has, cautiously and incrementally, begun to devolve prescriptive bureaucratic authority to individual schools over a range of instructional matters including curriculum development, in the belief that instructional innovation as called for by TSLN requires a considerable loosening of centralized bureaucratic control over instructional practices. At the same time that the government shifted a measure of bureaucratic authority from the centre to schools, it also supported curriculum design initiatives in schools utilizing action research frameworks, expanded the opportunities for professional development, supported the creation of a Teachers Network, and sponsored local postgraduate
In this paper we have argued that in the long term substantial and sustainable pedagogical innovation in Singapore’s classrooms in line with the spirit of TSLN and TLLM depends on the design and implementation of an innovation program that combines elements of both ‘bottom up’ and ‘top down’ approaches to implementation and does so in a way that capitalizes on Singapore’s unique strengths in governance. Fullan (2007, p. 11), for instance, writing generally about large-scale innovation efforts, observes that successful implementation depends on avoiding standard and all too predictable ‘too loose/too tight’ conundrums.

‘The main dilemmas in large-scale reform are all variation on what I call the too tight/too loose problem,’ he comments.

Top down change doesn’t work because it fails to garner ownership, commitment, or even clarity about the nature of the reforms. Bottom up change – so called let a thousand flowers bloom – does not produce success on any scale. A thousand flowers do not bloom, and those that do are not perennial. The strategies that are needed have a ‘bias for action’ and pursue this by reconciling and combining top down and bottom up forces for change. (Fullan, 2007, p. 11)

In this paper we have suggested that Singapore – unlike the US for example – is well positioned to implement a model of knowledge management and sustainable
innovation that is neither too tight nor too loose and that, with a strong commitment to the codification, verification, operationalization, and dissemination of expert teacher knowledge, can put in place organizational arrangements that will optimize professional learning in both initial teacher education and in-service programs.

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NOTE

1. The term ‘instructional governance’ is borrowed from David Cohen and his colleagues in the USA (see Cohen & Hill, 2001; Cohen & Spillane, 1992; Spillane, 2004).

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