Title	Developing teacher leadership in Singapore: Multiple pathways for differentiated journeys
Author(s)	A. Lin Goodwin, Low Ee Ling and Ng Pak Tee
Source	*American Educational Research Association (AERA) Annual Meeting, San Francisco, California, 27 April to 1 May 2013*

Paper Title Developing Teacher Leadership in Singapore: Multiple Pathways for Differentiated Journeys

Author(s) A. Lin Goodwin, Teachers College, Columbia University; Ee-Ling Low, National Institute of Education - Nanyang Technological University

Session Title Teacher Leadership for Educational Quality and Equity: Learning Across America, Canada, Finland, and Singapore

Session Type Roundtable Presentation

Presentation Date 4/29/2013

Presentation Location San Francisco, California

Descriptors

Methodology

Unit Division L - Educational Policy and Politics

Developing Teacher Leadership in Singapore: Multiple Pathways for Differentiated Journeys

A. Lin GOODWIN,[1] LOW Ee Ling and NG Pak Tee
National Institute of Education, Singapore

Perspectives and Purpose

Since 1997, when Prime Minister Goh Chok Tong[2] first announced the *Thinking Schools, Learning Nation (TSLN)* initiative, a new vision for making "learning a national culture" (June 2), Singapore has increasingly focused efforts on recruiting and preparing quality teachers. Clearly, these efforts have been successful given Singapore's international reputation for educational excellence. The U.S. is now keenly aware that on international assessments, Singapore students out-perform their peers around the world, including the U.S., and consistently perform at or near the top (Luke et al, 2005; Ministry of Education (MOE), December 2008; National Center for Education Statistics, 2009). In fact, in the past two years, international education summits hosted by Secretary of Education Arne Duncan, have showcased Singapore's academic success (Stewart, 2011, 2012). Most recently, in December 2012, results of the Trends in International Mathematics and Science Study (TIMSS) and Progress in International Reading Literacy Study (PIRLS) held in 2011 and jointly conducted by the International Association for the Evaluation of Educational Achievement (IEA) and the TIMSS and PIRLS Centre helmed at the Lynch School of Education at Boston College, showed that Singapore has emerged at the top of the league tables again. Singapore emerged top in Mathematics achievement at the fourth grade, second at the eighth grade while concurrently emerging top in Science at both the fourth

---

1 A. Lin Goodwin is a Visiting Professor at the National Institute of Education during the 2012-2013 academic year. She will return to Teachers College, Columbia University in September, 2013.

2 In this paper, all Chinese names are written according to Chinese cultural norms whereby family or surnames precede birth or given names. Thus, Prime Minister Goh Chok Tong's family name—Goh—comes before his given name "Chok Tong."

and eighth grades. For performance in PIRLS, Singapore emerged in the top five for fourth graders.

In an increasingly shrinking world context where countries can easily survey international neighbors and measure themselves against common yardsticks, we are all better able than ever to share knowledge and learn from one another. But the current U.S. focus on *what works*—discrete activities, policies or strategies as *the* magic bullet to higher achievement —misses the importance of the national mindset in Singapore that upholds teachers as professionals and perceives teaching as a profession. Indeed, the demonization of U.S. teachers and the de-professionalization of teaching have not resulted in increased academic achievement or greater teacher retention. More importantly, the case of Singapore reveals that teachers are treated as an essential asset in the educational reform process, especially when the pathways designed to support their leadership development are differentiated according to multiple definitions of what it means to lead. This is an opportunity to learn from a high-achieving international peer who places values and people at the center of the education enterprise <u>and</u> is attaining the goals that seem to be eluding the U.S.

While teacher education, in itself has been the focus of much study (see Low et al 2012), the purpose of this paper is to offer Singapore as a case study of quality teachers through teacher leadership development. The paper will describe the redefinition of the teaching profession in Singapore to include deliberate structures and pathways designed to nurture teacher leaders, and the role of teacher leaders in supporting education reform.

<u>Teacher Leadership—What Does it Mean and Why is it Important</u>?

Teacher leadership as a concept has changed and been redefined over time. Silva, Gimbert & Nolan (2000) suggest three views of teacher leadership. The first two: *teacher*

leaders as managers, and *teachers as instructional leaders*, both conceptualized leadership as activity separate from the classroom, often delegated (or designated) by the principal (Boyd-Dimock & McGree, 1995). Teachers as managers typically took on administrative responsibilities, while teachers who exerted instruction leadership focused on curriculum and staff development. More recently, notions of teacher leadership have evolved to embrace a both/and philosophy such that teaching and leadership are integrated (Pounder, 2006). In this third view, teacher leadership is not apart from the classroom nor confined to a particular position, but "include opportunities for leadership to be part of teachers' day-to-day work" (Silva, et al 2000. p. 781). Thus ideas about teacher leadership are expanding beyond traditional definitions of leadership, "role-dependent definitions" which are "not only overly narrow and circular, they over-emphasize the work of the individual" (Rutherford, 2009, p. 50). "Today, leadership roles have begun to emerge and promise real opportunities for teachers to impact educational change-without necessarily leaving the classroom" (Boyd-Dimock & McGree, 1995). These roles have become more fluid, encompass both formal and informal roles (Danielson, 2007; Harrison & Killion, 2007; Teacher Leadership Exploratory Consortium, 2011), and allow leadership to be distributed (Spillane, 2005). According to the perspective of leadership as distributed, "the authority to lead is not exclusively located in formal positions, but is dispersed throughout the organization" (Rutherford, 2009, p. 50).

It should come as no surprise that these fresh conceptions of teacher leadership are gaining attention during a time of intense focus on schools and educational change on a global scale. Schools are being asked to do more and more, thus the scope and complexity of school-building leadership has expanded such that "the demands of the modern principalship are practically impossible to meet" (Danielson, 2007, p. 15). Troubling gaps in student achievement

juxtaposed against worldwide comparisons on international assessments have heightened focus on student learning and instructional improvement. Everyone seems preoccupied with teacher quality—what it looks like, how best to achieve it, etc. (Buchberger, Campos, Kallos, & Stephenson, 2000; Goodwin & Oyler, 2008; International Alliance of Leading Education Institutes, 2008; International Reading Association, 2008; Kanstoroom, & Finn, 1999), especially since research has shown a strong relationship between students' learning and the quality of their teachers (Darling-Hammond, 2000; Hattie, 2003; Rowe, 2003). There is growing acknowledgement that achieving meaningful and effective reform can no longer depend on the sole efforts of the principal but instead demands the collaborative efforts of many. Experienced and effective teachers are tuned into student learning, remain closely connected to curriculum and instruction on a day-to-day basis, and have demonstrated instructional adeptness. Expert teachers also possess many of the skills relevant to working with and leading other teachers including knowledge of curriculum development, group facilitation and collaboration skills, deep understanding of school contexts, facility with mentoring and assessment, and perseverance and resilience.

Almost as important as capitalizing upon experienced teachers' multiple talents and skills, opportunities for teachers to assume leadership roles and grow in their careers promise to have an impact on teacher retention and teacher renewal (Johnson & Kardos, 2008). It is a commonly known fact that the job of a brand new entrant to teaching is essentially the same as that of a twenty-year veteran. Differentiating the work of teachers ensures that teachers are intellectually and professionally refreshed when they take on new challenges, engage in new learning, apply knowledge to new problems or settings, and share their know-how. Teacher leadership can become a mechanism for "unflattening" the typically flat career trajectory for

teachers. Moreover, today's generation of new teachers is not likely to stay in one position for long, even if they express their intention to remain in the profession for the long-term (Johnson & Kardos, 2008). They aspire to and intend to seek a variety of roles that will allow them to exert leadership and influence change. Thus, teacher leadership opportunities can be instrumental not only in terms of teacher retention, but also recruitment.

<u>Developing Teacher Leaders in Singapore</u>

In 2012, the Ministry of Education in Singapore announced that the country had reached its target of 33,000 teachers, three years ahead of schedule. This represented yet another milestone in the nation's journey from "survival-driven education" (Goh & Gopinathan, 2008), to "an efficiency-driven education…[then" to]…ability-driven education" (Tan, C. 2005, p. 2, 5). The goal of the survival period had been quantity—building enough schools and adequately staffing them with teachers; the efficiency period focused on the "best" and most expedient ways to achieve national education goals, while the ability-driven era accentuated talent identification and development. The current paradigm framing educational practice and innovation in Singapore emphasizes "a student-centric, values-driven education" which rests on the "core belief that every child can learn—not just in school but for the rest of his life" (Heng, 2012). The shift from identifying specific ability in some, to nurturing and enhancing capacity among all learners, "regardless of background or ability" (Heng, 2012), requires a corresponding shift across the educational enterprise. Teachers, schools and parents are now being called upon to fully participate in ensuring that "every student [is] an engaged learner" (Heng, 2012). This conception of learning and teaching that is currently driving educational reform and innovation, is a clear indicator that Singapore has reached a level of success that now allows her the luxury (and necessity) of thinking beyond fundamental or comprehensive education to consider the

deeper and more complex question of quality—what it means in/to a Singapore context and how to best achieve it for <u>all</u> pupils. With the number of teachers having reached a steady state in relation to the country's needs, the purpose and definition of teacher education has also undergone rethinking, in order to support teachers to move beyond basic qualifications to the next level of professional development and growth. This "rethinking" has resulted in multiple pathways to leadership that focus on what is termed as "school middle leaders" (Ng, 2011), "who help the school principals manage the work of colleagues or teams of colleagues...serve as co-leaders in their schools and are agents of change" (p. 255).

School middle leaders are teachers who are identified and nurtured to play key managing roles in their schools without leaving the classroom. Thus, it is important to underscore that the multiple pathways being discussed, do not necessarily put teachers on a school administrator track, but typically ensure that good teachers remain connected to teaching, students, peer teachers, and curriculum. Therefore, while the traditional role of the principal as the main school leader still predominates, leadership has become a much more distributed concept where it is being devolved or shared across the institution (Spillane, 2005). An examination of these many pathways reveals that they take into account the fact that among "the full complement of 33,000 teachers…a quarter of our teachers are below the age of 30 and have less than 5 years of experience" (Heng, September 12, 2012), and therefore would seek and/or need very different kinds of opportunities to lead, than might experienced teachers. The notion of multiple pathways also aligns with a "person-centric" stance towards education reform whereby the aim is to develop to the fullest all teachers' capacities according to their unique talents and proclivities, so as to fully capitalize upon their skills and knowledge and utilize them in the service of school improvement and the enhancement of classroom practice. Finally, multiple pathways help to

sustain and retain veteran teachers by offering them meaningful leadership opportunities commensurate with their experience and skill. These pathways fall into three categories: the University-based pathway; the School-based pathway; the Ministry-based pathway, each of which is described in greater detail below.

<u>Multiple Pathways to Leadership</u>

The **University-based Pathway** is a familiar route to advancement and further develops the knowledge and skills of educators through additional preparation and academic coursework at the post-graduate level. Singapore has created several such pathways to support the advanced education of school middle leaders. First, in July 2007, the National Institute of Education (NIE) launched the Management and Leadership in Schools (MLS) Program. This is designed as a full-time 17-week in-service program meant specially for middle level leaders, mainly those with the potential to be or who are already Heads of Departments. The selection of these leaders is made by the school principal and upon enrollment into the program, participants have their fees fully borne by the Ministry of Education and still continue to receive their monthly salaries.

MLS is distinguished by a deliberate integration of theory and practice, as well as attention to "glocal" issues—i.e., both the global and the local. Alongside a rigorous academic component, students in the program undertake a project that takes place in the authentic setting of their own schools. The purpose of this project is to ensure that participants engage in authentic learning experiences and can put into practice what they have learned in the theoretical components of their leadership courses. Group work is also an inherent trait of the program where participants are asked, in groups, to conceptualize a one-year curriculum that tries out an innovative practice or initiates change in a local school, taking into account the specific needs and context of that school. A key feature of the program is Overseas and Industrial trips. Participants are given an

Goodwin, A. L., Low, E. L., & Ng, P. T. (2013). Developing Teacher Leadership in Singapore: Multiple Pathways for Differentiated Journeys. Paper presented at the annual meeting of AERA, San Francisco.

opportunity to visit a country within the Asia-Pacific region, in order to study its education system. Whilst there, they also visit the local industries of that country and are provided with the opportunity to observe the operational workings of non-educationally related organizations. The main takeaway from these visits is to offer participants alternative exposure to education systems and the running of different organizations.

This example of a University-based Pathway targets middle leaders who are already engaged in leadership work and school based reform at their schools. However, there is a new push to recognize and groom experienced teachers "to be models of pedagogic change in their workplace and within the teaching community at large" (Tan & Wong, 2012, p. 454). Thus, a second university-based or academic pathway is the recently developed Master of Teaching (M-Teach), an NIE program specifically designed to target teachers with 2-5 years experience. The degree aims to provide teachers with "access to the thinking of relevant researchers… contextualized in actual school practice and learning communities" (Tan & Wong, 2012, p. 454). These teachers are each supported by a Professional Learning Mentor, who is an experienced (volunteer) colleague from their school. Professional Learning Mentors are "also co-learners with the M-Teach teachers" and both work together to initiate "transformative pedagogical practices that are scalable and sustainable within their school contexts" (Tan & Wong, 2012, p. 455).

Finally, given a new goal set by the Ministry of Education—for "the number of teachers with postgraduate degrees to double from 10% today to 20%" by 2020 (MOE, March 7, 2011), there are now extra incentives to encourage teachers to pursue advancement via the traditional academic route, culminating in a Masters (or advanced) degree. These incentives include a reduced teaching load while pursuing a Master's degree part-time, a $4,000 bonus upon

completion of an approved part-time Masters degree, and an MOE plan to "introduce a new full-time Postgraduate Award, as an additional pathway to encourage teachers to pursue further studies in an area of relevance to their career in MOE" (MOE, March 7, 2011).

The **School-based Pathway** is Singapore's response to the common characterization of teaching as a "flat career" (Danielson, 2007; Goodlad & McMannon, 2004), whereby the role and work of veteran teachers differs hardly from that of fresh novices, and that if teachers want to advance, they typically have to leave the classroom. Of course this situation has changed somewhat given expanding definitions of leadership and increased understanding that teachers can—and should—lead <u>from</u> the classroom. Still, the notion of a career ladder for teachers, one of the hallmarks of the nearly three-decade old Holmes Group report (1986), has remained a contentious and ill-defined idea, especially given its attachment to merit pay, which always raises the question of how merit can, or ought to be, measured.

In Singapore, there is a complex performance appraisal system in place, designed to operationalize "merit" and concretize what teachers need to accomplish in order to be deemed "meritorious." A deeper examination of this appraisal system is beyond the scope of this paper, but rather, the more important point to make is that there is a synergistic relationship between teachers' performance appraisals and leadership pathways open to them. Thus, strong performance is typically tied to forward movement along three leadership trajectories that teachers can elect to pursue, specifically: the teaching track, the leadership track and the senior specialist track.

Each of these tracks includes ever deepening levels of expertise, accomplishment and experience within a particular domain, and each level of expertise typically represents yet another (expanded) opportunity to lead and exert influence over a particular sphere. For instance,

the teaching track is for teachers who wish to focus on becoming exemplary teachers. Teachers can aspire first to be Senior Teachers, then they can move on to become Lead Teachers, and then progress further to the level of Master Teacher. As they advance up the teaching track, they assume leadership roles within their school, serving as guides and mentors to newer teachers or teachers in need of assistance. This track has just been recently augmented to include "a new Superscale-grade Principal Master Teacher position as the apex of the Teaching Track and the creation of a new position of a lead teacher in schools" (Lee & Tan, March 2010, p. 2). The leadership track is selected by teachers who are specifically focused on school administration and is a pathway that could take them beyond leadership in schools to leadership at the Ministry level. Finally, the senior specialist track is for those teachers who are steeped in their discipline and choose this route to become a "strong core of specialists with deep knowledge and skills in specific areas in education that will break new ground and keep Singapore at the leading edge" (Teo, 2001, cited in Lee & Tan, March 2010, p. 3). Their leadership role can also take them beyond the school to Ministry headquarters where they may be engaged with curriculum development and evaluation.

However, leadership within the school is clearly valued. The government has committed to increasing the number of school-based pathways and recently pledged to create "1,500 more leadership positions in schools" to give teachers "more opportunities to assume middle-level leadership positions" (MOE, March 7, 2011).

The **Ministry-based Pathway** should not be seen as a separate leadership pathway for teachers, but rather a part of the continuum of leadership routes available to teachers. Thus, teachers who find themselves on this pathway typically have come from one of the other two pathways described earlier. One clear example of this is the establishment of the Academy of

Singapore Teachers (AST) in 2010 (AST, 2012). AST, supports

> the professional learning and development of teachers by drawing out pedagogical
>
> leadership from the fraternity, infusing expertise into the system, imbuing a sense of
>
> pride, identity and ownership among teachers, strengthening content mastery, building
>
> instructional capacity, raising the standards of practice, driving pedagogical innovations
>
> and change, advancing continuous learning (Tan & Wong, 2012, p 452-453)

The idea of pedagogical leadership brings the skill and knowledge of senior, lead and master

teachers to bear on reform and improvement across the Singapore school system. However, AST

is not just a place where senior teachers lead and junior teachers follow, but rather the AST

mantra, "for teachers, by teachers…epitomizes the Academy's commitment and dedication to

teacher professionalism, professional identity and to the growth and lifelong learning of

teachers" (Tan & Wong, 2012, 452). Consequently, AST supports teachers in a nation-wide

professional learning community and sponsors numerous teacher networks developed around

mutual interest, needs or disciplines. Thus there is a new teacher as well as a master teacher

network, a network for teacher researchers, and a network for staff developers. There are also

professional focus groups around particular topics such as character and citizenship education, as

well as numerous subject chapters that bring together teachers of particular subjects, or teachers

of particular grade levels. In 2012, the Academy of Singapore Teachers (AST) launched the

Teacher Growth Model (TGM), a newly designed professional development model to encourage

teachers to take charge of their own professional growth and well-being and to constantly engage

in continual learning. Courses offered across different institutes and agencies are mounted in

tandem with the teachers realizing the five outcomes of a professional teacher viz. the ethical

Goodwin, A. L., Low, E. L., & Ng, P. T. (2013). Developing Teacher Leadership in Singapore: Multiple Pathways for Differentiated Journeys. Paper presented at the annual meeting of AERA, San Francisco.

educator, competent professional, collaborative learner, transformational leader and community builder (see the Teacher Growth Model fact sheet for more details—MOE 2012).

Again, the Ministry is invested in expanding leadership opportunities for teachers at the system-level and so have announced that

> More leadership and specialist positions will also be created in MOE HQ as part of MOE's efforts to expand organisational capabilities and deepen expertise in the education domain to better support our teachers in our schools. All these will expand the advancement pathways for teachers and enrich their career experience (MOE March 7, 2011).

These leadership positions at HQ (Ministry headquarters) ensure that teachers have a voice in policy and program development, as well as practice, and are engaged in reform efforts across schools, not just their own setting. Teachers can apply for these positions and try them on for size in two or four year stints. The positions are not only available at the Ministry, but also at the National Institute of Education, thus affording teachers the opportunity to affect the next generation of teachers as university instructors in preservice teacher preparation. After testing these particular leadership waters, if teachers decide against these pathways, they are welcome back into the classroom having expanded their perspectives and knowledge through engagement in diverse settings and activities.

Lessons from Singapore: What are Key Take-Aways?

There are several lessons that might be drawn from Singapore's example:

1) School systems and policy makers must think "big" when designing teacher leadership opportunities so as to facilitate teachers' engagement "within the department or team, across the school [and] beyond the school" (Danielson 2007). This will ensure the broad

Goodwin, A. L., Low, E. L., & Ng, P. T. (2013). Developing Teacher Leadership in Singapore: Multiple Pathways for Differentiated Journeys. Paper presented at the annual meeting of AERA, San Francisco.

13

distribution of teachers' expertise; through their widespread participation and active engagement, they can lead, affect change and influence outcomes at the school, district and/or system-wide level.

2) Teachers at all points in their careers should have access to leadership opportunities. While senior or expert teachers will naturally bring deep knowledge and experience to bear on any leadership role they might take on, teachers with some but not necessarily vast amounts of experience, should also be encouraged in the direction of teacher leadership. In this way teacher leadership is more than just a function of passing time, but is a process that acknowledges that individuals have different capacities and talents, no matter where they sit on the experience continuum, and that schools and school systems are best served when they affirm, build upon and further develop the many unique strengths and capacities different teachers will possess.

3) Teacher leaders can (and should) play many different roles (Danielson, 2007; Harrison & Killion, 2007; Teacher Leadership Exploratory Consortium, 2011). These varied roles are supported by multiple routes into teacher leadership as well as by differentiated pathways. This will not only encourage more teachers to consider teacher leadership opportunities, but will be more responsive to the diverse needs, experiences and aspirations teachers might bring to the start of their individual journeys.

4) There needs to be differentiation <u>within</u> pathways as well as <u>between</u> pathways. When individual pathways represent graduated continua that allow teachers to build leadership skill and develop capacity as well as experience, teachers are more likely to be a) willing to take the initial step into leadership, and b) inspired to move to the next level given a pathway clearly marked by forward—and concrete—steps.

Goodwin, A. L., Low, E. L., & Ng, P. T. (2013). Developing Teacher Leadership in Singapore: Multiple Pathways for Differentiated Journeys. Paper presented at the annual meeting of AERA, San Francisco.

5) Ultimately, the most important take-away is the availability of support. This support is offered not just in the form of financial support or incentives, but in terms of the trust Singapore places in her teachers to be professionals who can offer substantive and meaningful assistance and therefore are invited to play a key role in educational improvement, innovation and reform.

<u>Supporting Teacher Leadership: Moving Beyond Pathways</u>

These lessons aside, supporting teacher leadership requires more than the creation or presence of pathways or opportunities. A glance at the literature indicates that for teacher leaders to be successful, they need to have the skills and space to *exercise* leadership. Specifically, developing effective teacher leaders means providing time for managing new responsibilities and for working collaboratively with fellow teachers (Boyd-Dimrock & McGree, 1995; Lieberman, 1992; Lieberman, Saxl & Miles, 1988); focused training in areas such as conflict resolution, organizational management, resource identification and allocation, data analysis and strategic planning, and so on (Danielson, 2007; Teacher Leadership Exploratory Consortium, 2011); and most importantly, encouragement and freedom to take risks, innovate and make mistakes (Boyd-Dimrock & McGree, 1995; Lieberman, Saxl & Miles, 1988). In essence, teacher leadership requires a change in school culture and norms, and "necessitates new organizational structures and roles in schools in order to successfully meet the needs of 21st century learners" (Teacher Leadership Exploratory Consortium, 2011, p. 12).

Research has shown that organizational and culture change are always challenging to enact once organizational structures have been re-designed, that changing mindsets and perceptions does not automatically accompany changes in roles. This reality and the attendant challenges are, naturally, a factor in Singapore as well, as illustrated in a recent study of 170

middle managers.

An online survey of the MLS participants asked them about their understanding about the concept of educational innovation and what they did to practice innovation in their schools. A high response rate of 83% was received. To gain deeper understanding of the responses, eight respondents were interviewed further about some of the major themes that emerged. Participants expressed difficulty in defining the concept of educational innovation; indicating that it was hard to verbalize what it means but many cited 'leading by example' as a theme associated with this concept. Participants expressed the need for a more reflective approach to teaching but that the opportunity to practice reflection was limited due to the myriad of urgent operational issues that have to be dealt with in schools. Consequently, the concept of innovation was sometimes equated to trying out something novel rather than a reflection of something educationally of value to put into practice.

Although the survey questions did not specifically ask the participants about the challenges of innovation in education, this theme emerged strongly in their responses. One challenge was the high workload in school. In many schools, teachers are very busy with teaching and other activities and the reality 'do(es) not allow enough time' for innovation, yet 'you must show something quickly.' Another challenge was the fear of failure. Experimentation could have effects on results and Singapore is still a result-oriented society. Some participants also expressed that they did not always see superiors 'who are very open to new ideas' or in the area of trying untested ideas 'who are trusting of their staff.' Therefore, another critical challenge facing these middle managers is finding the right balance point between innovation and school reality.

Goodwin, A. L., Low, E. L., & Ng, P. T. (2013). Developing Teacher Leadership in Singapore: Multiple Pathways for Differentiated Journeys. Paper presented at the annual meeting of AERA, San Francisco.

The results from this study of middle managers in Singapore echo the literature on effective teacher leadership. Fear of risk-taking, administrative (and administrator) support, time to innovate, understanding what change means and which change is appropriate are critical factors that can make or break successful teacher leaders. Clearly there is more research that is needed and more work to be done around providing contextual and cultural supports for middle managers in Singapore—as well as elsewhere. Still, what is also clear is that education in Singapore is a collaborative endeavor that engages schools, the ministry of education and the university around mutual goals; educational innovation is motivated by incentives, collective planning, supports for teachers and schools, and a clear focus on building capacity. This "recipe" for "success" is one that has been central to school change literature for decades, a "recipe" that the Singapore story reveals is one that should be the starting point for reform and innovation efforts. Ultimately, it is Singapore's ability to implement with fidelity educational policy innovations that ensures the success of educational reform efforts and sustains a high level of educational achievement.

Goodwin, A. L., Low, E. L., & Ng, P. T. (2013). Developing Teacher Leadership in Singapore: Multiple Pathways for Differentiated Journeys. Paper presented at the annual meeting of AERA, San Francisco.

References

Academy of Singapore Teachers (AST). (2012). Retrieved from
http://www.academyofsingaporeteachers.moe.gov.sg/

Boyd-Dimock, V., & McGree, K. (1995). Leading change from the classroom: Teachers as leaders. *Issues about…Change, 4*(4). Retrieved from
http://www.sedl.org/change/issues/issues44.html

Buchberger, F., Campos, B., Kallos, D., & Stephenson, J. (2000). *Green paper on teacher education in Europe*. Umea, Sweden: Thematic Network of Teacher Education in Europe.

Danielson, C. (2007). The many faces of leadership. *Educational Leadership, 65*(1), 14-19.

Darling-Hammond, L. (2000). Teacher quality and student achievement: A review of state policy evidence. Education Policy Analysis Archives, 8 (1). Retrieved from
http://epaa.asu.edu/epaa/v8n1

Goh, C. B., & Gopinathan, S. (2008). The development of education in Singapore since 1965. In S. K. Lee, C. B. Goh, B. Fredriksen, & J. P. Tan (Eds.), *Toward a better future; Education and training for economic development in Singapore since 1965 (*pp. 12-38). Washington, DC: The World Bank.

Goh, C. T. (June 2, 1997). *Shaping our future: Thinking schools, learning nation*. Speech delivered at the 7th International Conference on Thinking, Singapore. Retrieved from
http://www.moe.gov.sg/media/speeches/1997/020697.htm

Goodlad, J. I., & MacMannon, T. J. (2004). *The teaching career.* NY: Teachers College Press.

Goodwin, A. L., & Oyler, C. (2008). Teacher educators as gatekeepers: Deciding who is ready to teach. In M. Cochran-Smith, S. Feiman-Nemser and J. McIntyre (Eds.), *Handbook of research on teacher education: Enduring questions in changing contexts* (3rd ed. pp. 468-490). New York: Routledge/Taylor & Francis.

Harrison, C., & Killion, J. (2007). Teachers as leaders. *Educational Leadership, 65*(1), 74-77.

Hattie, J. (2003). Teachers make a difference: What is the research evidence? Retrieved from
https://www.det.nsw.edu.au/proflearn/docs/pdf/qt_hattie.pdf

Heng, S. K. (September 12, 2012). *Keynote address, Ministry of Education work plan seminar.* Retrieved from http://www.moe.gov.sg/media/speeches/2012/09/12/keynote-address-by-mr-heng-swee-keat-at-wps-2012.php

Holmes Group. (1986). *Tomorrow's teachers.* East Lansing, MI: Author.

Goodwin, A. L., Low, E. L., & Ng, P. T. (2013). Developing Teacher Leadership in Singapore: Multiple Pathways for Differentiated Journeys. Paper presented at the annual meeting of AERA, San Francisco.

International Alliance of Leading Education Institutes. (2008). *Transforming teacher education: Redefined professionals for 21st century schools*. Singapore: National Institute of Education.

International Reading Association. (2008). *Status of teacher education in the Asia-Pacific region*. UNESCO.

Johnson, S. M., & Kardos, S. M. (2008). The next generation of teachers: Who enters, who stays, and why. In M. Cochran-Smith, S. Feiman-Nemser and J. McIntyre (Eds.), *Handbook of research on teacher education: Enduring questions in changing contexts* (3rd ed. pp. 445-467). New York: Routledge/Taylor & Francis.

Kanstoroom, M., & Finn, C. E. (1999). *Better teachers, better schools*. Washington, DC: Thomas B. Fordham Foundation.

Lee, C, K-E., & Tan M. Y. (March, 2010). Rating Teachers and Rewarding Teacher Performance: The Context of Singapore. Paper presented at the APEC Conference on Replicating Exemplary Practices in Mathematics Education, Ko Samui, Thailand.

Lieberman, A. (1992). Teacher leadership: What are we learning? In C. Livingston (Ed.), *Teachers as leaders: Evolving roles.* NEA School Restructuring Series. Washington, DC: National Education Association.

Lieberman, A., Saxl, E. R., & Miles, M. B. (1988). Teacher leadership: Ideology and practice. In A. Lieberman (Ed.). *Building a professional culture in schools*. NY: Teachers College Press.

Low, E.L., Hui, C.R., Taylor, P.G. & Ng, P.T. (2012). Towards Evidence-based Initial Teacher Education in Singapore: A Review of Current Literature. *Australian Journal of Teacher Education, 37*(6), 65-77.

Luke, A., Freebody, P., Shun, L., Gopinathan, S. (2005). Towards research-based innovation and reform: Singapore schooling in transition. *Asia Pacific Journal of Education, 25*(1), 5-28.

Ministry of Education (MOE). (2013). *Career Tracks for Teachers*. Retrieved from http://www.moe.gov.sg/careers/teach/career-info/

Ministry of Education (MOE). (2012). Fact Sheet on Teacher Growth Model. Retrieved from http://www.moe.gov.sg/media/press/files/2012/05/fact-sheet-teacher-growth-model.pdf

Ministry of Education (MOE). (March 7, 2011). New "TEACH" framework to enhance the quality of the teaching force. Retrieved from http://www.moe.gov.sg/media/press/2011/03/new-teach-framework-to-enhance-quality-teaching-force.php

Ministry of Education (MOE). (December, 2008). *Education in Singapore.* Singapore: Author.

National Center for Education Statistics (NCES). (n.d.). *Trends in International Mathematics and Science Study (TIMSS).* Retrieved from http://nces.ed.gov/timss/results07.asp

Ng, P. T. (2011). How school middle leaders in Singapore understand and practice 'innovation in education.' *International Journal of Innovation in Education, 1*(3), 253-262.

Pounder, J. S. (2006). Transformational Classroom Leadership: The Fourth Wave of Teacher Leadership? *Educational Management Administration & Leadership, 34*(4), 533-545.

Rowe, K. (2003). The Importance of Teacher Quality as a Key Determinant of Students' Experiences and Outcomes of Schooling. Paper presented at the ACER Research Conference, Melbourne.

Rutherford, K. (2009). Distributed leadership and comprehensive school reform: Using the distributed leadership perspective to investigate the distribution of teacher leadership. *International Journal of Teacher Leadership, 2*(2), 49-68.

Silva, D. Y., Gimbert, B., & Nolan, J. (2000). Sliding the doors: Locking and unlocking possibilities for teacher leadership. *Teachers College Record, 102*(4), 779-804.

Spillane, J. (2005). Distributed leadership. *The Educational Forum, 69*(2), 143-150.

Stewart, V. (2012). *Teaching and learning for the twenty-first century: The 2012 International Summit on the Teaching Profession*. NY: Asia Society.

Stewart, V. (2011). *Improving teacher quality around the world: The International Summit on the Teaching Profession*. NY: Asia Society.

Tan, C. (2005). Driven by pragmatism: Issues and challenges in an ability-driven education. In J. Tan, & P. T. Ng (Eds.), *Shaping Singapore's future; Thinking Schools, Learning Nation*, (pp. 5-21). Singapore: Prentice-Hall/Pearson.

Tan, K. S., & Wong, I. Y. F. (2012). Developing Quality Teachers for the Singapore School System: The Impact of the National Institute of Education and the Tripartite Relationship with the Ministry of Education and Schools. In I. Žogla & L. Rutka (Eds.), *Teachers' Life-cycle from Initial Teacher Education to Experienced Professional.* Paper presented at the ATEE 36th/2011 Annual Conference, Riga, 440-458. Brussels, Belgium: Association for Teacher Education in Europe.

Teacher Leadership Exploratory Consortium. (2011). *Teacher leader model standards.* Retrieved from http://www.teacherleaderstandards.org/downloads/TLS_Brochure.pdf