



**Rethinking Human Capital  
in Education:  
Singapore As A Model  
for Teacher Development**

A Paper Prepared For  
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## Singapore: Model for Teacher Development

### Forward

Thinking and acting strategically about human capital development and management is the lifeblood of most high-performing businesses and organizations. Public education in this nation should be no different. Principals' and teachers' performance has more effect on student achievement than any other factor and their effectiveness in increasing student performance varies widely. Given the stakes, it is imperative to act on that knowledge and strengthen the education workforce to better serve students.

Yet, few urban school districts have acted on this knowledge to make strengthening human capital a centerpiece of their improvement strategies. Moreover, systematic evidence and analysis remains scarce about the impact of policies intended to address these challenges. To build knowledge and momentum for new approaches to strengthening human capital in education, the Aspen Institute Program on Education and Society has launched a multi-year effort to examine what a systematic human capital system in education might look like building on best practices in education and business both here and abroad.

In fall 2006, the Aspen Program on Education convened a seminar of leading policymakers, researchers and practitioners from eight nations to bring international lessons to U.S. policy conversations. A resulting report by Lynn Olson, *Teaching Policy to Improve Student Learning: Lessons from Abroad* (2006), reflected on the different trade-offs made in policies to recruit, attract, and retain a high-quality teaching force in Australia, Canada, England, Japan, Singapore, Sweden, Switzerland and the United States.

Surveying the international landscape, we were struck by Singapore – a city-state with both high student achievement and a coherent, performance-oriented, professionalized approach to teacher development. We are grateful that Susan Sclafani, a participant in the 2006 seminar who has studied Singapore's education system deeply, was willing to write this report to share her expertise with a larger audience.

While culture and context matter and the Singaporean system could not be replicated in the U.S., this report on Singapore provides provocative ideas for how school districts and states might move toward a more systematic career and compensation structure.

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## Singapore: Model for Teacher Development

### Introduction: Why Singapore?

One of the clear lessons from research on student performance in the U.S. is that the quality of the teacher is the major determinant of student learning. When we compare student performance in the United States (U.S.) to that in other countries we see that we are not competitive with high performing nations in Europe and the Far East. That suggests it might be helpful to look for guidance to the practices of high-performing nations in teacher recruitment, development and retention.

Singapore provides one of the most coherent systems of teacher education and employment in the world, and, according to the Trends in International Math and Science Survey (TIMSS) results, it is consistently in first or second place internationally in both mathematics and science. Singapore is actually very similar in size and diversity to the large urban districts in the U.S.. It is one large city of nearly five million people made up of three major ethnic groups and a full complement of international workers at all levels of society. Without a lot of natural resources, it knows that its people are its greatest resources. Children arrive at school speaking Mandarin, Tamil, Urdu, Hindi or other languages, and the schools are asked to teach them English and develop their proficiency in their mother tongues as well. Because of housing patterns, different schools have different mixes of ethnic groups. Creating a diverse teaching and administrative force to work in its diverse schools is both a need and a goal for the Ministry of Education.

Of course, there are also major differences between Singapore and U.S. urban districts. While the student population is diverse, it is still primarily Asian, with a societal focus on education and respect for teachers that no longer is common in urban America. Not every student in Singapore is highly motivated, but all understand that their futures depend upon their performance in school. In fact, everyone in the school, the community and the family knows that as well, and the support network is strong in all three arenas. If a child is not successful at school, the community-based ethnic organizations provide evening support and tutorial sessions for them.

The general culture in Singapore is different from ours as well. First, it is, by a very clear choice from its creation nearly fifty years ago, a meritocracy—all rewards and promotions are based on merit, not longevity nor wealth nor ethnicity. Second, any visitor to Singapore is struck by the cleanliness and orderliness of every aspect of society from the absence of graffiti and litter to the courtesy of those getting on and off the subway. Though Singapore still has fines for spitting, jaywalking and littering, the people of Singapore have internalized the culture, and newcomers are politely reminded how one behaves in Singapore.

Despite its differences, the Singapore system of education provides some key ideas on teacher issues for the U.S. to consider. Because Singapore is a city-state, its lessons cross our boundaries of federal, state and local—it is all three wrapped up into one! That means that we will have to think about the connections among our three levels to determine at which level an idea fits and where we need to work together to create more coherence in our three-tiered system. The issues that are most important to us are:

- High standards for selecting teachers and administrators—and deep support for them throughout their careers
- Serious career management from preparation to retirement
- Strong sense of professionalism among teachers
- Strategic use of financial resources to attract and retain excellent teachers

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We will look at each of these areas and how Singapore has created the policies and practices that make them possible. Detailed information about Singapore's education system can be found in Appendix A.

### **High Standards and Deep Support**

#### **High Standards in Recruitment and Preparation**

Unlike the U.S., where colleges and universities have open admissions for their teacher education programs, Singapore chooses a selected number of people to enter teacher preparation and invests the necessary funds to prepare them well. The ministry guarantees quality by providing only one teacher preparation institution in the nation for Singapore's public schools. Working hand-in-hand with the Ministry, the National Institute for Education (NIE) provides high standards of preparation and support that are aligned to the policies of the ministry and the needs of the schools.

Each year the Ministry opens only as many places in teacher education as needed to meet future vacancies anticipated by trends in teacher retirement. Students who want to fill those slots must first show that they are in the top third of their graduating class based on grades, national examinations and the teacher entrance proficiency exam. But that is not enough. If candidates make the paper review cut, they must then go through an interview process to determine if they have the passion, commitment, values, willingness to learn, and communication skills to be a good teacher and a role model for their students. Not everyone who applies gets an interview, and not everyone who is interviewed is accepted. One of the frequently asked questions on the ministry's teacher website is why it is so hard to get into the NIE.

How does Singapore get high-performing students to apply? It is not just future salary, although salaries are competitive with those of engineers in the civil service. It is a combination of factors. The most immediate is that the Ministry pays all tuition, fees and a monthly stipend to undergraduate teaching candidates. For those who enter teacher preparation at the graduate level, the stipend is equivalent to what they would have made as college graduates in a civil sector job. Since this must be repaid if the candidate fails the program or leaves the profession before the stipulated period of three to six years, it is also a powerful motivator for serious commitment to the program.

The second significant factor is that teaching is known as a highly selective field with great opportunities for individual growth and development. There is a caché in being selected for teacher preparation—perhaps what we are seeing in the Teach for America recruitment. Third, the Ministry is looking for and finding those young people who have a passion for helping others. Community service is part of every student's education in Singapore, and assignments of working with younger students or peers who need tutors help teachers identify students who should be encouraged to be teachers. We sometimes forget that U.S. teachers used to identify and encourage students to become teachers.

Selectivity operates at every phase of the teacher's career: the system is always seeking to identify excellence. It starts with the teacher practicum, where candidates can earn distinction and receive a higher entry

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salary, and continues through the three career tracks: teaching, leadership and content specialist. Within each is a career ladder based on performance. The annual evaluation determines the size of the annual bonus and whether one moves up the ladder in salary and position. Only the very good teachers can move up to senior teacher positions and only the very, very best get to be master teachers. While it sounds very competitive, it is really a very collegial system. The expectation is that every teacher wants to be the best he or she can be and will strive to do so. Because teachers understand and respect the evaluation system, they honor the teachers who move up, and they work to learn from them so they can improve as well.

### Deep Support

From entry to the teacher preparation program, each teacher candidate receives enormous support to help him or her succeed. The courses deal with all aspects of teaching from content to pedagogy, to multicultural issues to student guidance and character development. Teacher candidates are in schools to observe, assist and learn from early on. The professors at NIE work closely with the teachers and administrators at the school to see how teacher candidates are doing during their *practica*, and all provide counseling, coaching and support. If a teacher candidate is in danger of failing, intensive support is provided. If the teacher candidate fails the practicum the first time despite the extra support and assistance, he or she may be given a second chance at a different school. But a few teachers each year do fail, even the second time around, and are counseled out of the profession. Not only have they spent an extra semester, but they have to pay back to the ministry all of the tuition and stipends that they received, with interest.

Singapore does not use the “sink or swim” system for new teachers. As teachers enter the induction period, they become part of the school learning community that is there to support them and help them learn to be successful teachers. Their work load is reduced to 80 percent for the first year to give them time to plan, observe other teachers, talk with their assigned senior teacher mentor, and meet with their teacher buddy. But the support goes further. New teachers are observed and coached by grade level chairs, subject area chairs, and heads of departments. If a teacher is not performing well, additional support and coaching come into play. Everyone tries to help the new teacher adjust and improve, but lack of improvement, poor attitude or lack of professionalism is not tolerated. Here too, the new teacher may be allowed to try another school, but if a year of working with the teacher has not improved his or her performance, the teacher may be asked to leave the profession. The system believes that it should do its best up front and counsel out those who do not make progress despite the support and assistance. Past this milestone, very few teachers are asked to leave, and then the causes may be lack of integrity, inappropriate behavior with a student, financial mismanagement or racial insensitivity.

### Commitment of Teachers

Any educator visiting the country, and especially its schools, will be struck by the universal motivation to ensure that every child is developed to his or her fullest potential academically, physically, and morally. One hears this sentiment from the minister of education, from principals, teachers, staff members and members of the community with whom one speaks. But this is not the same as the American platitude that all children

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can learn. If a student in a Singapore school is not successful, the teachers ask themselves what they can do differently to enable the child to succeed. The teacher work day typically starts at 7:00 am and ends after 5:00 pm, providing time for morning and afternoon tutorials for students encountering academic difficulties, teaching and planning periods, and supervision of co-curricular activities. Student success is the goal of every action taken at every level of the education establishment. This is the key that makes the Singapore system so coherent.

A question for U.S. educators is how this commitment is developed. It appears to be the by-product of the selection and induction processes. Since the application asks for descriptions of community service activities and the interview probes for commitment to helping others, successful candidates can be expected to at least have a predisposition for commitment. Then the system welcomes new teachers and models the kind of support, counseling and coaching it expects them to show to their students. It seems that teachers transfer that willingness to go the extra miles that was shown to them to their work with their students. This is the power of culture that we see in our beating the odds schools and that Singapore has systematically developed in all of its schools.

## **Serious Career Management**

### **Enhanced Performance Management System**

From the first year on campus, every teacher is planning a career and using self assessment, coaching and evaluation to achieve next steps. Singapore developed a very comprehensive system, the Enhanced Performance Management System (EPMS), to manage the process. Typical of Singapore, everyone at the school, cluster, district, and ministry levels was well trained in its use before it was ever implemented. While the final annual evaluation is the key to performance bonuses and promotions, everyone takes the entire process very seriously. Both teachers and reporting officers (a head of department or vice principal) are evaluated on how well they help develop other teachers at the school through observations and coaching. But more important, teachers believe that the EPMS will help them become better teachers.

Through the EPMS process, teachers are encouraged to expand their teaching repertoire, select a career track, and take those developmental actions that lead to greater competence and higher levels on the career ladder. Teachers start the year with a self-assessment and develop their goals for teaching, instructional innovations and improvements at the school, professional training, and personal development. They discuss their goals and performance benchmarks with their reporting officer to ensure they are aligned with the department, school, and national goals and benchmarks. These meetings are opportunities to discuss where the teacher ended the last year and what needs to be done next to reach his or her career goals. The reporting officer is always encouraging the teacher to reach further and improve over past performance to reach his or her full potential. Together they decide where the teacher can find additional training or which senior teachers or department heads can best help with coaching. It is a very collegial process whose goal is to be

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sure that teachers have the competencies to improve student achievement. During the year, there are informal evaluation meetings, a more formal mid-year evaluation, and then the final evaluation.

The EPMS is not an evaluation as we usually do it. The document is a narrative that summarizes at mid-year and the end of year the activities engaged in, progress toward the goals set, and data on the performance benchmarks. It resembles our portfolio assessments, although it adds summaries of relevant discussions between the teacher and the reporting officer as well as evaluative narratives from both the teacher and the reporting officer. These evaluations are based on the experience and position of the teacher since the level of competence expected of a new teacher is much lower than expectations for senior teachers.

The final annual evaluation includes not just a mark for current performance but also one for the reporting officer's view of the teacher's future potential—"Current Estimated Potential". The decision on potential is made in consultation with the senior teachers who have worked with the teacher; department and grade chairs, the reporting officer, the vice principal and the principal. While it is a subjective decision, it is based on their observations, discussions with the teacher, evidence in the portfolio, and knowledge of the teacher's contributions to the school and community. The estimate of potential is used to help the teacher grow and develop that potential.

Principals rank teachers on the two dimensions of current performance and future potential to determine staff needs for the next year as well as to identify teachers with the greatest potential who should be tapped for additional opportunities to serve the school and develop their skills. The evaluation tool is described in detail in Appendix B, and its level of depth and breadth will amaze most American educators.

Reading through this extensive process, one might ask where reporting officers get the time to do all this discussion, counseling, support, and evaluation. The answer is the distributed leadership model in place. It is not just the principal and vice principal(s) who are responsible for supporting and evaluating teachers. As part of the career tracks, Singapore has created a group of people to assist: senior teachers, grade level chairs, subject area chairs, and heads of departments are all available to work with teachers, while heads of departments and vice principals serve as reporting officers on the EPMS. The vice principal and/or principal are consulted where there is a close judgment call and serve as second level evaluators, but they are not responsible for the whole process for every teacher. They focus on the heads of department and senior teachers. This is just one more way that the whole staff is part of the process of continuous improvement and culture building.

## **Strong Sense of Professionalism**

Professionalism is part of the fabric of the Singapore system from selection for teacher preparation through retirement. Teacher candidates entering the NIE immediately receive a stipend and become part of the profession. Through their interactions with NIE and school staffs, they learn about the high expectations of the profession. But they also learn how much support there is for personal growth and improvement. As we saw in the practicum and new teacher experience, everyone works very hard to help new teachers succeed.

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All teachers in Singapore are given opportunities to attend more than 100 hours of additional training and courses every year. They are expected to use these hours to improve their teaching prowess as well as their content knowledge so that they can do a better job with their students. Classroom teachers may also take on other positions of responsibility in the school, such as leading action research or serving on a committee.

Singapore education is a self-reinforcing system, with each part of the system aligned to the other pieces. The preparation and induction processes reinforce the professional values of the teaching profession. The evaluation system reinforces each teacher's responsibility to continue his or her own learning through professional development courses, observations of successful teachers, discussions at the school and cluster level with other teachers of the same subjects and grades, and feedback from the reporting officer. It also reinforces the expectation that all educators have a duty to help one another improve teaching competence, as well as a duty to help the students and the school succeed. And as we will see in the next section, the financial resources are used throughout the system to reinforce the same professional values and practices.

## **Strategic Use of Financial Resources**

Comparing percent of Gross Domestic Product (GDP), Singapore spends about two thirds of what the U.S. spends on K-12 education, but it leverages those funds to maximize the productivity of the system. And it creates financial enhancements to the career of teaching in consultation with committees of teachers so it knows what will attract and retain them. We have already seen how Singapore uses tuition, fees and stipends to encourage undergraduate and graduate students to become teachers. But we also saw that those stipends become a major motivator for success. If a teacher fails in the preparation program or in the three to six years of bond, all or a prorated portion of those funds including interest accrued must be paid back as liquidated damages. That gets Singapore teachers past where we lose so many of ours, the first three to five years. What keeps them after that? A carefully devised system of rewards and reinforcements.

### **Bonuses and Promotions**

Let's start with the annual opportunities teachers in Singapore have to benefit financially from taking the evaluation process and professional development opportunities seriously. First, they get annual bonuses based on their EPMS performance that amount to one to three months salary for average to outstanding performers—that is a 10-30% bonus annually. In addition to the bonuses, teachers can also get promotions along the salary schedule. These promotions are not automatically given for staying another year; they are only given if the teacher has made great progress in competence and engagement in the work of the school. In fact, there are only four steps along the classroom teacher career ladder. To move up from there, the teacher has to move to the senior teacher salary schedule based on merit. Finally, teachers are also rewarded at the school level with Outstanding Contribution Awards for individual or team contributions to creativity, cost-savings, or peer support, based on documentation in their EPMS evaluations.

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### **Funded Professional Development Opportunities**

The kinds of choices teachers can make about their professional and personal development reinforces the concept of professionalism. This is not a system where every choice is dictated by others. In addition to the standard offerings at the NIE, teachers get S\$400-700 per year to spend as they choose, selecting from a broad array of opportunities: take foreign language or computer training, buy software, join a professional organization, subscribe to journals, or enhance their cultural awareness. They can also take professional development leaves that are partially funded by the ministry to allow for part-time or full-time study, travel, work in an international school or work in a business enterprise to develop a better understanding of the applications of their teaching to the real world. The main criteria for these options are that they will help the teacher improve his or her professional skills to better serve the schools of Singapore.

### **Retention Funds**

As opportunities for movement from teaching to other careers and active recruitment of mathematics and science teachers by the private sector increased, Singapore revised its long-term retention system as well. Not only do teachers now receive higher amounts, than in the past, of CONNECT (Continuity, Experience and Commitment) funds, S\$3,200-6,200 per year, but they can also access some portion of it every few years, rather than wait until retirement. This removes two problems of the U.S. teacher pension system: retirement seems so far off and the money so untouchable that it is not really a motivator for retention until the teacher gets close to retirement. And the Singapore CONNECT program provides S\$120-160,000 over a career over and above social security, not in place of it. Since teaching is the only area where the government provides this additional retirement funding, teaching remains an even more desirable profession.

## **Can Singapore Practices Help the United States?**

While the societal expectations and mores in Singapore differ greatly from urban centers in the United States, there are still many features of the Singapore education system that are applicable in the U.S. Many of the practices highlighted here already exist in some colleges of education or some schools in the U.S. In fact, Singapore educators who regularly scan educational research and the practices of school systems across the world probably found some of them here in the U.S. and integrated them into their system. Distributed leadership is just one example. But what we need to focus on is that Singapore has a coherent system and only adopts and adapts those practices that fit with its vision and philosophy.

### **High Selectivity**

The challenge for U.S. urban districts is to create a coherent system that can achieve high performance for students and staff at scale in an environment that lacks coherence from the federal to the state to the local levels. The critical issue is where to start. One of the first steps has to involve a dialogue at the state

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level about selective criteria for who can enter and graduate from teacher preparation programs. We have to be able to hire teachers with the ability, skills and dispositions to become high-performing teachers. This is more critical now than ever before if we are to move all students to much higher levels of performance.

Selectivity does not exist in a vacuum, however. Encouraging high performing students to become teachers has to be part of the equation. Teach for America has just completed its greatest recruiting season in its history: over 25,000 smart, well-educated students applied to teach in under-resourced schools. What drew them? In part, the caché of the program; in part, their desire to make a contribution; in part, the positive response from the business community where they will seek their next job. But they were willing to come, and it is up to the education profession to figure out how to get smart, well-educated college graduates into preparation programs and into our schools. It would certainly be easier if we funded salaries for the year they were in full-time masters degree or Masters of Art in Teaching programs prior to entry into the classroom, as the Singapore ministry does.

A second issue in attracting the teachers we need is assistance with funding college. This nation spends billions of dollars on scholarships and loan programs and could earmark a portion to future teachers. With high standards for who would receive a scholarship and a contract to serve one year for every year of the scholarship, we could attract high performing students. While the federal government offers some loan forgiveness for mathematics and science teachers, it may be time for state and district scholarship programs to look at the Singapore model and develop similar systems.

The third issue in high selectivity is to ensure the compensation system is focused on rewarding excellence. Looking at Singapore's compensation system, one sees that merit lies at its root for salary, bonuses, and promotions. While salaries have risen in most U.S. urban districts over the last decade, raises are connected to a salary schedule with automatic increases if the teacher stays another year. Singapore's system instead reinforces the idea that compensation equals contribution. This would be a major change to the current system that requires both state and local agreements that will be hard to forge. It will take enlightened leadership at every level including local teacher unions. And it will require that we use evaluation systems that teachers believe in and trust to reflect the totality of their contributions to their students, schools, and community.

### Deep Support

So what steps can districts take to develop support in their own districts? They can start with implementing a system of real support for their new and continuing teachers. The implementation of an effective induction program could lower the district's attrition rate by 50 percent in the early years<sup>1</sup>. This would require rethinking current practices—including the practice of giving new teachers the worst schedule of classes, the fewest resources, and the worst room - if they get a room. This would also require charging mentor teachers, department heads, and principals with greater responsibility for the success of new teachers. This could be an explicit part of their evaluations.

Serious attention to the induction period would also enable school leaders to determine who should or should not be granted tenure. It is wiser to make the decision about teacher tenure based on a serious sup-

1. Ingersoll, R. & Smith, T., What are the effects of induction and mentoring on beginning teacher turnover? p. 705

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port and coaching model than allow teachers to gain tenure who do not have the disposition or skills to become great teachers. This is another place where districts can start to exercise selectivity.

Districts cannot improve the quality of preparation and professional development on their own. The NIE/ministry connection provides a model a school district might adopt with the colleges and universities who provide the majority of its teachers. Whether by contract or agreement, the district can clearly enunciate the teaching competencies required for teachers to be hired in the district. This could include the specific knowledge, skills and attitudes required for success in the district as well as the ability to implement the district's curriculum. Districts could go even further and refuse to accept student teachers or hire beginning teachers from those colleges of education that don't prepare teachers according to the contract. While it might be hard when a district has vacancies, accepting unprepared people into the system has more costs than benefits for students and schools. Agreements could be forged through regular and on-going dialogue between the superintendent and the deans. Superintendents could use peer pressure from other deans to get recalcitrant deans in line.

Working together, the district and its universities could more carefully align the student observation and teaching opportunities with district goals and needs. Just as in Singapore, both the school and the university staff would provide critical feedback to each other on the performance of the student teacher. While this is being done in the best of the teacher preparation programs, it is not universally done in university/district partnerships across the U.S.

A second area of collaboration with the partner colleges/universities would be on professional development. The seamless implementation of new or revised curriculum or pedagogical strategies in Singapore occurs because the NIE provides the professional development for Singapore's teachers and focuses on the changes in curriculum and pedagogy. In fact, whenever the ministry changes its focus, NIE changes both its preparation and professional development programs so that teachers are prepared in advance for the new focus areas. This could be done in U.S. districts collaborating with local universities. Of course, another challenge in the U.S. is creating the time to develop and prepare teachers to implement curricular and instructional changes. This is an area where state departments of education would need to come into the discussion—they must give districts and universities the time to prepare staff for effective implementation before they require implementation of new mandates.

A third area of collaboration could be in setting the standards for student entry to the teacher preparation programs. This will probably require changes in the state system of approval of teacher preparation programs, but it would make an enormous difference. If the state required higher standards for its teacher preparation programs, it would see an increase in the interest of high-performing students in entering the field. Many of our college students say that they did not enter the teacher education program at their universities because the programs were not highly regarded by students or other professors. England changed its teacher preparation system to include higher standards for entry as well as higher expectations for the performance of graduating teachers. It offered continued funding to those institutions which had good results in teacher preparation and placement and removed funding from those who did not. The result was an increase in candidates for teacher preparation and a resulting increase in the number and quality of applicants for teaching positions in London and other large cities that had experienced large numbers of vacancies with few applicants. It is a good model for states to consider.

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### **Career Management**

A significant area within the district's domain is the development of career tracks that are well documented and made clear to all teachers. This will enable teachers to focus on a career plan and encourage them to develop the appropriate competencies. With a career ladder of teacher, senior teacher, master teacher 1 and master teacher 2, teachers can aspire to and prepare themselves for greater competence and the opportunity to help teachers at their own schools and district wide. In recent studies on teacher attitudes, teachers have reported that they have no problem with teachers getting extra pay or recognition for assuming additional responsibilities. If a career ladder were developed in this way, with significant input from the teachers in the district, it could provide the support needed for the induction system, as well as the continuous improvement of teacher practice.

Perhaps the most important district action area would be the development of a professional career orientation through a positive support and evaluation system. The EPMS system could be adapted to a district's environment through collaboration of teachers, central office specialists, and administrators. Starting there would certainly make clear that the support and evaluation system is a serious collaboration for the benefit of students, teachers and district staff. It would also provide the on-going coaching and support teachers need to plan their personal careers with reflection and assistance from senior teachers, the assistant principal and principal.

Singapore recognizes that principals cannot achieve the required improvements in student performance alone. Schools need a distributed leadership model, with teachers assuming a variety of roles based on their competencies and interests. Through a well-articulated and respected evaluation system, our principals could identify the teachers who are outstanding and encourage them--and reward them--to take on mentoring roles and move up the teaching career ladder. They could also identify those who would be most successful in leadership and senior specialist roles and give them appropriate opportunities at the school. Our best principals do that, and many current leaders credit a past principal who put them on committees and gave them special assignments so they could learn about school management and experience leadership roles.

Implementing a system that identifies and distributes leadership opportunities also provides a solution to districts' need for the next generation of school leaders: develop teachers with leadership abilities through a series of positions with increasing responsibility and then train those who are successful in a graduate leadership program. In Singapore the leadership program is a full-time program at full salary for the principal candidates who pass the screening for vice principal and demonstrate high performance in that role. We could work with universities to develop options for future leaders using our best leaders as team teachers with university professors.

### **Strategic Use of Financial Resources**

Looking at the financial rewards available to teachers in Singapore, superintendents, along with committees of teachers and administrators, could determine which ones are appropriate for their districts. One of the major criticisms teachers have of pay for performance plans is that the decisions are made by principals who do not understand instruction well enough to make good judgments. If the evaluation process includ-

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ed the components of the EPMS, and evaluators, including senior teachers and department heads, were well trained, U.S. teachers might be more willing to consider options such as the annual bonuses available to Singaporean teachers. Until teachers develop that level of trust, the Outstanding Contributions Awards would provide a school-based, performance-based incentive that may be easier to implement.

One of the major challenges facing districts is the current defined benefits retirement system. It does not give teachers two things they want: the opportunity to move without losing the state pension and the chance to reap benefits even if they don't make teaching a life-long career. Therefore, it does not work well as an incentive to enter and remain in teaching. Given the challenge that many states are facing in funding their pension systems for the long run, it might be the right time for districts to open a discussion with their state government about implementation of a system similar to the CONNECT system for newly entering teachers. CONNECT, combined with social security, provides a major incentive to remain in teaching since these amounts are accruing annually and are partially available during one's career as well as at the end. This would be a major undertaking for districts and could probably only be considered through a collaboration of districts, state associations of school boards and administrators, and state teacher organizations, working with their legislators.

## **Singapore as System for Further Study**

There is so much to be learned from the coherent programs and practices in Singapore. While this paper provides an overview of the teacher-related programs and practices, further study of the entire system might suggest other areas where U.S. districts could profit. A few that respond to serious problems we experience in U.S. districts include: the preparation of administrators, development of special secondary schools for students who were not successful in primary school, the effective use of formative assessment in primary and secondary schools, the use of syllabus-based assessments in secondary schools, the development of technical institutes for students pursuing career and technical education, and secondary school/junior college collaborations that provide seamless advancement for highly academic students. The key lesson from Singapore is to establish coherence in the system: make all decisions based on what is best for students and develop the systems that maintain the primacy of that premise in human resources, finance, business services, curriculum and instruction, and professional development.

### Appendix A Singapore and Its Education System

#### Background on Singapore's Government

Singapore's ethos is based on a strong belief in merit as the basis for rewards and promotions. With few natural resources, the country has recognized from its inception that its people would be the source of any prosperity. To maintain the stability and , the country has focused since inception on nation building, an effort to ensure that the three main ethnic groups<sup>2</sup> that make up Singapore learn to live and work together without strife. In fact, nation building is one of the goal areas for every school in Singapore, and racial insensitivity can be one of the grounds for teacher dismissal.

The role of government is more obvious in Singapore. The city has E-Z-Pass like scanners on cars that observe where and when a citizen drives in Singapore so that appropriate transportation taxes can be charged. The high tax level at rush hours reduces traffic-similar to what Mayor Bloomberg tried to do in New York City. To limit the number of cars, residents have to pay a purchase tax that is almost as much as the cost of the car. While that may seem excessive, the government has been very successful in planning the economy to ensure continued prosperity.

The government is very strategic in its human resources policies and practices and in planning its economy. It uses data on upcoming workforce needs to determine the number of places that will be offered in its post-secondary education system for occupations ranging from engineering and teaching to skilled labor for power plants and spas. Singapore is now one of the most vibrant economies in the world that attracts multinational corporations from across the world, and it attributes its success to the quality of its education system.

#### Singapore's School System

The Singapore school system has approximately 530,000 primary and secondary students, a little smaller than the size of Los Angeles Public Schools. Singapore has gone through three periods of development of its education system: the survival period in which a new nation focused on developing a mass education system for a population that averaged a third-grade education; the efficiency-driven period, in which it focused on ability streaming to ensure that all students had the appropriate time and instruction to reach their full potential; and its current ability-driven phase, where it is focused on flexibility and diversity, individualizing education and ensuring each child develops his or her own personal interests and strengths. Throughout the three phases, continuous improvement has been the hallmark.

In 1950 the Teacher Training College was established in Singapore to train teachers. This led in 1991 to the National Institute of Education (NIE) for implementation of the preparation and on-going development of the nation's educators. Because the NIE and the ministry work closely together, prospective teachers are pre-

2. The major ethnic group is the Chinese 75.6%, followed by the minorities of Malay 13.6% and Indians 8.7%.

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pared to teach the Singapore curriculum. Since all teachers attend at least 100 hours of professional development each year, aspects of the curriculum change can be easily included for in-service teachers. Both the ministry and the NIE do comparative international educational research on best practices in education. They send their members across the world to learn if these practices are aligned with the Singaporean educational philosophy and if they should be considered for implementation.

Three-year pre-kindergarten and kindergarten programs are available for students aged three to six from community-based organizations and preschools registered with the Ministry of Education and licensed by the Ministry of Community Development and Sports. These preschools offer opportunities to develop social and communication skills as well as language skills in English and the mother tongue. The Ministry of Education is responsible for students from first grade at age six on to postsecondary education. All instruction is provided in English, and students develop fluency in English while maintaining their language proficiency through “mother tongue” classes from grade one through secondary school.

Students attend primary school for grades 1-6, secondary school from grades 7-10, or 7-11. Students move into specific streams in secondary based on their performance on the Primary School Leaving Exam at the end of grade six. The streams are Special (about 8-10%) and Express (about 50%) for academically capable students, Normal Academic for about 25% of the students, and Normal Technical (about 15%) for students who have not excelled academically and learn best through hands-on applications. (The Special stream will be merged with the Express stream after 2008.) The Express and Normal Academic students take substantially the same curriculum. However, the students in the Special and Express streams take 4 years to complete their studies and sit for their National Cambridge General Certificate of Education “Ordinary” level (GCE “O” level) examinations, whereas Normal Academic students take 5 years. Normal Technical also students take 5 years to complete their secondary school studies. Students can possibly move to a higher stream based on their improved academic performance in secondary school, after consultation with the teachers, parents and school leaders. .

By the end of 10th or 11th grade, students have completed the equivalent of our high school program and then select postsecondary options: institutes of technical education (ITE) for certificate level courses to prepare for professional jobs in technical areas, polytechnics which offer diploma level courses for professional jobs in various professions, or the junior colleges where they prepare for the university. At the end of their 2 year education, junior college students take the National Cambridge General Certificate of Education “Advanced” level (GCE “A” level) examinations and their admission to the universities are dependent on their exam performance. Students’ choices for postsecondary are determined by the quality of their performance in secondary school exams, although students can move from one option to the other upon successful completion. Thus students who excel at the ITE can go on to the polytechnic and polytechnic graduates who do well can go on to the university.

Each decade brings an enhancement to the education system in Singapore. In 1997, the enhancement carried the theme and vision of “Thinking Schools, Learning Nation” which focused on “becoming a nation of thinking and committed citizens conscious of their responsibility to family, society and country.”<sup>3</sup> In 2007, the minister of education announced “Head, Heart, and Hands,” a new framework for the next phase of nation-

3. Singapore Ministry of Education website

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al education. In addition to the rigorous academic preparation of students, it focuses on strengthening the “heartware” and sense of belonging of Singaporean students. The framework consists of three components involving educators, students, and the community:

- Enabling and Equipping Educators;
- Engaging and Empowering Students; and
- Enhancing National Education through Strengthening School-Community Linkages

The Singaporean people understand that if every child is to succeed, then every child must have well-educated teachers prepared to work in collaboration with the school staff and parents to help him or her achieve that goal.

In the Singapore society, teachers are well-respected professionals whose average salary is equivalent to that of engineers and accountants in the civil service. While they do not earn as much as the private sector, the combination of salary and working conditions make teaching an attractive field. The Singapore Ministry is clear that not everyone should become a teacher. On its website, it clearly enunciates the values and qualities that a teacher should exhibit: Not everyone can be a teacher. Not only must you have the passion for education, you need to know how to engage the students in their learning, be a good role model and an inspiration to them and prepare them for the challenges of life.”

## **Appendix B Description of the Performance Management Process by Edmund Lim**

The Performance Management Process in the Enhanced Performance Management System (EPMS) involves creating between the reporting officers and the education officers a joint understanding of the goals that need to be attained. The reporting officer or RO is usually the direct head of the education officer. For instance, if the education officer is a teacher, the RO will be the head of department. If the education officer being evaluated is a head of department, the RO will be the vice-principal. If the education officer is a vice-principal or principal, the RO will be the cluster superintendent.

The Performance Management Process also contributes to increased clarity for education officers in the area of the process and products involved in attaining the education-related targets. The Performance Management Process involves the three main phases of planning, coaching and evaluation.

During the planning phase, the officers will use the ministry, school and departmental work-plans to set their targets and create their training and development plans. This encourages alignment of goals, process and targets. Together, the RO and the education officer will plan and set performance targets and goals for the coming year. They will discuss and agree on the competencies that enable the attainment of these targets. They will also work on a development plan for professional growth.

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There is the coaching phase where informal guidance and coaching will be provided. There will be informal monitoring of the performance and achievements, as well as the formal mid-year review. The education officers will receive coaching, along with support and constructive feedback. This process will help the education officers to improve and progress towards their competencies and goals.

During the evaluation phase, multiple inputs will be given by the education officer and the reporting officer of the education officer who is being evaluated. Inputs will also be given by the counter-signing officer who is a senior education officer. There are three parties involved in this evaluation process. The final evaluation is conducted during the year-end appraisal interview. This evaluation will examine the achievement of the work targets and goals, along with the areas for improvement. It involves a review of the actual performance against the planned performance. The officers will be given encouragement, feedback and guidance so that they can grow as professionals and contribute more effectively to a better education system.

### Introduction to the Work Review Form and Process

In the performance management cycle, teachers are required to plan and work on their work review process in the beginning of the year. They then discuss their work review plans and form with their reporting officers. The following paragraphs will examine the work review form and its use in the Performance Management Process.

Other than the personal and service particulars, the work review form is divided into five sections. In section one, there are the key result areas. The next section focuses on the teaching competencies. Section three delves on the training and development plan for the period under review. Section four involves a report on innovations and improvements made by the teachers. Section five is for reviews and comments by the teacher and reporting officer regarding work performance, work competencies and other points. The final section is for the countersigning officer to state her or his review and comments. The concluding one-page annex consists of definitions of teaching competencies.

In the first page of the work review form, teachers will state their name, national registration identification number, age, job title, length of service and substantive grade. The substantive grade refers to the education officer appointment grade and in a way his or her position on the salary scale.

- For the graduate education officer who is the beginning teacher, there is the entry grade of general education officer (GEO) 1. Non-graduate officers will begin their career as GEO 2.
- With good performance and reliable service, he or she will eventually progress to GEO 1A1, GEO 1A2 and GEO 1A3. Non-graduate GEO 2 officers can be promoted up a similar scale.
- Excellent and experienced education officers can be promoted to the senior education officer (SEO) grades where there are the SEO 1, SEO 1A1, SEO 1A2. Master teachers and school leaders can be promoted to SEO 1A1 or SEO 1A2. Exceptional senior education officers who are usually superb school leaders or leaders in the ministry can rise to the super-scale grades starting from H, G, F and so on. The highest ranking education officer is the outstanding Director-General of Education who was recently promoted to super-scale grade C.

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- Almost all male Singaporeans undergo a compulsory two years or more of national service in the military, police or civil defense force so male teachers write their national service rank and appointment in this first page. The remaining part of this initial form will be for teachers to elaborate on the job description. They will describe the purpose of the core job and other major additional jobs.

### Section One- Key Result Areas

Section one revolves around the key result areas (KRA). The education officer, with the RO's assistance, will use this section to identify and state the targets, desired achievements and progress for the mid year and year end. These factors will be reviewed in the first half and second half of the year.

During the target setting process, the education officer will refer to the related job role profile, as well as the departmental, school and ministry annual work plans. The education officer will also regularly reflect on the progress and state the successes, along with observations, for the mid-year and year-end reviews.

Under section one which focuses on key result areas, the targets can fall in five major categories. The first major area is holistic development of students through quality learning, pastoral care and well being, and co-curricular activities. The second area is contribution to school, followed by the third area of collaboration with parents. The fourth area is professional developments and the fifth area is for other targets not within the first four areas. The achievements and progress for the mid year and year end will be stated and reviewed in the two accompanying columns beside the targets column.

### Section Two- Teaching Competencies

Section two consists of the teaching competency model, with its specific competencies, the targets and ratings. The teaching competency model encompasses one core competency and four broad competency clusters. The core competency is "Nurturing the Whole Child". The other four major competency clusters are "Cultivating Knowledge", "Winning Hearts and Minds", "Working with Others" and "Knowing Self and Others".

This teaching competency model displays the competencies that can help teacher to perform well in their roles and achieve their goals in the key results areas in section one. Teachers will be evaluated based on the performance-related competencies under the core competency and first three broad competency clusters. Though teachers will not be assessed in the final competency cluster of "Knowing Self and Others", these emotional intelligence competencies are vital for personal development.

For the purpose of performance planning and development, the teacher will discuss with the RO about the relevant competencies and related target levels. They will review the competencies demonstrated at the specific target levels expected for the job level of the teacher. The RO will give a rating of the teacher's performance in the rating scale for the different competencies.

There are four points on rating scale, ranging from "Not Observed" and "Developing" to "Competent" and "Exceeding".

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### *Nurturing the Whole Child*

Under the core competency of nurturing the whole child, there are five sub-categories. The teacher should have the passion and commitment to nurture the whole student. Firstly, through advice, feedback and discussions, the teacher should share values with the student with the aim of nurturing the whole child. Secondly, the teacher should take action by discovering the student's possibilities and taking measures to develop the student's self confidence and values. These two first sub-categories are applicable to the general education officers.

The subsequent sub-categories apply to the more senior education officers who senior teachers and master teachers. Thirdly, the senior teachers should seek for the best possible provision by acting consistently in the student's interest and striving for the best possible outcomes. Fourthly, the master teachers should encourage others in the school to join in the educational process that would help fulfill the potential of the student. Finally, the teacher-leader should actively influence policies, programs and procedures that would nurture the whole child.

### *Cultivating Knowledge*

In the first competency cluster of cultivating knowledge, there are four key competencies of subject mastery, analytical thinking, initiative and teaching creatively.

Under subject mastery competency, there are five sub-categories. Firstly, the teacher should show active interest in the subject area and awareness of related educational issues in the subject area. Secondly, the teacher should take initiative to keep abreast with educational trends and developments in the specific subject area. The teacher should expand the content knowledge in the subject. These two first sub-categories are applicable to the general education officers.

The third sub-category applies to the senior teachers and master teachers. They should apply knowledge of trends and developments in the lessons. He or she should also consistently get feedback to ascertain relevance and effectiveness. As stated in the fourth sub-category, the master teachers should develop innovative approaches by displaying and cultivating in-depth understanding of present or new approaches to future demands and needs of the education system. In the final sub-category, the teacher-leader should provide thought leadership by exploring and expanding the horizon in one's teaching field and subject area.

Within the first competency cluster of cultivating knowledge, there is the second competency of analytical thinking, which is the ability to think logically, examine the related sub-components and identify cause and effect. Within the analytical thinking competency, there are five sub categories. These are the ability to break down problems, see basic relationships and multiple relationships, as well as to analyze complex problems and develop solutions to multi-dimensional problems.

All teachers should be able to break down issues into simple lists of tasks or activities to accomplish. Teachers with GEO 1, 2, IA1 or 2A2 grades and above should be able to identify cause-and-effect relationships and prioritize tasks according to their importance. The GEO IA2, 2A2 and senior teacher should be able to see multiple relationships by recognizing links in situations and issues, as well as the probable causes and consequences of actions. The master teacher should have the competency of analyzing complex prob-

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lems by dissecting and analyzing complex processes and problems, as well as evaluating the possible courses of actions and their consequences. The teacher-leader should be able to develop solutions to multi-dimensional problems by using rigorous analytical processes and approaches to find solutions.

### *Initiative*

The third competency of initiative has also five sub-categories. Initiative refers to the desire and capability to think ahead of the present and respond to future needs, issues, and opportunities. All education officers should be able to recognize and respond to current situations, opportunities and challenges. Teachers with GEOA1, GEO A2 and above should have the competency of acting decisively in critical situations. They should be able to address potential problems before they worsen. The senior teacher should be competent enough to think and act ahead of time to optimize opportunities. He or she should also be able to identify and prevent potential problems before they happen. The master teacher should anticipate and prepare for possible opportunities or medium problems that may not be evident to others. Finally, the teacher-leader should be able to anticipate situations in the long term and create opportunities and avoid or address problems that are not evident, so as to attain long-term benefits.

### *Teaching Creatively*

In the fourth competency of teaching creatively in the competency cluster of cultivating knowledge, teachers should be able to use creative approaches and techniques to enhance the teaching and learning processes.

All teachers should be able to use routine methods to teach, as well as provide worksheets and notes. Teachers with the grades of GEO 1, 2, IA1, 2A1 and above should be able to appeal to the students' interest by using specific techniques and approaches to teach concepts, while ascertaining learning through simple questioning. GEO IA2, 2A2 and senior teachers should be able to use a variety of approaches and techniques to teach concepts, while using reflective questioning to assist students in comprehending and internalizing the concepts. The master teacher should be able to teach a range of concepts simultaneously. He or she should be able to exploit learning opportunities inside and outside the classroom, as well as to integrate concepts in interesting and innovative ways. The teacher-leader should be able to inspire learning beyond the curriculum by empowering and motivating children to be creative, independent and passionate learners.

### *Winning Hearts and Minds*

In the next competency cluster related to "Winning Hearts and Minds", there are the two major competencies of "Understanding the Environment" and "Developing Others". The competency of "Understanding the Environment" involves the "ability to understand the wider Education Service and to positively use one's understanding of the school". There are 5 sub-categories for this competency. All teachers should know policies and procedures, which include the school rules, school operating procedures and organizational structure. GEO IA1 and 2A1 officers should have the competency of recognizing organizational capabilities. They should understand the school's capabilities and reasons for people's resistance. Teachers holding the grades

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of GEO 1A2 and 2A2 and above should understand the rationale for existing policies in the Education Service. They should also know the people to approach for advice, approval and support. Senior and master teachers should have the ability to apply their understanding of school-related issues to their work. They should comprehend the climate, culture and sentiments in school and apply this knowledge to attain positive outcomes in the areas of work. They should develop activities that align school goals and targets with the wider education vision. The teacher-leaders should apply their understanding of the socio-economic forces, which impact the school and its programs. They should address long-term fundamental issues, challenges and opportunities influencing the school in relation to the external world.

There are also five sub-categories in the competency of “Developing Others”, which is defined as the “drive and ability to develop the capabilities of others and help them realize their full potential”. All teachers should be able to give suggestions, along with advice addressing immediate developmental needs. Teachers from GEO 1A1 and 2A1 grades should have the competency of providing guidance by using personal expertise and experience. They should demonstrate to colleagues and beginning teachers how to perform relevant tasks and activities. Senior teachers should be able to provide specific individualized feedback and support. They should be able to coach other teachers for their development. Master teachers should influence the professional development of others by influencing others and the school policies, while focusing on professional growth. Teacher-leaders should be able to stretch the potential of themselves and their colleagues by providing professional development opportunities and encouraging individuals to go beyond their immediate comfort zone.

### *Working with Others*

The third assessed competency cluster of “Working with Others” involves the two competencies of “Partnering Parents” and “Working in Teams”. For the competency of “Partnering Parents”, all teachers should be able to keep parents informed about activities, students’ progress and policies. Teachers from grades GEO 1A1 or 2A1 or above are expected to be able to treat parents as partners. They should convince parents that they can contribute to their students’ educational growth. Teachers from grades GEO 1A2 and 2A2 above should encourage parental involvement by sincerely accepting and valuing parents’ input and experience. They will work with parents to help students. Senior and master teachers should have the competency of working collaboratively with parents by facilitating opportunities for parents to be involved in school activities. The teacher-leaders should have the competency of building long-term relationship with parents. They should be capable of nurturing and maintaining an on-going parent community that supports the school in its activities and programs.

For the competency of “Working in Teams”, which refers to the ability to cooperate with others to achieve common goals, there are five sub-categories. All teachers should willingly help others and share information, good ideas and effective practices. They should also support and cooperate with their colleagues. In addition, they should express positive attitudes and expectations of others. They should speak positively of team members.

Teachers from the grades of GEO 1A1, 2A1 and above should have the competency of learning from others by showing a willingness to learn, along with a keenness to gather ideas, opinions, suggestions and advice from colleagues to attain the work targets and goals. They should also get feedback from others to improve his or her work. Senior teachers should encourage and empower the team by publicly acknowledging the

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team members that have performed well and empowering the members that have attained the common goals and targets. The master teachers should be able to build team commitment by bringing people together and evoking pride in the team. Furthermore, they should highlight and resolve issues that affect team effectiveness. They should also support and speak constructively about the team and its achievements to others.

These various competencies described in the teaching competency section of the work review form can enable teachers to be more effective educators in the teaching service. The competencies are defined, highlighted, selected, discussed, reviewed and evaluated with the aim that these competencies can be manifested and nurtured in the teachers. In this way, teachers can more successfully nurture the whole child and cultivate knowledge while working with others and winning hearts and minds. They can also develop themselves further by knowing self and others more deeply.

There are a number of differences in section two of work review forms for the education officers in the teacher, leadership and curriculum specialist tracks because varying competencies are being examined, cultivated and evaluated. The structure of the remaining sections three, four, five and six of the work review are similar for education officers on the teaching, leadership and curriculum specialist tracks, though the content in the sections may differ significantly from one education officer to another.

In section three, the focus is on the training and development of the education officer. The education officer will discuss with the RO about the competencies, areas of skill and knowledge that he or she would like to develop further. They will then set their training and development plans for the year. The nature of the courses and the hours will be indicated. There will also be mid year and year end reviews for this section.

There is also space for the officer and RO to state the points of discussion, which can encompass the training needs, relevance and benefits of the training and performance feedback.

Section four is about the officer's involvement in innovation and improvements. The officer can state his or her participation in activities and programs that promote innovation and continuous improvement in the school, cluster, zonal or national levels. This is in line with the desire of the ministry and country to continuously improve. In section four, the officer can describe the activities and the extent of involvement in participating and promoting innovations and improvements.

In section five, the education officer and RO will state their reviews and comments related to the competencies and work performance, in addition to other extra points that arose during the discussions. These points can include the officer's strengths, unique skills, areas of improvement, and work-related challenges. The officer can also state the goals and aspirations for the future, as well as requests for future postings. The reviews and comments for section five will be done in the middle of the year and at the end of the year by both the education officer and the RO.

For the final section six, the countersigning officer will state his or her review and comments. The countersigning officer will be an education officer who has a higher appointment or substantive grade than the education officer featured in the work review. This section provides for impartiality and room for other perspectives, in addition to the RO's comments and review.

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This work review form is part of the Performance Management Process that seeks to enhance the performance, increase the competencies and expand the potential of all education officers. Through the Enhanced Performance Management System, education officers will work with their heads, ROs and colleagues to improve themselves in terms of their competencies, training and development as professionals, so that they can successfully and effectively “mould the future of the nation”- the children and students in Singapore.

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