TOWARDS EXCELLENCE IN EDUCATION
THE SINGAPORE EXPERIENCE

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Introduction

Education has long been recognized as pivotal to the task of nation-building and in bringing about economic development and social cohesion in Singapore. Faith in the power of education to bring about social change displayed by the government soon after Singapore gained independence in 1966 continues till today. In 1966, the then Prime Minister of Singapore, Mr. Lee Kuan Yew spoke about the importance of education in bringing about qualities of leadership at the top and qualities of cohesion on the ground with a “pyramidal structure of top leaders, good executives, and a well-disciplined civic-conscious broad mass”. In 2001, the Prime Minister of Singapore, Mr Goh Chok Tong at a Teachers’ Day Rally on the 31 August spoke of the importance of education as the key to our national survival as Singapore does not have any natural resources and hence must count on the “skills and resourcefulness of our people”. With that faith is a strong commitment on the part of the Government of Singapore to invest heavily in education. In spite of the bleak economic outlook in 2001, the government promised to spend more on education, increasing it to 4.5% of GDP from the current 3.6%.

Our Educational Achievements

*We have no failing schools, an assertion few countries can make. We only have good schools, and very good schools. We have not only provided education to our young, we have succeeded in providing quality education to all of them.*

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It has been recognized internationally that Singapore has a good and high quality education system. Singapore together with Korea and Japan are at the top of the list of top performers in the world's largest comparative study of student achievement in math and science based on the standardized test scores of students from 40 countries in the Trends in International Mathematics and Science Study or TIMSS. According to the National Assessment of Educational Progress (NAEP), Singapore's success can be attributed to a synergy of rigorous curriculum, properly trained teachers and high levels of parental involvement in their children's schooling (Shartin, 2001).

Our students have also performed well in international competitions. In the 2001 International Physics Olympiad 2001, Singapore was placed 10th out of 65 participating countries in terms of medals won. In the 2001 International Chemistry Olympiad, Singapore was placed 9th out of 54 participating countries in terms of medals won. The Republic of Korea did very well in this competition and shared top position with People's Republic of China and the Russian Federation. In the 2001 Biology Olympiad, Singapore tied with Taiwan for 3rd place out of 39 participating countries. Once again, The Republic of Korea did very well and emerged as the top scorer in the competition (MOE Press Release, 23 July 2001). At the 13th International Olympiad in Informatics, Singapore emerged jointly first with Slovenia in terms of medals won (MOE Press Release, 26 July 2001). Such international comparisons and studies provide evidence for the success of our educational system in Singapore.

The MOE report on Committee on Compulsory Education in Singapore (2000) notes that "today the participation rate and achievement levels of our students are very high" (p.3). In 1999, the percentage of students with five or more "O" level passes is about 59% compared to 20% in 1980. There are now more opportunities for post-secondary and tertiary education in Singapore for our school-leavers. About 60% of each Primary 1 cohort enter either the polytechnics or the universities. We now have 4 polytechnics and
3 universities and discussion of a 4th university is underway. This is very high by international standards. At the FY2001 Committee of Supply Debate in Parliament, the Minister of Education noted that we have also been able to reduce educational wastage. In 1980, only 58% of a Primary 1 cohort completed secondary school. By 2000, the proportion was 93%.

Overview of Singapore's Educational System

Singapore has a national school system with English as the main medium of instruction. All schools follow a common curriculum in an effort to unify standards across schools. A national system also ensures that schools impart a common core of knowledge and skills and that children have a common experience which would help build national identity and social cohesion. According to current statistics available from the Ministry of Education, we now have 197 primary schools, 159 secondary schools, 4 full schools, 15 junior colleges (JCs) and 2 centralised institutes (CIs). Full schools are those functioning with primary and secondary sections (2000 data). The average school size is about 1,500 for a primary school, 1,100 for a secondary school and 1,600 for a junior college. The pupil-teacher ratio is 24.9 at the primary level, 18.6 at the secondary and 13.4 in the JCs. The ratio of pupils to teachers generally increases with the level of education. However, on average the classroom size is about 40 pupils per class. Annex 1 shows the structure of our educational system.

Students spent 6 years in primary education. There is a four-year foundation stage from Primary One to Primary Four and a two-year orientation stage from Primary Five to Six. At the foundation stage, all students follow a common curriculum which focuses on English, their Mother-Tongue and Mathematics. Music, Art and Crafts, Civics and Moral Education, Health Education, Social Studies and Physical Education are also part of the curriculum at this stage. Science as a subject is introduced only at Primary Three.
At Primary Four, students are streamed according to their learning ability at Primary Four. In the two-year orientation stage from Primary Five to Six, students are placed in one of three language streams: EM1, EM2 and EM3. All students in the EM1 and EM2 streams do English, Mother Tongue, Science and Mathematics but EM1 pupils do Malay or Chinese or Tamil as their Mother Tongue at a higher level. EM3 students do Foundation English, basic Mother Tongue and Foundation Mathematics. At the end of Primary Six, students sit for their Primary School Leaving Examination (PSLE). They are then placed in a secondary school course that suits their learning pace.

At the secondary school level, there are Special, Express and Normal (Academic)/Normal (Technical) courses. The Special course allows students to study English and Mother-Tongue at a higher level. The Special and Express courses lead to the GCE ‘O’ level examination in 4 years whereas the Normal course leads to the GCE ‘N’ level examination in 4 years. Students who do well at the GCE ‘N’ level examination stay in school for the 5th year and they sit for the GCE ‘O’ level examination. An alternative for those who cannot make it for the 5th year is technical and vocational education at the Institutes of Technical Education (ITE). Pupils in the Normal (Technical) course are prepared for a technical-vocational education with ITE. The curriculum focuses on strengthening pupils’ proficiency in English and Mathematics. Those who are academically able can continue another year to prepare for the GCE ‘O’ level examination.

Once our students have completed their GCE ‘O’ level examination, they can apply for entry to a junior college for a two-year pre-university course or to a centralized institute for a 3-year pre-university course. Entry is based on their aggregate scores of GCE ‘O’ level results. Students sit for the GCE ‘A’ level examination at the end of their pre-university course. They then apply for entry to university based on their scores of their ‘A’ level results. It is now increasingly popular for students to apply for one of our polytechnics after their GCE ‘O’ level examinations rather than do the more academic ‘A’ level pre-university course. Students with good polytechnic results can also apply for entry into our local universities.
Pre-school education is provided by kindergartens that are registered with the Ministry of Education or child-care centres that are registered with the Ministry of Community and Development (MCDS). These kindergartens provide a structured 3-year programme for children aged 3 to 6. The 3-year programme consists of Nursery, Kindergarten 1 and Kindergarten 2. Kindergartens function daily, five days a week, with schooling hours ranging from 21/2 hours to 4 hours each day. Kindergartens in Singapore are run by the private sector and these include community foundations, religious bodies, social organizations and business organizations.

Special education for children with disabilities is provided in Special Education schools. These schools are run by Voluntary Welfare Organizations (VWOs) and they receive some funding from Ministry of Education and the National Council of Social Service (NCSS). These children with disabilities are unlikely to benefit from mainstream schooling. There are however children with disabilities who do join mainstream schools, for example, the hearing impaired children and blind children.

Annex 2 shows the curriculum structure and instruction time in the national school system in Singapore covering the Foundation Stage (Primary 1 to 4); the Orientation Stage (Primary 5 to 6), the Lower Secondary (Secondary 1 to 2), Upper Secondary (Secondary 3 to 5) and Pre-University.

The Vision for Singapore Schools

The Ministry of Education, essentially the caretaker of the educational system in Singapore, has in recent years articulated a clear statement of its vision for Singapore schools as “Thinking Schools, Learning Nation (TSLN)”, its mission as “Moulding the Future of the Nation” and its goal as the “Desired Outcomes of Education” at each stage of the schooling process (Gopinathan, 2001). It is increasingly recognized that for Singapore to remain competitive in the 21st century, the educational system must broaden its focus beyond examination results and discipline. Indeed our students do well in
examinations and integrate successfully into our disciplined workforce. But to meet the challenges of the 21st century, the educational system must produce creative and critical thinkers with an enthusiasm to learn new skills and ideas and the ability to communicate effectively. This is the vision which the Prime Minister, Goh Chok Tong spoke about in his keynote address to delegates to the International Conference on Thinking on the 2 June 1997. He wanted Thinking Schools to be “crucibles for questioning and searching, within and outside the classroom, to forge this passion for learning among our young ... and Singapore a Learning Nation that goes beyond schools and educational institutions” (Goh Chok Tong, 1997).

TSLN focuses on developing all students into active learners and on developing a critical and creative culture within schools. Its key thrusts include (i) the explicit teaching of critical and creative thinking skills; (ii) the reduction of subject content; (iii) the revision of assessment modes and; (iv) a greater emphasis on process instead on outcomes when appraising schools (MOE, 1997).

Thinking, IT and NE Initiative for Schools

As part of the TSLN framework, a fundamental review of the curriculum and assessment system was made to infuse thinking, information technology (IT) and national education (NE) in the school curriculum. The content of the curriculum for schools was reduced by up to 30% for most subjects to encourage teachers and students to spend more time on projects that will develop critical and creative thinking. IT was to be used to “develop communication skills and independent learning” and National Education was used to develop “stronger bonds between pupils and a desire to contribute to something larger than themselves”. (Goh Chok Tong, 1997). The curriculum review also recognized that our students must retain mastery of core knowledge that will provide the basis for future learning. High standards were expected in the school curriculum to stretch our students and to keep them striving for excellence.
The goal of the various recommendations in the External Curriculum Review Report 1997 was to ensure that the school curriculum will lead to our students becoming GOOD LEARNERS who “view education as a lifelong process and develop a passion for continuous learning”, GOOD CREATORS who “not only have the measure of discipline found in our current workforce but display independent and innovative thinking”, and GOOD COMMUNICATORS who are “effective team players, able to articulate their ideas confidently”. (MOE Press Release, 21 March 1998). A key recommendation is the systematic incorporation of project work in the school curriculum. Inter-disciplinary project work was conceived as an important means of developing self-directed and independent learning and creative and critical thinking in students. It soon will become part of the national assessment system. For example, the Committee on University Admission recommended that project work should be counted as part of admission requirements into the university (MOE Press Release, 12 July 1999)

The Masterplan for IT in Education was also launched in 1997. The IT Masterplan is an ambitious attempt to incorporate IT in teaching and learning in all schools as a means to develop thinking skills, learning skills and communication skills in students. The government has been generous and committed US$1.2 billion for physical infrastructure and for IT training of teachers. By the year 2002, the IT Masterplan envisages a pupil-computer ratio of 2:1 in every school, allowing for up to 30% of curriculum time to be IT-based, a teacher-notebook ratio of 2:1 with continuous training for every teacher in the use of IT in teaching and whole-school networking in every school. With fully networked schools, teachers and students can extend their learning beyond the boundaries of their classrooms and access educational resources almost anywhere in the world.

Education initiatives in Thinking and IT for schools were intended to equip our students with the necessary skills and mindsets to respond to a future of rapid and continuous change. But equally important is the need to cultivate national instincts in our students as part of National Education (NE). Prime Minister Goh Chok Tong at a Teachers’ Day Rally on 8 Sep 1996 highlighted the importance of national education as “a vital component of our education process….and to “engender a shared sense of nationhood, an
understanding of how our past is relevant to our present and future. It must appeal to both the heart and mind" (Goh, 1996). Deputy Prime Minister Lee Hsien Loong at the Launch of NE in May 1997, mentioned that many Singaporeans especially, pupils and younger Singaporeans knew little of the nation’s recent history and achievements. NE would help them acquire the right instincts to bond together as one nation and maintain the will to survive and prosper in an uncertain world. Its aim was to develop national cohesion, the instincts for survival and confidence in our future. This is the cultural DNA to be passed from one generation to the next (Lee, 1997).

Project teams were tasked to develop strategies and measures for the implementation of NE in schools and tertiary institutions. The purpose of NE is to “develop national cohesion, the instinct for survival and confidence in the future by fostering a sense of identity, pride and self-respect as Singaporeans, by knowing the Singapore story – how Singapore succeeded against the odds to become a nation, by understanding Singapore’s unique constraints and vulnerabilities which makes us different from other countries; and by instilling the core values of our way of life, and the will to prevail, that ensured continued success and well-being (MOE Press Release, 16 May 1997).

MOE recommends that NE be taught through both the formal and informal curricula in schools. In the formal curriculum, NE would be mainly introduced in subjects such as social studies and civics and moral education at the primary level, history, geography and civics and moral education at the secondary level and general paper and civics and moral education at the junior college level. In the informal curriculum, schools commemorate events like Racial Harmony Day, International Friendship Day, Total Defence Day and National Day. Pupils also participate in activities such as Learning Journeys, where they visit key national institutions and economic facilities, such as Parliament, SAFTI, water treatment works, the port, or stock exchange. Through these activities they acquire a deeper understanding and appreciation of the challenges, constraints and vulnerabilities facing Singapore.
As part of NE, pupils will also take part in Community Involvement Programme (CIP), where they undertake community projects to strengthen social cohesion and civic responsibility among the young. While younger children take care of their school grounds and keep common areas clean, the older pupils may adopt an orphanage or old folks' home, or take on long-term community projects like keeping a park or a residents' corner clean.

The Ability-Driven Education System (ADE)

The reforms that were described in the TSLN framework such as Thinking, IT and National Education represents a shift in our educational system from an efficiency-driven education to an ability-driven education. In the efficiency-driven education phase, key policy changes in the New Education System introduced in 1978 such as ability streaming, curricular changes and school management were an effort to reduce educational wastage. The aim was to provide each child with an education that will enable him to reach his fullest potential. In this efficiency-driven phase, the system was made more responsive to the learning needs of broad groups of students in the different streams. The ability-driven education is similar to the efficiency-driven education in that it also aims to maximize the potential of each child. However, the efficiency-driven education emphasises mainly academic achievement whereas the ability-driven education seeks to develop the full spectrum of talents and abilities in each child through a mass customized approach to education. (FY2000 Committee of Supply Debate, MOE, 2000) Under this new paradigm, the focus is now on holistic education with greater emphasis towards developing character, engendering self-motivation, discovering the capacity and nurturing understanding rather than just imparting knowledge and content.

School Leaders and Teachers as the Keys to Educational Reforms

The vision of Thinking Schools, Learning Nation (TSLN) and the national educational policies on introducing thinking, IT and national education in schools are indeed bold
plans of the Ministry of Education. The success of such plans and the shift from an efficiency driven education to an ability driven education however depends a great deal on school leadership (principals and heads of departments) and teachers. These people are indeed the key to ensuring the success of these educational policies and reforms.

MOE has now become less prescriptive and school principals are given more latitude in their decisions on how teaching and learning can take place. More schools have been accorded autonomous status. Autonomous schools receive additional funding to develop a wider range of programmes to stretch the capability of their students as well as additional flexibility in the implementation of school programmes. A new self-appraisal system for schools called the School Excellence Model (SEM) is now in place in schools. It is an effort to move schools beyond academic grades to school achievements in other areas that contribute to the Desired Outcomes of Education. The model measures both results and processes in education.

Teacher training programmes at the National Institute of Education (NIE) also received attention. NIE was re-organised to be programme-driven so that it can be more responsive to the needs of schools and the Ministry of Education. A committee chaired by Dr Aline Wong, Senior Minister of State for Education carried out a fundamental review of the teacher training system with the objective of preparing teachers to meet the challenges arising from the various changes in the educational system. (MOE, 1999).

Teacher training was conceived as Initial Teacher Training (ITT) and Continual Training. Initial teacher training comprise 2 levels – Foundation Training and Induction and Basic Training. The primary emphasis at the Foundation Level is on values education for teachers, followed by knowledge and some core skills and competencies. The Committee has also drawn a set of Desired Outcomes of Initial Teacher Training to guide the design of the teacher training curriculum. Schools and the Ministry of Education provide the basic and induction training during the teacher’s first year in school so as to attune the teacher to the school culture and ethos. Teachers in the first year of teaching was also given four-fifths of the normal responsibility load in their first year to enable them to observe classrooms and undergo on-the-job training.
Teachers are also encouraged to continually upgrade themselves and MOE has provided more opportunities for teachers to pursue further studies. Teachers are also entitled to 100 hours of training as part of their professional development. There were several proposals to make continual training more "teacher friendly" and to encourage teachers to continually upgrade themselves.

Indeed, teachers are at the heart of the educational reforms and the changes that the Ministry of Education so desire to bring about in our schools. They need to be fully committed to the vision of TSLN and the key thrusts of the ability-driven educational system. They need to be role models in thinking, learning and innovating. They must be prepared to explore, experiment and learn together with their students and to be facilitators of learning rather than dispensers of knowledge. They require a different set of skills and a different mindset. Hence, the professional development of teachers become very important. The Minister of Education has announced a new career structure for teachers, Edu-Pac or Education Service Professional Development and Career Plan (Ministry of Education, 14 April 2001). It has 3 main components: a new career structure – a teaching track, a leadership track and a senior specialist track; a new recognition structure that recognizes and rewards good performance as well as provides learning and development opportunities and enhancements to the performance management system.

Conclusion

Singapore cannot afford to be complacent and rest on the laurels of its past and current achievements. As a country, we have to cope with the challenges of globalisation and rapid technological change in a world that is constantly changing around us. Schools must equip Singaporeans to compete in the global marketplace. Schools must nurture future generations of Singaporeans with a global mindset and strong national values. The educational policies outlined in the Thinking Schools, Learning Nation framework of our ability driven education system have set the wheels of rapid change in motion since they were announced in 1997. The government and the Ministry of Education have
invested tremendous resources in terms of time, energy and money to support all
stakeholders in this process of change. Indeed education is an investment in the future of
Singaporeans and Singapore. As educators we need to respond to these changes and
work together towards a common vision of what we want to achieve and where we want
to go.

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