

7th Hitachi Young Leaders Initiative
Sub-Theme: The Changing Role of Education in a Dynamic Asia
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Introduction

First, I wish to begin by thanking Hitachi for inviting me to share my thoughts at this forum for the 7th Hitachi Young Leaders Initiative. It is my privilege and pleasure to be a part of this forum along with so many future leaders of Asia.

Today, I have been asked to speak on “the changing role of education in a dynamic Asia”, one of the sub-themes of this initiative. Asia is a big heterogeneous region. It comprises countries that are in different stages of political, social and economic development. Some countries are struggling with issues such as basic schooling and school infrastructure, the education of girls and women, putting together a coherent curricula and universal state supported education to non-urban areas. There are also countries such as Singapore, Malaysia and Japan where issues pertaining to basic education have been generally dealt with. Given this diversity in Asia, I cannot claim to be able to share with any authority the changing role of education in Asia as a region. Instead, I have decided to take the case study approach of using Singapore, a country within Asia, to examine the issues of the changing role of education facing my country.

I intend to share with you the challenges facing Singapore’s education system and the Singapore response to these challenges in terms of the key strategies adopted. I will end my presentation on a personal note by sharing some ideas of how to bring about educational changes in a system based on my experiences. I hope that there will be lessons that you can draw from my sharing, and that you can adapt some of the ideas presented to critically reflect on education in your respective countries.

Impetus for Educational Changes in Singapore

As you are probably aware, Singapore is ranked among the top 10 countries out of over 100 countries in the Global Economic Competitiveness report as compiled by the Swiss-based World Economic Forum. In education, for the 2004-2005 report, Singapore is ranked number 1 and 2 for the quality of mathematics and science education and the quality of educational system respectively. In the recent 2003 Trends in Mathematics and Science Study or TIMSS for short, Singapore was number 1 for both Mathematics and Science education. Singapore is recognised as one of the leaders in the use of IT in education. So, what is the impetus for change in education for Singapore?

If we look around us, we know that the global landscape has changed and is changing constantly. The global economic landscape has become more competitive. The world now faces constant threats from international terrorism. We have to deal with natural calamities such as SARS, the recent Tsunami disaster around the Indian Ocean and droughts. This is a new and complex world. In Singapore, we cannot assume that the educational policies or formulas that have served us well in the past will continue to sustain us into this uncertain future. Singapore is a small country and does not have any natural resources except her people. Therefore, investment in a high quality education system must be one of the key strategies that Singapore must adopt to ensure her continued survival as a nation in a changing global landscape. Singapore must continually reinvent and adapt to this changing landscape. So, moving forward, what are the challenges that Singapore’s education system must attempt to address?

Challenges Facing Singapore Education

The driving forces that affect education in Singapore are essentially the same ones that shape Singapore's future and sustained economic growth in a more uncertain world which faces constant threats from international terrorism and natural calamities. The key driving forces are the emergence of the knowledge economy, globalisation and the rapid advances in science and technology. These are certainly not unique challenges facing Singapore alone but all countries in the world, including those in Asia.

With the emergence of the knowledge economy, the source of competitive advantage among countries does not depend on purely the abundance of material and human resources but on creativity, innovation and risk taking i.e. the ability of human resources to constantly generate new knowledge and ideas that lead to new products and services.

Globalisation has transformed the world into a global village where countries are becoming increasingly interconnected and inter-dependent on one another in an almost seamless transfer of goods, energy resources, capital, information, and ideas. The production of goods and services is based on the inter-connection and integration of supply chains that extend across multiple regions and are dependent on just-in-time deliveries.

The rapid advances in science and technology have speeded up the pace of globalisation and the move towards a knowledge-based economy. They impact not only the economic development but also the social and political development of countries. For example, advances in information and communications technologies have not only made the world a smaller place to do business but have also produced an Internet generation that operates on a 24/7 basis, who often seeks almost instantaneous gratification and the need to be constantly entertained. Similarly, advances in medical sciences have not only brought about new cures to diseases but have also created new problems in medical ethics such as issues on cloning research.

It should be obvious that these driving forces are not independent of one another but are inter-related. These driving forces, when taken together, present a set of challenges as well as opportunities. There will be an increasing divide between individuals, corporations and countries that understand the nature of the knowledge economy, know how to work in a globalised world and are able to harness technologies effectively from those who are unable to do so. All these take place in an uncertain operating environment where there are constant disruptive threats from terrorism and natural calamities. So, how can education prepare Singapore students to deal with the challenges ahead and to take full advantage of the opportunities avail to them?

Education for the Future

In recent years, we have been repositioning the education system to better prepare our Singapore students to meet the challenges of a new, complex and uncertain future that has become increasingly more competitive. As a country, we need to move away from the old formula of just being better i.e. being cheaper, more productive and more efficient than others, to being different i.e. being able to create new market space, new value propositions and finding or creating the next killer product or service. Instead of just finding the right answers to long-standing problems and well-identified needs, we need to focus on asking the right questions to define new problems. We will have to learn to operate within a new environment where there might not be a ready answer, where there might be a range of possible answers, or an answer could only be found by trying. We would have to learn to deal with ambiguity. We need to be nimble, proactive and respond quickly and flexibly to changes.

Therefore, education will need to empower Singapore students with minds that are constantly thinking and asking questions, and with a sense of belonging to the country to want to focus their energies and efforts in building a better Singapore. Education will need to facilitate every individual to find their own talents and be confident of their own abilities. Singapore students will need to develop the toughness of mind and spirit to face the demands of the new and complex world where there is much ambiguity and the inevitable setbacks that would be encountered,

and be willing to work hard to achieve their dreams. Education should celebrate and positively encourage a diversity of talents. To engender a creative and innovative mindset, education will need to work hard to avoid the convergence of ideas. So, how can we achieve our goals in education?

Key Strategies for Education

I would like to share some key strategies that the school sector in our education system is adopting in moving forward to meet the future challenges ahead. They are:

- Providing greater diversity and choices in learning;
- Emphasizing holistic education;
- Fostering an innovation and enterprise culture;
- Building capability and capacity of teachers and school leaders;
- Building capability in educational research.

Diversity and Choices

In order for our students to discover their talents and to nurture a diversity of talents among them, we need to provide educational programmes where the students will be able to enjoy their learning and be motivated to learn. By providing more choices in learning, we are also creating more opportunities for students to take responsibility to shape their own decisions in life and to develop their passion and self-determination to pursue their aspirations. In turn, they will be able to shape the kind of Singapore that they want for the future. Therefore, we have moved towards a more flexible education system that provides new types of schools and programmes with alternative curricula and more customised approaches to learning for students with different abilities. At the system level, the education landscape has become more variegated to cater for the diversity of talents. At the curricular level or course level, students are given more choices in terms of subject offerings and the level at which they could offer these subjects based on their interests and abilities. I will now give some specific examples of the key changes made to the system leading to a more variegated educational landscape in Singapore.

In the past, we had only independent schools, autonomous schools and government/government aided schools. Recently, we established **specialised independent schools** to cater for special talents and allowed a few **privately funded schools** to open and provide their own models of education¹. In 2004, we started a sports school in collaboration with the Ministry of Community Development, Youth and Sports. In 2005, we established the NUS High School of Mathematics and Science to nurture young talents in these subjects. In 2007, we will be opening a school for the Arts in collaboration with the Ministry of Information, Communications and the Arts. So far, two private schools have been started, namely, Anglo Chinese School (International) and Hwa Chong International School.

In 2004, four schools started offering **integrated programmes (IP)** to students in the top 10% of the cohort. IP programmes allow students to by-pass the national examinations (GCE 'O' level examination) at Secondary 4 (or Grade 10) to proceed on to sit for the national examination (GCE 'A' level examination) at the end of Pre-university 2 (or Grade 12) after 6 years of

¹ **Independent schools**, first started in 1988, enjoy autonomy in setting their own scale of school fees, admission of students and implementation of school programmes and administration. **Autonomous schools**, first started in 1994, have greater autonomy and additional funding compared to government and government aided schools to provide a wider range of innovative and enrichment programmes. They may also charge additional miscellaneous school fees.

secondary education cum pre-university education. As the IP students will not need to sit for the national examinations at the end of Secondary 4 (or Grade 10) to proceed on to pre-university education, the IP schools could provide less structured innovative educational programmes that emphasize holistic education. IP schools are able to set their own admission criteria so long as they are transparent and merit-based.

Holistic Education

While providing our Singapore students with a strong academic foundation in academic and technical knowledge and skills remain important and necessary, these will not be sufficient. In order to nurture the complete person where there is a ruggedness of mind and character that will help them take failures in stride, look for new challenges to overcome and to build a better Singapore, we have to achieve a good balance of the academic and non-academic or co-curricular programmes. We have strengthened our efforts further in bringing about holistic education for our students i.e. to bring about greater social and emotional learning.

Schools could enhance character development through co-curricular activities such as sports, uniform groups and community services. The growing-up years in primary and secondary schools are the critical period when values are formed and character is shaped. Schools would need to better address the growing need to inculcate strong values in students, motivate them and develop robustness of character. We are providing schools with more resources in terms of manpower, funding and programme support. Character development is also an important dimension of the masterplan of awards to recognise school excellence.

National education (NE), as part of the formal and informal curriculum, remains an integral aspect of our educational programmes to equip our students with the basic attitudes, values and instincts that make them Singaporeans. Within the Ministry, there is a branch that works with schools to support the implementation of NE. We continue to recognise the innovative and effective implementation of NE programmes by conferring the Lee Kuan Yew National Education awards to deserving schools. NE is not a sole responsibility or purview of the Ministry of Education but there is a coordinated national effort to provide the necessary organisational support and resources for NE.

Innovation and Enterprise Culture

With the uncertainties in the more complex world around us, we need to prepare our students to face the future challenges with confidence and to seize the opportunities that come their way. Hence, we have initiated an innovation and enterprise or I & E journey in our schools. I & E journey is not a one-off effort but will be a continuing journey to nurture and foster a culture or mindset in our school leaders, teachers and students. It is not a single set of activities that our schools or teachers perform. It is not solely about setting up entrepreneurship clubs in schools.

We emphasize to the schools that I & E is about a culture where our students have the space to develop passion for what they do and to realise their unique talents and abilities. I & E is about getting our students to have intellectual curiosity to question assumptions as they learn and develop a certain boldness to never be satisfied with existing explanations and knowledge. Through co-curricular activities, we want students to develop ruggedness and resilience in overcoming challenges that come their way. I & E should imbue in our students a sense of team work and a culture of “giving back” to the community.

We encourage and promote the development of I & E culture through creating forums at school, cluster, zone and national levels that celebrate and share I & E best practices and activities as well as showcase I & E projects undertaken in the schools. We emphasise that schools need to creatively prioritise and balance the range of activities so that the students have the time and space to develop their passion and realise their potential more fully.

Capability and Capacities of Teachers and School Leaders

While it is easy to invest in school infrastructure to build modern schools with state-of-the-art facilities with the financial resources available, the greater challenge is to build the capability and capacity of our school leaders and teachers. We need to enable our school leaders and teachers to nurture our students to be excited and passionate about learning so that they can be the best they can be with the resources that we can provide. Without good teachers, we cannot provide meaningful diversity and choices in learning for our students. We cannot guarantee holistic education for our students. We need good teachers filled with the I & E mindset to influence our students to adopt a similar mindset. Good teachers are the key, as the Minister for Education pointed out, in taking education beyond “filling a vessel with knowledge” to “lighting a fire” in our students. Hence, we have increased our resources and support to the schools to help our school leaders and teachers in carrying out their mission of “lighting a fire” in the students under their care.

In order to enable our teachers to take education to a higher level, we will provide them with more time and space to reflect on their professional practice, to bring about innovations in learning, and motivate and inspire their students. We will also help them to build their capabilities and capacities as professional educators.

We are gradually stepping up the recruitment of teachers so that we do not compromise on the quality of teachers recruited. By 2010, primary and secondary schools should have about 10 more teachers while Junior Colleges and the Centralised Institute should have the equivalent of 8 more teachers. We will not dictate how the additional teachers should be deployed within the schools. School Principals are given the autonomy to decide on how best to use the additional teacher resources as they have the professional expertise and better understanding of the needs of their schools. They could decide to, for example, reduce class sizes across the board or to adopt flexible class arrangements such as having two teachers in a class for some subjects. With more teachers in schools, teachers should have more time to plan their lessons, think about innovative ways of teaching their subject and to engage one another in professional exchanges.

Besides having more teachers, we will provide one full-time counsellor to every secondary school by 2006 where there is an urgent need, and one to all other schools by 2008. In addition, we will also train 2 more teacher-counsellors in our secondary schools. We have put in place an Adjunct Teacher programme to allow schools to recruit trained teachers who have left the profession and wish to re-join on more flexible work arrangements than the current relief teaching scheme allows.

We have increased the manpower grant for all schools to recruit additional staff to support the teachers and the educational programmes in the schools. We have also initiated a new programme called School-based Excellence in Primary Schools in January 2005 to provide additional funding of up to \$100,000 per school to develop niches of excellence in educational programming that could benefit their students.

We have introduced the "Education Service Professional Development And Career Plan" (Edu-Pac) for teachers to develop their potential to the fullest. Teachers have a systematic career development plan along three tracks – teaching, leadership and specialist track to meet the different aspirations. Through Edu-Pac, we have made a career in teaching more attractive and rewarding. We recognise outstanding teachers through awards such as Outstanding Youth in Education Award, President's Award for Teachers and Caring Teacher Award.

In order to create more professional development opportunities for teachers, a set of Professional Development Continuum Models have been developed to provide a structured path for teachers to obtain higher professional certification through in-service training courses and scholarships. These include undergraduate and postgraduate degrees as well as milestone programmes for teachers playing various roles – as beginning teachers, experienced teachers, senior teachers, heads of department, principals, etc.

Under the Professional Development Leave (PDL) scheme, we have made it easier for teachers to pursue further academic studies. As part of the options under the PDL scheme, we have a Teacher Work Attachment scheme that provides teachers with the opportunity to step out of their local school environment for overseas teaching or work attachment to local or overseas non-teaching organisations to broaden their experiences and gain fresh perspectives on education.

We are continuing to explore more avenues to create additional time and space for teachers to reflect on professional practices, to share with one another professionally and to grow professionally.

Capability in Educational Research

As we move ahead, our ability to create value will depend on our imagination and willingness to experiment and to put new pedagogical approaches to the test. We need to evolve our teaching and assessment methods so that we reduce the need for students to memorize large chunks of information for examinations. We cannot change the education system in one go but must take informed meaningful steps to take us forward towards our goals in education. Hence, we need to invest in educational research to inform our practices and experimentation.

To build the capability in educational research, there is now a greater alignment of research at the National Institute of Education (NIE) with the needs of the Ministry. NIE is the sole teacher training institute in Singapore. The Ministry of Education has invested in the establishment of the Centre for Research in Pedagogy and Practice at NIE in 2002 to provide a future oriented research agenda that will be useful in understanding and driving innovative pedagogical practices in schools in years to come. The research findings will be one of the bases for educational policy and decision-making that leads to innovative educational implementations in Singapore schools. More recently, in 2005, the Ministry of Education has also invested in the establishment of the Learning Sciences Laboratory to spearhead research that focuses specifically on the transformation of pedagogical practices, enabled by ICT, in the schools. The findings from the research undertaken at NIE will inform not only pedagogical practices in the schools but also the professional development of teachers starting from initial teacher training to in-service teacher training

Making Educational Changes

I will end by sharing just three key points on bringing about changes to an education system based on my 20 years of experience in education.

First, we should recognise that education is essentially a human enterprise. It is about people. While providing hardware and school infrastructure are important, success in making important changes to an education system really depend on how well we are able to engage and convince the school leaders and teachers. It is essentially about changing a prevailing school culture and people mindset. It is about identifying and engaging the key change agents in your education system. All these will take time. If there is a trade-off that is needed to be made, I believe that you will be better off investing your resources and efforts on school leaders and teachers than in hardware and school infrastructures. Committed and convinced school leaders and teachers can do a lot for their students with limited hardware and poor school infrastructure. The converse is not true.

Second, which is a point related to the first, is that if one should have limited resources to invest, then one should not attempt to distribute the resources evenly among all school leaders and teachers but should skew the investment to supporting the best people in your education system. When your best people are committed to your country and are imbued with a sense of

giving back to the community, your investment in them will be multiplied many folds as they are your key change drivers in dealing with any challenges ahead to provide a better future for all the others in your system.

Third, we should all appreciate that there is a long timeline in making changes to an education system. There are no quick fixes. There are no fast solutions. The full impact of the changes that one makes to an education system will take as long as at least 12 years to realise the full benefits or the negative consequences, for that matter. The strong and robust education system that Singapore has today is not a consequence of the policy changes that were made in the last few years but a product of the careful and deliberate planning and policy adjustments made since Singapore's independence. We will only know fully the consequences of the recent policy changes that Singapore has made in about 10 years' time.

Thank you.