"Education for Competitiveness and Growth"
Singapore Conference in Washington D.C. on 8 Feb 2012

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1. Welcome to the Education segment of the Singapore Conference.

   a. I am joined today by a number of distinguished panellists including:

      i. Joanne Weiss,

      ii. Linda Darling-Hammond, and

      iii. Jessica Kehayes.

   b. Ching Yee and I look forward to having a dialogue with you. But let me first say a few words.

The Goal and Context of Education

2. The theme of this segment is "education for competitiveness and growth." This is an important topic, but let me start with three caveats.

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3. First, education is fundamentally about developing the unique individual, helping him to discover and develop his interests, talents and strengths, so as to fulfil his potential and aspirations. It is about developing the whole person, enabling him to lead a full, creative, and meaningful life.

4. Second, as no man is an island, education helps us to appreciate our roles and responsibilities to our fellow men, as citizens of our nation and as a member of our global community.

5. Third, education is an important pillar for a competitive economy. While a competitive economy needs many more elements such as a whole set of micro-economic, macro-economic, and structural policies to drive competitiveness, innovation and productivity, education is a key component. Education can create a virtuous circle that supports and drives a country's competitiveness.

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6. While education has intrinsic value beyond the economic, it is also true that how far one can have a productive and meaningful career depends on the opportunities created in the economy. The more vibrant and sophisticated the economy, the more individuals can fulfil their aspirations, and the more governments will have the resources to invest further in education. The high unemployment among youths and fiscal crunch in some countries is a stark reminder of this basic reality. Many countries are thus putting more attention on how education can be harnessed to improve their economic outcomes.

7. The US has always had peaks of excellence in education, with institutes of higher education that are magnets for talent from around the world. Even so, there continues to be a strong desire in the US to improve the quality of education, through policies such as No Child Left Behind, and more recently Race to the Top.

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8. Ultimately, our education policies and priorities have to be seen in the context of the country's stage of development and the challenges it faces at each point. Allow me to briefly share Singapore's context. Despite our short history, we have evolved through a few phases in our education journey, as circumstances changed:

a. Survival-Driven. In the two decades after independence in 1965, our core concern was to survive and to build a nation out of immigrants in an ex-British colony. Education had to build social cohesion and national identity. Faced with low student enrolment and mass unemployment, we had to quickly build schools and equip all our people with basic skills that made them employable in labour-intensive work.

b. Efficiency Driven. When our survival was more assured in the late 1970s, we needed to improve the efficiency of our system – drop-out rates were high despite us having achieved high enrolment rates. Education was geared to become more efficient and effective through streaming and a standardized curriculum and through the acquisition of industry-relevant skills.

c. Ability-Based, Aspiration Driven. More recently, the late 1990s saw us transiting into a knowledge-based economy. Our focus shifted to developing a broader range of skills such as critical thinking and creativity, and to devolving more autonomy to our schools to encourage innovation and cater to a wider variety of interests and aptitudes in our students.

9. In short, our challenges can be summarised as:

a. A small economy which must stay open to remain relevant to the world, but which then acutely feels the effects of globalisation;

b. An economy with no natural resources and which must by necessity develop our people to their fullest to survive; and

c. A young immigrant nation with a multi-racial, multi-religious make-up that must stay cohesive.

10. In sum, our circumstances force us to take education very seriously because it is critical to our survival and success. Education shapes the future of our nation.

The Key Challenges and Key Thrusts in the 21st Century

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11. But what will the future bring? If the past is any guide, the 21st century promises to be one with even more intense and pervasive changes, brought about by:

a. The Accelerating Rate of Technological Change;

b. Increasing Globalization;

c. Shifting Economic Weights, with emerging markets catching up and growing faster, especially in Asia;

d. Volatility, as the global economic and financial systems become more interconnected;

e. Pressure on resources;

f. Rising aspirations of citizens all over;

g. Demographic changes, especially ageing in many developed economies.

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12. The upshot of these changes is profound, but let me highlight just three in terms of jobs and the attributes for success.

First, economic structures around the world will grow more complex, with new jobs requiring different skill sets and inter-disciplinary approaches.

Second, talent will come in many shapes and sizes, sometimes in unexpected forms, so we need to allow each individual to develop their potential to the fullest and to build interweaving layers of talent and skills.

Third, we can expect a faster rate of change, which means everyone has to have fundamental skills to stay adaptable.

First: Help Every Child Access the New Economic Future

13. The world economy has become and will be even more complex and differentiated. Manufacturing of goods – the "Physical Economy" – will remain important in meeting our physical needs and wants. But it has become very efficient - integrated supply chains now allow for goods and components to be produced in the most cost efficient locations. Companies now produce everywhere and sell everywhere.

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14. The mix of jobs is changing in economies. This has been the experience of Singapore. The lines between services and manufacturing are blurring. Rolls Royce sells "hours of engine power", not units of engines.

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15. Within the services economy, there has been a quiet revolution. "Traditional Services" have fallen in relative terms, while "Modern Services' have grown.

16. The “Physical Economy” of goods is increasingly overlaid with the “Digital Economy” in the virtual realm, the “Knowledge Economy” in the information realm, and the “Experience Economy” in the services realm.

17. To illustrate:

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a. Take Apple. It derives revenue from the sale of iPads and iPhones, but also from the Apps store in the digital realm. Steve Jobs sold an experience – a desire, not just a product.

b. In the digital world, an application, once created, can be consumed by billions around the world with minimal recurrent cost. Rewards therefore go to those who are creative and enterprising;

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c. The original Human Genome Project started in 1990, took 13 years and nearly $4 billion dollars to complete. Just last month, a private company in California announced a machine that will map an entire genome for $1,000 in one day. The implication of what we can possibly do with this data is astounding.

18. Jobs therefore do not have such clearly defined boundaries and skills. But the good news is that the more complex and differentiated economic structures mean a greater variety of jobs, requiring a wide range of skills.

19. Hence, to prepare our students for the future, it is critical for us to have some notions of the variety and demands of the jobs of the future. The education system can then tailor the right skillsets for each individual. Not all the jobs will require academic degrees. Indeed, in many areas, practical, hands-on skills are valued.

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20. But in whatever area, deep skills, high standards and strong motivation will be needed. Ten years of basic education is necessary but not sufficient. Today, over 95% of our students pursue post secondary education – nearly 30% in the universities; over 40% in the polytechnics and nearly 25% in ITE. Many progress further beyond these first stages.

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21. Let me highlight that our consistent focus on industry-focused managerial, technical and vocational skills has borne fruit. The courses at the polytechnics and the Institute of Technical Education are rigorous and have a strong focus on skills acquisition, both generic thinking skills and specialised technical skills.

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22. We have found alignment with industry needs to be critical, and to ensure this, the boards of directors of these institutions are industry practitioners; lecturers are expected to do projects; and students are required to do industrial attachments. We also invest heavily in the facilities at polytechnics and ITE – to ensure that the latest equipment in use in the industry is deployed for teaching.

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23. To maximise flexibility at the system level, we seek to preserve a strong focus on Science, Technology, Engineering and Mathematics in education. Whatever the changes in the future, a basic and rigorous grasp of science, technology and mathematics will equip our students well for change. Hence, in both the basic curricula and in the offer of post-secondary courses, we have a strong emphasis on this. We believe this is an important foundation for innovation.

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24. At the same time, communications skills will be critical. For this reason, we place strong emphasis on learning English, the language of international business, and the mother tongues, to connect our students to their heritage in Asia and increasingly, to multilingual communities globally. Every student in Singapore learns a 2nd language, with those who are able learning a 3rd language. With Asia likely to grow, our bilingualism policy gives our students an added edge.

Second: Student-Centricity

25. Second, to enable individuals to build knowledge and skills for the future, we need to design the education system to be centred on our students' aspirations and interests, and integrate these with the broader system perspective.

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26. To achieve this, we have sought to create multiple pathways, to turn the different interests and strengths of individuals into a set of deep skills and competences which are in demand in the market. These different pathways cater to all students and are well articulated throughout the system so that no one is left behind.

27. We seek to match the strengths and aptitudes of each student to help them achieve their potential. This does not necessarily mean that everyone gets to do the course of his choice, as entry into specific programme is competitive to maintain rigour and standards. What we seek to do is to have bridges and ladders linking the multiple pathways, so that success at one stage allows one to connect to the next stage – there is no dead end, as long as one strives.

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28. Education is also a key enabler of social mobility. We cannot guarantee equality of outcome, but we seek to provide equal opportunity for every student. We thus:

a. Ensure that no child is deprived of educational opportunities because of their financial situation;

b. Leverage on our school system to provide more support for families from poorer backgrounds;

c. Invest in pre-school education targeted at children from families with poorer backgrounds; and

d. Invest in levelling-up programs in primary schools that attempt to level up academically weaker students in both English and Mathematics, so as to improve their foundations for future learning.

Third: Build Fundamental Values and Skills

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29. With faster changes brought by globalisation, technological advances and disruptive innovation, the nature of jobs and the skills required will change, often in unpredictable ways. So however hard we try to maximise linkages with the industry today, we cannot predict what tomorrow will bring.

30. It is therefore critical for us to equip each student, when they leave school, with the basic knowledge and motivation to be lifelong and adaptable learners. To help our students meet the challenges of the future and acquire 21st century competencies, we recently embarked on a "values-driven, student-centric" focus.

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31. **What are these competencies?**

a. **At the core, the 1st two rings of the Swiss roll are values, character and social emotional competencies.** These values enable one to strive for success and to interact with others meaningfully.

b. In an increasingly interconnected, information-rich world, our students need information and communication skills; critical and inventive thinking, and civic literacy, global awareness and cross cultural skills.

32. Ultimately, we hope that each child grows up as a confident person, a concerned citizen, an active contributor and a self-directed learner. I believe many thought leaders in education, including in the US and Singapore, share these goals.

33. **To support lifelong learning,** we are also:

a. Improving Continuing Education and Training (CET), to allow our workforce to upgrade themselves and stay relevant to the economy; and

b. Working with companies and industry associations to develop training programs that would build new skills in our workforce, to enable them to switch into new industries as our economic structure changes.

Getting it Done – Critical Success Factors

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34. I have briefly outlined the challenges. Good intentions are not enough - we must translate this to action. There are two key ingredients: a) **clarity and steadfastness of policy rationale** and b) **fidelity in implementation**.

35. First, policymakers must be clear about the core principles and reasons behind their decisions, and be steadfast in adhering to them.

a. But while policymakers need to be steadfast in the intent of policies,

b. They must be flexible in terms of how it is actually delivered, and

c. Give it due time to show results.

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36. Second, fidelity of implementation is key. This means that all parts of the education system need to support the intended policy, ranging from the soft systemic infrastructure in terms of: i) Teachers; ii) School leaders; and iii) School networks, to the hard physical infrastructure that supports the learning environment. We try our best to put in place supporting systems and structures at all levels:

a. Educators. Educators in our schools remain key to the delivery of outcomes. No system of education can be better than its teachers.

i. We continue to recruit quality educators and strengthen the quality of their pre-service training. We seek to recruit from the top one-third of every cohort of students.

ii. But it is not enough to recruit well – we must also continuously improve the craft of in-service educators.

b. School Leaders. School leaders shape the tone of the school. We thus:

i. Systematically identify school leaders from among educators, and

ii. Provide professional development and leadership courses and earlier exposure to leadership roles to gain experience and credibility.

iii. Hence, we welcome the partnership of Singapore's National Institute of Education with Columbia University's Teachers College to launch a joint Masters in Leadership and Educational Change. The official launch has in fact just occurred in Singapore. This will benefit both the US and Singapore.

c. School Networks. The School Cluster System

i. This works Top-Down: Superintendants provide guidance and mentorship to Principals in a given cluster, to ensure that policies can be contextualised and implemented in each of the schools in line with the policy intent.

ii. And also Bottom-Up: We have gradually increased the autonomy that school leaders have to pilot innovations within their schools. The cluster then provides a platform to share best practices with other schools.

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d. Physical Infrastructure. This has to be enhanced to support the focus of learning –

i. For Singapore, the emphasis is on holistic development, so

ii. We have improved school facilities, including by constructing indoor sports halls, performing arts studios, and laying synthetic turf.

37. A coordinated structure of strong, sustainable centralised support is essential. But this must be coupled with sufficient autonomy in our schools, led by good school leaders who are aligned in thinking.

38. This balance between centralized control and localized flexibility will empower our schools to customize their programmes to suit their local contexts, and in so doing, deliver the original policy intent with fidelity.

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39. I would also like to highlight the critical role of parents and the community.

a. Parents play a critical role in educating their children, by reinforcing the lessons learnt in school and inculcating life skills.

b. Partnering the community allows students to take part in meaningful activities in the community and learn useful life skills. We do this through our COMPASS (Community and Parents in Support of Schools). More recently, we added a Partners in Education Office at the HQ to support these outreach.

The basis of collaboration with parents and the community must be mutual respect and a shared understanding that we all want to educate our children well.

Doing it Together

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40. Although countries differ in the contexts of our policies, I believe there are common challenges which we can address together. We have found our collaboration with countries around the world, and especially the US, to be very productive. Besides the collaboration between Singapore's National Institute of Education and Teachers College of Columbia University:

a. New institutions have been formed in Singapore: the Liberal Arts College by Yale and National University of Singapore (NUS); the Singapore University of Technology and Design (SUTD) with MIT and China's Zhejiang University; and the NUS-Duke Graduate Medical School.

b. Our universities have MOUs with over 60 US universities.

c. Our collaboration with the Dolan DNA Learning Centre (DNALC) in the areas of teacher training and development of curriculum and learning resources for life sciences.

d. Our collaborations, with Australia and Finland, in the consortium working on the Assessment and Teaching of 21st Century Skills (ATC21S).

41. We are glad to have established many partnerships with institutions in the US, and hope that many more will be established on the back of the enhanced MOU in education which I signed yesterday with Secretary of Education, Arne Duncan.

42. Singapore is a global city situated in the heart of Asia. We hope to play our role to promote Global-Asia collaboration. Our universities all have programmes to deepen our understanding of Asia, and to serve as a bridge for global partnership. The SUTD collaboration between Singapore, MIT and Zhejiang University is interesting in bringing the diverse disciplines of science, technology and design together, and to bring two peaks of excellence in the US and China together in a new outfit. I hope we can see more of such collaboration in the future.

Conclusion

43. Allow me to conclude.

44. Education is a noble endeavour. More than just shaping the future of each individual that passes through our hands – we also shape the future of our nation.

45. No doubt, education must be adapted to our local context, but it must also have an eye firmly on the global driving forces and the future we expect.

46. And because the future will be more volatile, with change more rapid than ever, education must prepare our children to access a new economic future, and build in them fundamental values and skills that will last them for a lifetime.

47. We must also be student-centric in our delivery, so that each and every child is able to realise their potential to the fullest - creating opportunities for all regardless of their family background.

48. At the system level, we need to create multiple pathways and peaks of excellence, relevant to industry needs, and systemically aligned.

49. Finally, we must always remember that implementation is policy.

50. I am glad that we are able to collaborate with the US – your thought leaders, your institutions, your frontline educators – to shape our futures together.