

**FY 2008 Committee of Supply Debate
1st Reply by Minister on Educational Policy**

1 Let me thank the members who have spoken so far for their comments and questions. My response will focus on two issues. I will first address Dr Lily Neo and Dr Amy Khor's questions on what MOE is doing to prepare our young for the future and provide them with options that can bring out their unique strengths.

2 I will then address the range of issues raised by other Members - Dr Ong Seh Hong, Ms Denise Phua, Ms Lee Bee Wah, Mr Low Thia Khiang, Mr Hri Kumar - which touch on different angles on how we can continue to provide a quality education, and keep improving how we can achieve the outcomes we desire in education.

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3 Some of the specific issues raised, such as what more MOE is doing to help students from disadvantaged backgrounds, and our efforts in the area of special education, will be taken up by my colleagues in their replies later.

A BROADER MERITOCRACY

4 How do we prepare our young for the future, and especially for a future of innovation as Dr Lily Neo put it?

5 First, keep doing the basics right, and hold all our schools to high standards. That's how we come out with the highest average scores in international tests in Maths and Science. Now even in English, where our primary school students have emerged amongst the top (in reading literacy) despite the fact that more than half our students come from non-English speaking homes. It came as a surprise to the British and Americans, both mainly English-speaking countries, because they found that the average Singapore student did much better than theirs. And if there should be an international test of bilingual competence, I have no doubt that Singapore students will have amongst the highest averages internationally.

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6 It is only possible because we have good schools across the board, not just a few good schools at the top. That's the real strength of our system compared to most others – committed Principals and caring teachers, spread across our schools, so we can uplift every child.

7 Doing well in the basics, however, is no longer good enough. It distinguishes us from most countries when we look at what they achieve on average, but it is not enough to distinguish us in the league of leading cities. These are cities which attract the best from a broader population canvas, and also have a way of throwing up individuals with a special edge and passion for what they do. We must do the same.

8 We know our future has to be in innovation, in every field we engage in – whether in media and design, financial services, or precision engineering. It requires a whole team of people, focused on continually improving and seeking a competitive edge through innovation. But it also requires a special cut of individuals, those with a special passion for what they do and the urge to keep going beyond the ordinary. They are the ones who think in original ways, do things differently, and who keep the leading cities spinning differently.

9 It does not mean we shake up our education system. It is working very well by any international standard, giving all our students the chance to stretch their abilities, move on to a good post-secondary education and keep upgrading once they enter the workforce.

10 What we are doing is to open up new pathways and different approaches to learning, around a well-functioning mainstream system. We need these new and different pathways, because if we do everything the same way in education, we will not produce the individuals who are capable of breakthroughs. We will not be capable of peak performance as a city.

11 I want to highlight two features of these new pathways that we have been creating, which Dr Lily Neo and Dr Amy Khor spoke about. First, the numbers of students entering these new pathways will not be large, but they will very likely have an impact on Singapore that goes beyond their numbers. The three new Specialised Independent Schools - in Maths and Science, in Sports and the Arts, currently take in just 230 students in each cohort, or barely 0.5% of cohort. They will eventually grow to over 800, or about 2% of cohort, still small. Around 6% of cohort are also enrolled in our Integrated Programme (IP) schools today. Some of them too are being groomed in quite different ways from before – many more opportunities to explore their own interests and do their own projects. Plus we are nurturing

a different breed through several of our mainstream schools, which are developing niches of talent in a range of fields.

12 Not a large number in each school, or even when you add them together. But these new pathways to learning will help us bring out the individuals with a passion for what they do and who want to go much further than the norm.

13 The second feature of these new paths is that they are recognizing a broader range of Singapore talents. We are recognizing and nurturing diverse talents, besides the academic. The Direct School Admissions (DSA) process now reinforces this - schools are looking out for different strengths among our young besides the academic, and teachers and parents are encouraging their children to take these things seriously. The students who are offered places in the new secondary-level pathways also come from the whole range of primary schools. The School of the Arts (SOTA) made offers to students from 126 primary schools when it opened. At NUS High School of Maths and Science (NUSHS) – although the competition to gain entry is highly competitive as Dr Amy Khor mentioned - students currently come from 150 primary schools.

14 So these are small pools of students, but varied in their talents and drawn from across the island. It all amounts to a broader meritocracy, and a livelier one. More free-play for individuals with special talents, around a common foundation that helps every Singaporean stretch his potential. And more Singaporean talents being discovered and nurtured, besides good talents in regular academic fields.

15 This increased free-play around a central core in Singapore education will give us the best chance for the future. It gives us the best chance of seeding the innovative teams that we need in future, as well as the individuals who want to do truly exceptional things. They will help keep us in the league of top cities.

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New School of Science and Technology: Nurturing Inventive Minds

16 One of the new approaches that we have been developing in several of our schools is in applied learning, which Dr Amy Khor spoke about. A whole range of schools, from neighbourhood schools like Bishan Park Secondary and Tanglin Secondary, to our Integrated Programme schools

like Raffles Institution and Hwa Chong Institution, have partnered the polytechnics to offer electives (Advanced Elective Modules) to their students in a variety of disciplines, like Media & Design, Engineering, Maths & Science, Business and Information Technology.¹

17 The feedback has been very positive. Students find that the 'real-world' projects they do make learning more interesting and engaging. It also allows them to discover strengths and interests they never knew they had.

18 We will take this a step further. MOE will establish a fourth specialised independent school, a School of Science and Technology (SST), which will open in 2010. It will offer a new option for students who are likely to be university-bound, but who want both a solid academic foundation and immersion in real-world applications. They will be able to learn by experimenting, tinkering, and by taking a project through all its stages – from concept to design to building the models. But the exposure

¹ Last year, around 2300 students participated in more than 60 AEMs, offered in some 70 schools. Building on this, 8 schools are offering 3 new 'O' level Applied Subjects to 180 Sec 3 students this year – Creative 3D Animation, Fundamentals of Electronics, Introduction to Enterprise Development. We are also exploring the possibility of a few junior colleges offering an applied subject option to their students.

to real-world applications will not be aimed at getting students to specialise early in any particular skill. The real aim will be to nurture students with inventive minds, people who keep looking for a different way of doing things.

19 The SST will be different from other schools in several respects. I will explain this very briefly, as MOE will be releasing more information on the new school.

20 First, the 4-year curriculum of the school will offer both academic subjects and new Applied Subjects like Biotechnology, Design, Media Studies, Environmental Science and Technology.² These new subjects will all be part of the Singapore-Cambridge 'O' level framework. The SST will also be different from the NUSHS in this regard, which offers a 6-year programme including JC. The SST will offer a 4-year route for capable students who want to keep open the option of going to either junior college or polytechnic, before eventually going on to university.

² We expect that students will choose to offer 1-2 Applied Subjects in Sec 3 - 4, besides the regular academic 'O' level subjects (in English, Maths, MTL, Humanities, and Science).

21 Second, the teaching methods in the SST will give students greater exposure to practical and real-world application of concepts. This will also require that class sizes be kept small so as to facilitate learning through experimentation – generally around 20 to 25 students per class, so that the students benefit from closer supervision and interaction with their teachers. The school will also house special facilities and laboratories to support its students in their learning, and also make use of specialised facilities in Nanyang Technological University and Ngee Ann Polytechnic. The SST will also be one of our FutureSchools, which means it will leverage fully on ICT in its learning activities.

22 Third, the SST will have strong partners in our tertiary institutions. It will collaborate with the Ngee Ann Polytechnic and Nanyang Technological University (NTU), and tap their expertise. It will also work with leading companies such as IBM and Creative Technology, to provide additional learning opportunities and internships for their students.

23 Fourth, just like NUSHS, the SST will have full flexibility over admissions – it will be able to select students based on interviews, their track records, recommendations from their teachers and the like. Like the

other specialised schools, we expect it to attract talents from across the island.

24 MOE will be appointing Mr Chua Chor Huat, the current principal of Ngee Ann Secondary School, to head the SST as Principal from June this year. Chor Huat is one of a new generation of strong school leaders, who has distinguished himself in all his appointments to date. Sending him to head the SST is the first signal we send to indicate the importance of this new school. The school leader is critical.

25 We will also have Dr Su Guaning, the President of NTU, as the Chairman of the Board of Directors for the SST. He needs no introduction. Dr Su will help the SST grow its capabilities and networks, and lead a board comprising others from industry, academia and government.

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26 The new School of Science and Technology will I am sure become another peak in our landscape. It has the promise of nurturing a new breed of inventive young Singaporeans who will help us to sustain a high-value economy. We do not know where the next Sim Wong Hoo will come

from, but these different ways of learning from young will enhance our chances of throwing up the Sim Wong Hoos of the future.

TRACKING PROGRESS AND KEEPING SIGHT OF BROADER OUTCOMES IN EDUCATION

27 Let me now turn to the comments raised by Ms Denise Phua, Mr Low Thia Kiang and the others as their questions are related. Their questions are related, as they all touch on how we keep improving quality across the board, and how we track and assess how well we are achieving the outcomes we want to see in education.

KPIs for School Quality

28 We have a system that works well because we identify and develop people who can be good school leaders, and we give them sufficient autonomy to run their schools in the best interests of their students. That's our basic approach. This way schools and teachers take ownership over what they are doing, and the ownership is what drives the improvements in school quality that we are seeing.

29 But with increasing autonomy on the ground, the question posed by Ms Denise Phua becomes more important. How do we define the Key Performance Indicators (KPIs) that help us track whether we are achieving the outcomes we desire in education?

30 If we look at the indicators in the budget book, they are in fact fairly comprehensive. Not many indicators, but there's a lot that underpins these indicators. Some of them are systemic indicators – the obvious things, like education attainment rates for the latest cohorts, and the average number of years of schooling. But there are also indicators that reflect how well our schools are doing – how many of them have achieved key performance benchmarks. The benchmarks go beyond just academic achievement. They are holistic, and they try to capture whether our schools are doing a good job in developing their students all round.

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31 MOE's School Excellence Model (SEM) is essentially our quality assurance framework for schools. It helps schools identify areas of improvement, both through self-appraisal and external validation. We have spent many years refining and improving it, and it is in fact now seen by many other countries as a model worth studying and emulating.

32 The SEM focuses on the key processes by which schools deliver holistic education to their students – how effective their teaching is, and how well they develop strength of character, teamwork and leadership skills amongst their students. Character building and moral education are important tasks in education, as Dr Lily Neo, Dr Ong Seh Hong and Ms Lee Bee Wah have pointed out. SPS Masagos will be talking more about this later.

33 Some of the key performance indicators in the budget book therefore reflect the number of schools that have achieved key benchmarks under the School Excellence Model. While they are recognized by way of awards when they do so, the aim is not to measure the number of schools achieving the awards, but the number of schools that have got the whole set of processes in place, that underpin their achieving the required standards of excellence. There is no quota on the number of schools who can obtain an award. These are criterion-referenced, not norm-referenced awards, to use the technical language. They are meaningful indicators of quality in the system.

34 I agree with Ms Denise Phua that we should take a fresh look at KPIs from time to time to make sure they match our desired outcomes. And we can also look at how we can refine our budget book indicators, which reflect some of our KPIs (but not all). For instance, we could include indicators on schools that capture how well schools have engaged their students and enthused them in important areas like national education.

35 But we must bear in mind that the real outcomes of education are observed over a much longer term, well after a student has left school. For example, an important outcome has to be the spirit of lifelong learning that shows up later in life, as Dr Lily Neo pointed out.

36 Sometimes even the outcomes in school are not directly measurable. For instance, Mr Hri Kumar raised the issue of racial integration. It is an important priority for our schools and tertiary institutions, but we cannot measure our success directly. We survey students for their views and attitudes, but we can never be sure if we are capturing real thoughts and feelings, or how they will really react in a crisis. What we nevertheless know is that this is important work, and continuous work for our schools and tertiary institutions. MOS Lui will speak more on this later on.

37 We must therefore keep a sense of balance in defining our KPIs in education. Some of the most important things we want to achieve cannot be measured. We want schools to focus on aims and values that cannot be measured, as much as they track the indicators what we can measure. This is why MOE also looks at a school holistically and qualitatively - we do so through school visits, surveys and focus group sessions with educators, industry leaders, parents and students. We get a holistic picture of the school.

38 I think what we have put in over the years to develop the School Excellence Model, with extensive feedback back and forth between our educators and HQ administrators, is well worth it. This is a system where quality is driven on the ground, because we give schools autonomy, we assess them over time and recognize those who are achieving higher quality so that the rest can emulate them. That's how we keep raising quality across the system.

Assessing School Leaders and Teachers

39 This brings me to Mr Low Thia Khiang's question on how we assess our school leaders. We do not appraise Principals simply on the basis of the awards their schools have obtained, or the ranking of their schools. Neither do we assess our teachers simply based on academic results, or simply based on what they do outside the classroom.

40 The appraisal system is called the Enhanced Performance Management System (EPMS), it is working better now than when we first introduced it, and other countries are wanting to learn from it, because they are all moving in the same direction.

41 It recognises the more capable, more caring teacher from the rest. Our teachers are assessed on several competencies, not just the results of students or what they do outside the classroom. It boils down to the passion and commitment to nurture the whole child. That's what we call the core competency and we state it as such. That's the core competency that every teacher knows. And the rest follows from that.

42 We look at whether our teachers are able to teach creatively and effectively, whether they go out of the way to look after the needs of their

students, whether they contribute to the capabilities of their colleagues, contribute to better teamwork in their department and so on. These are not new criteria that we look at, they have always been there. What is new is that it is now transparent, it provides explicit feedback to the teachers to see how he or she performs each year. And it also enforces the discipline for each supervisor to be honest about his or her subordinates, recognising those who do very well and identifying those for whom help is needed to realise their full potential as teachers.

43 Mr Low mentioned an example that we all know about, that was reported in the press, where a Principal gave a stern talk to her Sec 5 Normal (Academic) students. When that came up, the first thing I did was take a closer look at the school, including how well its N(A) students have been doing. First, almost all its Sec 4 N(A) students moved to Sec 5. The school's successive cohorts of Sec 5 students also did better in their 'O'-levels compared to other schools. And the school also did better in terms of the value it added to its Sec 5 N(A) students. All this under the same Principal.

44 The school has done better than comparable schools in raising the level of performance of their students. That surely counts for something. We know that from studies all over the world. True confidence comes from true achievement, and the joy of achievement.

45 Different schools have different methods. The Ministry tries not to scrutinize everything they say or do, as long as they don't make serious mistakes. Let them do their own thing, and let parents decide. In fact, this same school had a requirement some years ago, where all its girls had to wear a petticoat. It was the school's decision and parents understood the ethos of the school.

46 So let parents choose. And over time we will know which schools' methods work better. Individual principals too will improve their methods over time, tweak this and that, because no one is perfect.

47 We have to find the right balance between affirming children and challenging them. It's a complex matter. We need both, not all of one or the other. If we simply affirm children without challenging them – like in the US, where a whole movement since the 1960s has focused on this –

I'm not sure we will achieve the performance our students desire. In fact, studies over the last decade have now come to the view that what really matters is effective teaching, and the students being willing to work hard. And when they achieve, that's when true confidence comes. And the more enduring self-confidence.

48 In fact, a recent study by the Brookings Institution looked at international test results in math (TIMSS 2003), to look at the relevance that students' confidence in their abilities had on their performance. It found that the most confident 8th-grade math students come from the Middle East, Africa and the US. Students from East Asian countries like Hong Kong, Korea and Japan were among the lowest in self-confidence (in terms of whether they felt they could do well). But the results were the reverse – those who were less confident did comparatively much better in terms of test scores. The study found that the least confident student in Singapore did better in mathematics than the most confident American student!

49 So this is a complex equation. We know confidence is important, motivation is important in learning. Some affirmation of our students is

always necessary, starting from Primary 1 all the way up. We don't want to defeat a child. But we need to keep up the sense of challenge that they should face. Getting students who keep coming late to school to buckle down and start working hard.

50 Getting the balance right is something that schools and Principals have to decide on for themselves. And over time, we will find which schools are doing better, and lessons will be shared. That's our approach.

51 Let's keep a system where we find good people to bring into education; identify those with leadership capabilities early and develop them so that they can head our schools; give them the autonomy to make their own decisions; and keep sharing the lessons of what works and what doesn't amongst our schools. MOE must resist the temptation to question everything they say. That's how we ensure ownership on the ground, and will see quality continuously rippling across the system.