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In Hong Kong, while students performed fairly well in the 2012 Programme for International Student Assessment ("PISA"), about 20% to 30% of them failed to achieve basic competency in the 2013 Territory-wide System Assessment ("TSA"). Early intervention may help students with learning difficulties progress from one stage of their learning journey to the next, and the offer of technical-vocational education in addition to the traditional academic curriculum in the secondary school education may also better meet the needs of students of different learning abilities.

This Research Brief discusses the different approaches adopted by Hong Kong and Singapore in respect of measures taken to early identify primary students with learning difficulties and the special features of their secondary school curriculum.

The subject of school education falls within the policy areas of the Panel on Education.



Research Office
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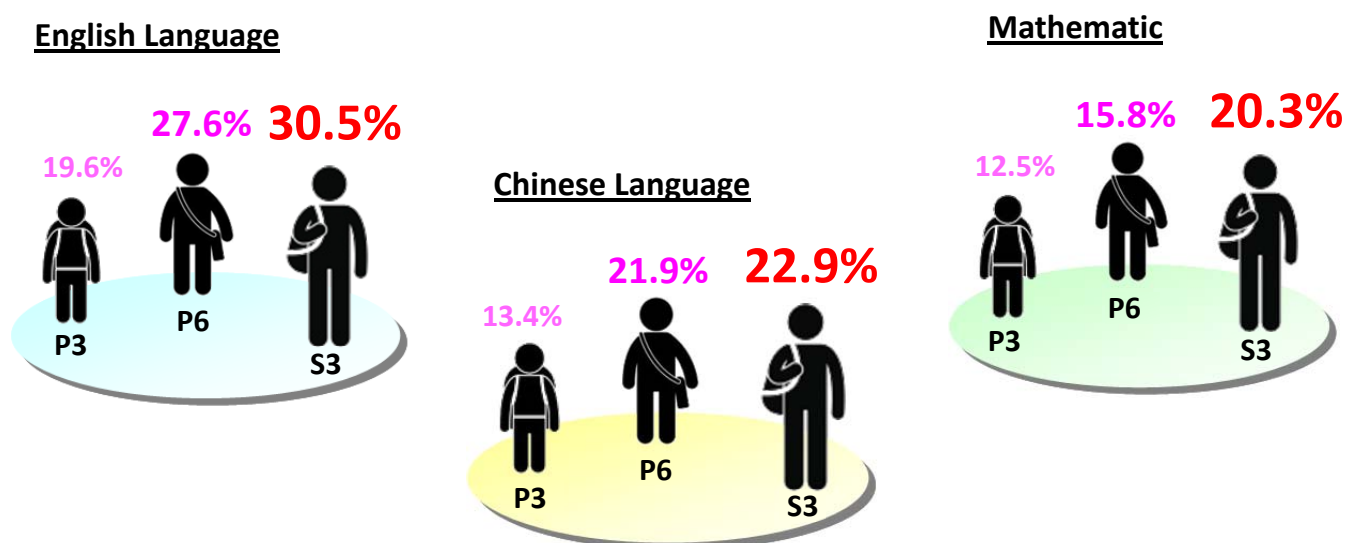
1. Introduction

1.1 For more than a decade, Hong Kong, along with Singapore, South Korea, Shanghai, Taiwan, Japan and Finland, has been at or near the top of the Programme for International Student Assessment ("PISA") developed by the Organisation for Economic Co-operation and Development. PISA is a triennial survey to measure 15-year-old students' ability in mathematics, science and reading and Hong Kong joined PISA in 2000. In the 2012 PISA, Hong Kong students performed well and ranked third in mathematics and second in both science and reading.

1.2 Yet in Hong Kong, about 30% of Secondary Three ("S3") students failed to achieve basic competency in English Language in the 2013 Territory-wide System Assessment ("TSA"). TSA is administered by the Hong Kong Examinations and Assessment Authority ("HKEAA") to assess the overall performance of students at the end of three key learning stages (Primary Three ("P3"), Primary Six ("P6") and S3 levels) in Chinese Language, English Language and Mathematics. S3 students fared no better in Chinese Language and Mathematics in the 2013 TSA, with a failure rate of about 20% in both subjects.

1.3 At the P3 level, a failure rate of 19.6% was observed for English Language, 13.4% for Chinese Language and 12.5% for Mathematics in the 2013 TSA. The corresponding failure rates increased to 27.6%, 21.9% and 15.8% for P6 students, and further to 30.5%, 22.9% and 20.3% for S3 students (**Figure 1**). Early intervention might help students progress from one stage of their learning journey to the next. This is particularly so for students with learning difficulties, as students of different learning abilities can be placed at suitable classes or curricula where they can learn at an appropriate pace and acquire knowledge and skills commensurate with their abilities.

Figure 1 – Percentage of students failing to achieve basic competency in the 2013 TSA



Source: Hong Kong Examinations and Assessment Authority (2013).

1.4 In Hong Kong, primary schools identify students with learning difficulties by teacher observation at the commencement of the new school year. There is also a banding system (Band One to Three) for the allocation of Secondary One ("S1") places to students of different academic performance. Other countries have adopted a different approach in the streaming of students of different learning abilities and levelling up their opportunities at various stages of the learning journey. A notable example is Singapore whose education system ranked second in the 2014 IMD World Competitiveness Yearbook¹ and one of the best in a 2007 McKinsey study.²

¹ The International Institute for Management Development (or IMD for short) publishes the IMD World Competitiveness Yearbook on an annual basis. In the 2014 Yearbook, Denmark's education system ranked first while that of Hong Kong ranked 25. In Denmark, the entire nine years of compulsory education is integrated and not divided into a primary and lower secondary stage. All classes in the country's municipal primary and lower secondary schools have an average of 20 or fewer students. Apart from humanities subjects (such as Danish and History), science subjects (such as Mathematics and Natural Science) and practical/creative subjects (such as Physical Education and Music), "Road Safety", "Health and Sexual Education and Family Studies" and "Educational, Vocational and Labour Market Orientation" are a compulsory part of the education programme in the primary schools. Owing to the vast differences between the Danish and Hong Kong education systems, this Research Brief will not discuss the Danish education system.

² See Barber, M. et al. (2007).

1.5 In Singapore, the Ministry of Education administers a comprehensive screening test on all Primary One ("P1") students to identify those with learning difficulties at an early stage. Students are also streamed at secondary schools. Differentiated courses are offered within the **same secondary school** to cater for their different learning abilities. In addition, Singapore's school curriculum features the well positioning of vocational education as an attractive pathway for the more technically inclined secondary students to pursue further study or enter the labour market.

2. Primary students with learning difficulties

2.1 In Hong Kong, primary schools conduct the Early Identification and Intervention of Learning Difficulties Programme for Primary One Pupils ("EII Programme") to early identify students suspected with learning difficulties. At the commencement of a new school year, teachers **observe** the learning and social adjustment of every P1 student. Teachers will also complete an Observation Checklist for Teachers to identify students suspected to be at risk of learning difficulties. If necessary, students identified will be provided with school-based early intervention measures in the form of classroom support and group programmes.³

2.2 Instead of relying on teacher observation, Singapore has required all primary schools to conduct a screening programme for all P1 students at the beginning of their primary education. The screening is to identify children who have not acquired basic literacy and numeracy skills by the time they enter P1. Those identified as needing help are given support through the Learning Support Programme ("LSP") and the Learning Support Programme for Mathematics ("LSM").⁴

³ Classroom support includes curriculum adaption and adjustment in teaching strategies, while group programmes feature Training Group in reading and writing skills, Study Skills Training Group and Peer Tutoring Programme etc.

⁴ LSP targets at P1 students with weak English Language and literacy skills and support continues in Primary Two ("P2") for pupils who need it. For LSM, it focuses on P1 students who do not have the foundational numeracy skills and knowledge to enter P1 Mathematics curriculum. Students identified for LSP and LSM are supported by qualified teachers in small groups on a daily basis.

2.3 According to the Ministry of Education⁵, LSP has helped around 30% of the P1 students weak in literacy skills to be able to read at their age level and pass their school-based English language examinations by the end of P1. Another 10% of students who continued to receive support in P2 were able to do so at the end of P2.⁶

2.4 Students with learning difficulties may be low academic achievers or they may be students with special educational needs such as those affected by dyslexia or those with attention deficit/hyperactivity disorder. Primary school teachers in Hong Kong play an important role in identifying and assisting students with different learning difficulties. However, according to the Education Bureau, only 42% of public sector mainstream primary teachers have received special education training as at the 2012-2013 school year.⁷

2.5 In Singapore, the Ministry of Education has since 2012 piloted the School-based Dyslexia Remediation ("SDR") programme in 20 primary schools. The SDR programme is a two-year intervention programme for Primary Three and Four students who are identified through a screening process for dyslexia conducted at the end of P2. At present, the programme covers 62 or one-third of all primary schools in Singapore.

2.6 According to the 2013 Singapore Primary School Leaving Examination ("PSLE")⁸ results, 97.5% of P6 students (41 974 students) were assessed suitable to proceed to S1.⁹ In comparison, less than 85% of Hong Kong's P6 students achieved basic competency in English Language, Chinese Language and Mathematics.

⁵ See Ministry of Education (2008).

⁶ In Singapore, most primary and secondary schools have classes of 40 students or fewer, while P1 and P2 classes have 30 students or fewer. Schools have the flexibility to reduce class size for certain subjects or student profiles. For example, in Design & Technology and Home Economics, where students may be required to operate machinery or equipment, the class size is usually 20. LSP and LSM programmes are conducted in small groups of eight to 10 students. Some schools also deploy two teachers in a class of 40 students – one teacher brings the class through the curriculum, while the other teacher assists specific students who may have difficulty understanding the materials being covered. See Ministry of Education (2012b).

⁷ See Secretary for Education (2014).

⁸ PSLE determines a student's ability and places him/her in the appropriate secondary school courses to suit his/her learning pace and aptitude.

⁹ For those who are assessed to be not ready for secondary schools (2.5% in 2013), they can re-attempt PSLE based on school recommendations in the coming year or they can go to those schools which are for students with difficulties in handling the mainstream curriculum. See Ministry of Education (2013b).

3. Secondary students of different learning abilities

3.1 In Hong Kong, the Education Bureau administers the Secondary School Places Allocation System for the allocation of S1 places. Under the system, primary school students are assessed according to their internal school assessment results and classified into different bandings. Starting from 2001, the number of allocation bands has been reduced from five to three with a view to reducing the labelling effect. A natural corollary of the reduction is the increased number of students within the same band, which might have widened the within-school diversity in student ability. Yet all students follow the curriculum leading to the high-stakes Hong Kong Diploma of Secondary Education ("HKDSE") Examination.

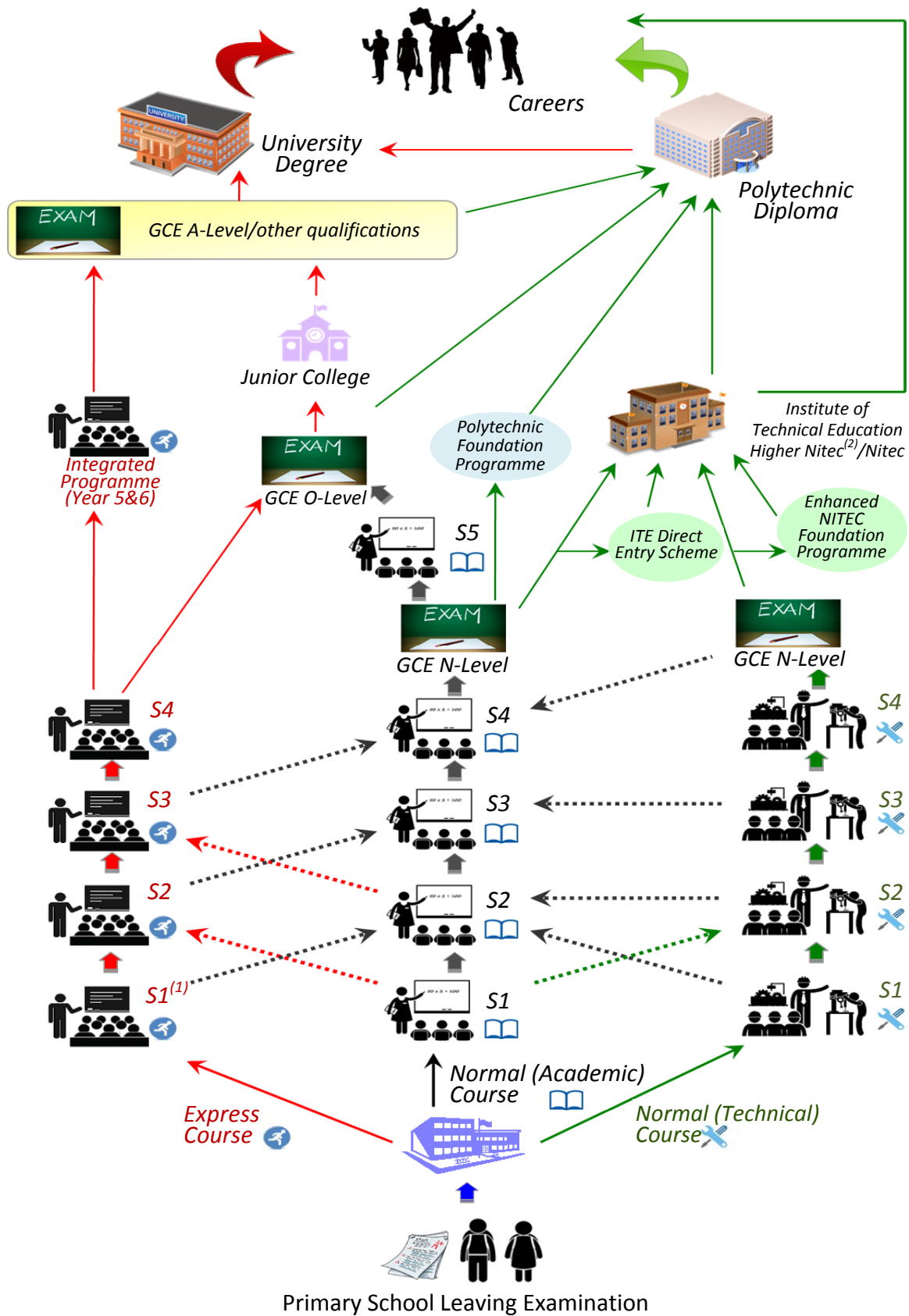
3.2 Singapore has adopted a different approach in streaming secondary students according to their learning abilities. It offers differentiated courses within the same school and students are placed in the Express, Normal (Academic) or Normal (Technical) course based on their scores in PSLE.

3.3 The Express Course is a four-year course leading to the Singapore-Cambridge General Certificate of Education ("GCE") "O" Level Examinations (**Figure 2**). These students typically move on to a pre-university course or polytechnic education. The Normal (Academic) course is a four-year course leading to the GCE "N" Level certification or a five-year course leading to the GCE "O" Level certification.¹⁰ The four-year Normal (Technical) course is geared towards preparation for technical- and career-oriented courses at the Institute of Technical Education ("ITE").¹¹ It also leads to the GCE "N" Level certification. The different curriculum emphases of the Express and Normal courses are designed to match students' learning abilities and interests.

¹⁰ Normal (Academic) students who perform well at the GCE "N" Level Examinations can go for two new "through-train" pathways – the Polytechnic Foundation Programme and the Direct-Entry-Scheme-to-Polytechnic Programme – that will prepare them for direct entry into a polytechnic in Singapore, instead of sitting for the GCE "O" Level Examinations in Secondary Five.

¹¹ Established on 1 April 1992, ITE is a post-secondary education institution under the Ministry of Education. It is the principal provider of career technical education and the principal authority for national occupational skills certification and standards.

Figure 2 – Pathways for the Express and Normal courses



Notes: (1) S1: Secondary One students.

(2) Nitec: National Institute of Technical Education Certificate.

Source: Ministry of Education (2014).

3.4 In Singapore, students who completed their GCE "O" Levels have various options open to them. These include enrolling in polytechnics or studying in junior colleges for a pre-university course. At the end of the pre-university course, students can sit for the GCE "A" Level Examinations which are required for university entrance in Singapore. In recent years, students who are clearly of university calibre may study in Integrated Programme Schools where they can skip the GCE "O" Level Examinations and proceed to sit for the GCE "A" Level Examinations or an equivalent examination.

3.5 While students may be initially placed in a particular course, there are possibilities for them to *transfer* across courses depending on their academic performance. For example, students who performed well in the S2 Normal (Academic) course could choose to study in the S3 Express course. Likewise, those in the S2 Normal (Technical) course have the same flexibility to study in the S2 Normal (Academic) if they perform well in the examinations. The transfer across courses is to give opportunities for students to be placed in a course for which they are most suitable.

4. More technically inclined secondary students

4.1 In Hong Kong, the HKDSE Examination has taken a core-plus-electives approach. All Secondary Six students are required to enter for four core subjects (English Language, Chinese Language, Mathematics and Liberal Studies) and two to three electives from (a) New Senior Secondary ("NSS") subjects, (b) Applied Learning ("ApL") subjects, or (c) other Language subjects.

4.2 ApL subjects aim to provide vocational-oriented training to those students who do not prefer the traditional academic route.¹² Yet the results of ApL are reported as "Unattained", "Attained" and "Attained with Distinction" and not on a 5-level scale as other academic subjects. Candidates awarded "Attained with Distinction" are only deemed to have performed at a level comparable to Level 3 in the HKDSE Examination when they apply for jobs from the Government or admission to associate degree and higher diploma programmes. In addition, the teaching courses and assessments of ApL subjects are conducted by the respective course providers instead of schools. The above two arrangements might reduce the appeal of ApL subjects to students.

¹² There are six areas of study in ApL: (a) Applied Science, (b) Business, Management and Law, (c) Creative Studies, (d) Engineering and Production, (e) Media and Communication, and (f) Services.

4.3 In 2014, a total of 79 572 candidates entered the HKDSE Examination. Candidates sitting for the ApL subjects amounted to 4 337, of which "Western Cuisine" was the most popular ApL elective subject with 745 candidates and "Environmental Engineering" the least popular with 11 candidates. These figures pale in comparison to the number of candidates entering for NSS elective subjects. In the 2014 HKDSE Examination, "Economics" was the popular NSS elective subject with 19 834 candidates and "Fashion, Clothing and Textiles" the least popular with 84 candidates.

4.4 The low appeal of ApL subjects prompts the more technically inclined secondary students to study academically-oriented subjects and take the HKDSE Examination. This may be one of the reasons for the relatively low passing rate in this high-stakes examination. According to the recently-released result of the 2014 HKDSE Examination, only 40.4% day school candidates have met the general entrance requirements for local undergraduate university programmes.

4.5 In Singapore, the Normal (Technical) course is a broad-based course which prepares students who are more technically inclined for jobs or higher technical education.¹³ The Normal (Technical) course students take English Language, Mathematics, Basic Mother Tongue and Computer Applications as compulsory subjects, as well as other subjects with technical or practical emphases such as Design and Technology. Since 2005, schools have also been offering Elective Modules to develop students' interests and strengths in specific area. The modules cover a wide range of subjects, such as nursing, hospitality and digital animation.

4.6 All Normal (Technical) course students who have completed their secondary education can apply to pursue technical-vocational education at ITE. In Singapore, technical-vocational education does not mark the end of education progression. Apart from serving as an **industry-ready exit qualification**, it is also a viable alternative route for universities. Students perform well in their study at ITE can apply for polytechnic diploma courses. Upon completion of their polytechnic diploma, they may apply for admission to the universities. On average, about 15% of each Normal (Technical) cohort went to polytechnics and universities in recent years.¹⁴

¹³ Alternatively, Secondary Four Normal (Technical) students can choose to transfer laterally to Normal (Academic) Course if they satisfy the academic requirements.

¹⁴ See Ministry of Education (2012a).

5. Observations

5.1 The following observations are made based on the findings above:

- (a) it is observed that a solid learning foundation at junior levels is conducive to learning in the next key stage. This suggests the benefit of streaming students into different groups based on their learning abilities and placing each group into appropriate classes or curricula. In so doing, students would be better placed to learn at an appropriate pace and acquire appropriate knowledge and skills, thereby facilitating their further progress along the learning journey;
- (b) for *children with learning difficulties*, early identification and intervention would be useful for their progression from one stage of the learning journey to the next. In Hong Kong, teacher observation serves as the first screening test to identify P1 students suspected to be at risk of learning difficulties. Singapore has adopted a different approach to conduct screening test on all P1 students to identify those who have not acquired basic literacy and numeracy skills. Students identified will be supported by qualified teachers in small groups on a daily basis;
- (c) for *secondary students of different learning abilities*, Hong Kong categorizes them into different bands based on their internal school examination performance for allocation of S1 places. The reduction in the number of allocation bands from five to three in 2001 might have widened within-school diversity in student ability. Yet all the secondary students follow the curriculum leading to the high-stakes HKDSE Examinations.

In comparison, Singapore offers three differentiated courses, the Express, Normal (Academic) and Normal (Technical) courses, within the same school to cater for students of different learning abilities. In addition, there are possibilities for transfer to more appropriate courses; and

- (d) for *the more technically inclined secondary students*, Hong Kong seems to be unable to provide an attractive alternative to the traditional academic route for them. While the ApL subjects focus on the teaching of vocational-oriented training, the highest grade that a student can achieve in these subjects is "Attained with Distinction", which is deemed equivalent to Level 3 in HKDSE examination for job application and academic advancement. This limits the appeal of ApL subjects and their popularity with students.

In Singapore, the Normal (Technical) course students are taught subjects that are more technical in nature. They benefit from a well-defined progression path for them. They can enrol in ITE's courses to gain a strong practice-based foundation for employment after completion of their secondary education. If they perform well in ITE, there is formal articulation for progression from ITE to a polytechnic, and further from the polytechnic to a university.

Research Office
Information Services Division
Legislative Council Secretariat
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Tel: 2871 2110

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