Singapore

Introduction

1. This note outlines key features of the schooling arrangements in Singapore, and how these might contribute to Singapore's comparatively high level of educational outcomes as measured by PISA results.

Demographic context

2. The Republic of Singapore is a city-state in Southeast Asia comprising of one central island and 62 smaller islets. Its total population is slightly higher than that of New Zealand's, 5.6 million.[1] Similarly to Finland, it is a nation that lacks in natural resources, thus human capital is considered as their most precious asset.[2]

3. Census data collected on the approximate 4 million Singaporean residents (citizens and permanent residents) show that 74 per cent identify as Chinese, 13.4 per cent as Malay, 9 per cent as Indian, and 3 per cent as other.[3] The remaining 1.6 million comprises of non-residents (foreign workers and expatriates), of which it is difficult to find demographic breakdowns.

4. In 2016, Singapore had approximately 446, 582 students across 365 schools from primary school to junior college. This does not include special education schools, or private schools and international schools.

Structure of the system

5. The Ministry of Education is responsible for early childhood through to higher education. The Ministry is responsible for allocating funding, setting the national curriculum, and teacher training, school leadership and teacher appraisal and promotion, and hiring and assigning staff to schools.[4]

6. Additionally, the Ministry is responsible for overseeing ten statutory boards that cover all aspects of the educational system;[5]

   a. SkillsFuture Singapore (SSG), coordinates the implementation of the SkillsFuture movement which promotes lifelong learning;

   b. Institute of Technical Education, a post-secondary institution that provides market-responsive courses for further education and training;

   c. ISEAS (Institute of Southeast Asian Studies) – Yusof Ishak Institute, a research institution dedicated to the study of socio-political, security, and economic trends and developments in Southeast Asia and its wider geostrategic and economic environment;

   d. Nanyang Polytechnic;

   b. Ngee Ann Polytechnic;

   c. Republic Polytechnic;

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[1] https://www.singstat.gov.sg/find-data/search-by-theme/population/population-and-population-structure/latest-data

[2] https://www.oecd.org/pisa/PISA-2015-singapore.pdf

[3] http://www.tablebuilder.singstat.gov.sg/publicfacing/partialDisplay.action

[4] http://ncee.org/what-we-do/center-on-international-education-benchmarking/top-performing-countries/singapore-overview-2/singapore-governance-and-accountability/

[5] https://www.moe.gov.sg/about

d. Science Centre Singapore, an institution dedicated to scientific and technological education by providing imaginative and enjoyable experiences accessible for everyone;

e. Singapore Examinations and Assessment Board, develops and conducts all national exams in Singapore;

f. Singapore Polytechnic;

g. Temasek Polytechnic.

7. Singapore has many international schools, due to having a large expatriate community. The Committee for Private Education (CPE) was appointed by the SkillsFuture Singapore Board in 2016 to carry out its powers and functions relating to private education under the Private Education Act.[6] It holds legislative powers to regulate and uplift the standards.

8. Compulsory schooling in Singapore is from above the age of 6 until a child has turned 15. Children typically start primary school at the age of 7.[7] Primary school is a compulsory six year course that builds a strong educational foundation. Following the results of the Primary School Leaving Examination (PSLE) which are usually sat at the end of Primary 6, students then spend 4 or 5 years at a secondary school suited to their academic progress and interests.

9. All schools are taught in English, one of Singapore's four national languages. Bilingualism is a cornerstone in the Singapore education system, students are required to elect a 'mother tongue' subject from the remaining official languages; Mandarin, Malay, or Tamil.

Achievement

10. Singapore is a consistently top performing country, the 2015 top performer in PISA.[8] Their mean performance in 2015 PISA was ranked 1st for reading, science, mathematics, and problem solving. This held true for all disciplines for both male and female students, except for girls' performance in reading, 2nd.

11. Singapore performs well in terms of equity, with one of the lowest percentages of students who are low-performing on all four subjects in PISA. Although there is significant socio-economic disadvantage, this only has a moderate impact on educational outcomes. The most disadvantaged students in Singapore perform higher than the OECD average, and they have one of the highest percentages of resilient students.[9] However, the spread of student scores indicates that there is a greater degree of inequity within Singapore than in other top performing countries such as Macao (China), Hong Kong, and Vietnam.

Features of the Singapore system

Culture that values education and a strategic approach

12. The ethos of education in Singapore is characterised by aiming to nurture the whole child to develop the capabilities and dispositions to thrive in the 21st century.[10] This

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[6] https://www.cpe.gov.sg/

[7] https://www.moe.gov.sg/education/education-system/compulsory-education

[8] http://gpseducation.oecd.org/CountryProfile?primaryCountry=SGP&treshold=10&topic=PI

[9] Resilient students are in the bottom quarter of the PISA index of economic, social and cultural status [ESCS] who perform among the top quarter of students internationally.

[10] https://www.moe.gov.sg/education/education-system/desired-outcomes-of-education

philosophy is known as, '*Thinking Schools, Learning Nation'* (TSLN), and fosters critical thinking skills rather than an exchange of knowledge. This was then developed into the '21st Century Competencies' framework in 2015 and reflected in the 'Desired Outcomes of Education' which include:

   a. A confident person with a strong sense of right and wrong, is adaptable and resilient, is discerning, capable of critical thinking, and can communicate effectively;

   b. A self-directed learner who takes responsibility for their own learning, questions, reflects and perseveres;

   c. An active contributor who can work within teams, takes risks and initiative, and is innovative and strives for excellence;

   d. A concerned citizen with Singaporean roots, civic consciousness, and takes an active role in bettering the lives around them.

13. In line with these values, the curriculum was given increased flexibility and variety, with a greater number of inquiry-based activities incorporated.

14. Students in Singapore believe that their hard work and effort will lead to success. This belief is common in many East Asian countries and has led to higher scores in PISA and TIMMS in comparison to those who believe that their scores are determined by inherited intelligence.

Cohesion between all agents involved

15. Schleicher describes the education system in Singapore as *"porous",* in the sense that all institutions involved in education, i.e., the Ministry of Education, schools, universities, have the same, coherent vision for education.[11] There is the ability for professionals to move between areas of policy, research, and practice throughout their careers. There is a greater degree of inclusion and communication between policy and implementation; teachers will know what decisions are being made and why, and policy-makers will design policy with teachers and students in mind. Education changes as conditions change; there is a cycle of continuous improvement from all agents within the system.

Commitment to equity and wider policies that support equity

16. The government has a number of policies that aid those who are disadvantaged. Different ethnic groups have committees on local councils who have a role in identifying families that require aid and ongoing support. Their schools are given additional funds to provide learning resources and enrichment activities, and the families are given funds to assist with travel, or breakfasts.

17. To help address the large spread of highest and lowest performing students, all students are screened at the beginning of Primary 1 to assess their reading and numeracy abilities. For those that are struggling, there are two programmes that are targeted for these students:[12]

   a. Learning Support Programme (LSP) is a specialised early intervention programme aimed at students who enter primary school with weaker English skills. Qualified teachers assist students for half an hour daily in small groups until they have the skills to access learning in regular classrooms.

   b. Learning Support Maths (LSM) is the math equivalent, similar to the LSP. A qualified teacher assists students for four to eight periods per week.

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[11] Andreas Schleicher is the Director for Education and Skills at the OECD, and initiated and oversees the PISA test.

[12] https://www.moe.gov.sg/education/programmes/learning-support

18. Allied Educators (Learning and Behavioural Support) [AEDs(LBS)], are support staff that support students with mild special educational needs, i.e., dyslexia, autism spectrum disorder, in mainstream schools. All primary schools have at least one AEDs(LBS), with the government aiming to recruit more for primary and secondary schools. They have a number of responsibilities within their schools:

    a. Developing, implementing, monitoring, and evaluating support programmes for their students;

    b. Working with parents and other teachers trained in special needs (TSNs) and school counsellors to identify and support struggling students;

    c. Build capacity within the school system to support processes, i.e., building teacher capacity, setting up referrals, maintaining and updating databases and documentation;

    d. Involved in networks with other [AEDs(LBS)] to share and develop best practices.

19. Approximately 10 to 20 per cent of teachers in primary and secondary schools are TSNs. They can provide a range of different strategies to adapt to their students as well as help build capacity in other teachers. The government plans on increasing the number of TSNs in schools.

20. For students with more moderate to severe impairments that prevent them from attending mainstream schools, the Ministry and the National Council of Social Services fund special education schools. They tend to have long waitlists for admission and the schools are often specialised for students with particular impairments. The Ministry provide additional funding to these students.

Wellbeing of Singaporean students

21. The results of PISA 2015 suggest that Singapore students have amongst the highest rates of schoolwork related anxiety and exposure to bullying. There is little difference between advantaged and disadvantaged students.[13] This has been attributed to the high rates of competition between students and their families to get into the most prestigious schools. However, Singaporean students also report high rates of feeling supported by their teachers.

School organisation

22. Schools are organised within four zones of 7 or 8 localised clusters of 10 to 14 schools with a greater degree of autonomy that allows for more innovative teaching practice and collegial sharing. This has enabled schools to be more innovative in their programmes.[14] Successful principals were given the role of cluster superintendents and mentor other principals and teachers, as well as promoting innovation.

23. In addition to the school clusters, there is a School Appraisal Branch, and a School Cockpit Administration Centre. The School Appraisal Branch is responsible for the implementation of the School Excellence Model and the recognition system. They conduct external audits of schools and provides advice and information to support continuous school improvement. The School Cockpit Administration Centre maintains the school cockpit system, coordinates the new IT systems in schools, and tracks policy and procedure changes and their impacts on the IT systems.

24. In Singapore, administrative and professional accountability are combined. The government sets annual goals, provides schools/clusters with support to achieve them,

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[13] http://gpseducation.oecd.org/CountryProfile?primaryCountry=SGP&treshold=10&topic=PI
[14] https://www.oecd.org/pisa/PISA-2015-singapore.pdf

and then assesses whether or not they have been achieved. Student performance data are included in these assessments, alongside a range of other measures, such as teachers' contributions to the school and community, and judgements by a number of senior practitioners. Reward and recognition systems for schools and individuals of all areas of education include honours and salary bonuses. Categories in the 'Edu-awards' include awards for individuals who go beyond the call of duty towards society, or who use innovation to deliver positive change. Individual appraisals for teachers and school leaders are conducted within the context of school-excellence plans.

Preschool education

25. Early childhood education is not compulsory in Singapore. Children typically attend kindergarten from around age 4 to 6, with 90 per cent attendance for children aged 5 to 6.[15] There are private providers as well as public Ministry-operated centres. The Ministry provides 18 kindergartens, some within primary schools and community spaces. Programmes are typically four hours per day, and there are care services for parents that require full-day care.

26. Nurturing for Early Learners is the framework that underpins the early childhood curriculum. HI-Light, the core curriculum, focuses on creative expression, language and literacy, discovery of the world, numeracy, motor skills, and social and emotional development. Starlight Literacy is a programme alongside HI-Light and aims to develop bilingualism, offered in English and any of the other mother tongue languages.

27. Over the next three years, the Ministry is working in partnership with other operators to introduce a continuum of learning from two months of age to six years. This will allow for smoother transitions between Early Years Centres and Ministry operated kindergartens.

28. KidSTART is a pilot programme that aims to help low-income and vulnerable families to address barriers and attend preschool.[16] It is thus far limited to Singapore citizens that live in prerequisite areas, hence its efficacy at this stage may be limited until it is fully implemented.

Primary school

29. Primary school consists of an initial foundation stage, Primary 1 to Primary 4, typically between the ages of 6 to 10. English, math, and a mother tongue language are part of the core curriculum, as well as other subjects of interest including art, music, and character and citizenship education. Science is introduced from Primary 3. At all levels of primary, teachers consider the pace at which each student learns and there are programmes that are dedicated to giving students additional help when necessary. At the end of Primary 4, school-based examinations are sat and the results will determine whether students study standard or foundation subjects in Primary 5 and 6, depending on their strengths and weaknesses.

30. At the end of Primary 6, students will take the Primary School Leaving Examination (PSLE). Students are tested on four subjects, and there is no age requirement for students to sit the PSLE. The subjects students are tested on are at either standard or foundation level in English, a mother tongue language, Maths, and Science. This assesses a student's aptitude and determines what secondary school they will attend. Alternatively, students can apply for direct admission into some secondary schools that

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[15] https://www.msf.gov.sg/media-room/Pages/Statistics-on-Singaporean-children-who-have-not-attended-pre-school.aspx
[16] https://www.ecda.gov.sg/Parents/Pages/KidSTART.aspx

allow students with achievements in other non-academic areas to enter schools of their choice.

Secondary school

31. Following the results of the PSLE, students spend four to five years at secondary school, typically between the ages of 13 to 16. There are three different streams that a student can go into, depending on their academic ability and interests; express, normal (academic), and normal (technical). Schools can offer one or more of the different academic streams and there is flexibility in movement between courses in different streams. Core subjects, including English, mother tongue, maths, and science, are taught across all streams, albeit to different degrees of competency:

    a. Express, four-year course that leads to the Singapore-Cambridge General Certificate of Education (GCE) O-level exam. This path is for the top academic performers and grants faster pathways into University. GCE A-level or equivalent exams must still be taken for university entry, O-levels are not considered an equivalent and grant entry into Junior College or polytechnic.

    b. Normal (academic), four-year course that leads to the GCE N(A)-level exam. If students do well, this grants them opportunity to complete the O-level exams or bypass their GCE N(A)-level exams altogether.

    c. Normal (technical), four-year course that leads to the GCE N(T)-level exam. Subjects in this stream include English, mother tongue, and math, however also include more practical based subjects.

    d. Integrated programme, a small proportion of secondary schools offer integrated programmes where the GCE O-levels are bypassed in favour of the GCE A-levels, or equivalent, i.e., the International Baccalaureate.

32. There is flexibility between the streams, such that students may move to different streams to challenge or suit their needs. Additionally, there are alternative pathways and programmes for students who did not qualify for secondary school places.

Post-secondary education

33. Students typically attend a post-secondary institution;

    a. Junior College/Centralised Institute, pre-university education is administered at junior colleges (two-years) or centralised institutes (three-years). Students complete the GCE A-level exams or equivalent which will allow them to enter university or polytechnic. Students are required to take contrasting subjects, from Mathematics and Sciences, and Humanities and the Arts, as well as participate in Values-in-Action programmes that support student development as socially responsible citizens.

    b. Polytechnics, those with O-level or A-level certificates can apply for a diploma courses. These are a wide range of industry relevant skills in areas such as engineering, accountancy, and business studies. Graduates have the opportunity to go to University to further their studies if permitted.

    c. Institute of Technical Education (ITE), ITE is a vocational institution with partnerships with companies and industries. The courses offered can be more niche, automotive and culinary, and allow for entry into polytechnics.

    d. Art Institutions, these are publically funded degrees and diploma programmes in creative arts.

e. Universities, there are six publically funded universities in Singapore, some of which specialise in particular areas of study.

Quality assurance and system monitoring

Key accountability mechanisms

34. The Singapore Examinations and Assessment Board (SEAB) is a statutory board that works closely with the Ministry to develop and conduct the national examinations.

35. The school-excellence model lets each school set its own goals and they measure their own progress against them. Academic achievement is one factor of nine other criteria, including what the school achieves in relation to their community, and how a school develop and utilise the potential of their staff. All criteria requires evidence systematic planning and measuring against appropriate benchmarks.[17] Each school undergoes an external Ministry review every six years. If there is no evidence to justify scores, then it will be changed.

Teachers and teaching quality

Teacher recruitment

36. Teaching in Singapore is a well-respected profession, partly due to culture, but also due to the high admission requirements and that their students are amongst the top-performing students in the world.[18] The government selects teacher candidates from a pool of high-performing graduates and offers them a monthly stipend during their initial teacher education. The teachers are then committed to teaching for at least 3 years. The government also ensures that starting salaries for teachers remain as financially attractive as other professions.

37. The government assigns strong teachers and principals to schools that are struggling in order to raise their achievement. Schools have little power in making hiring decisions, however the principal will sit on the recruitment panel and give their opinion. Many teachers in Singapore have experience working with struggling schools or those with high proportion of disadvantaged students, it is considered extremely difficult for teachers to progress their careers if they have not worked in these schools.[19]

38. The National Institute of Education is the national institute of teacher education in Singapore and institute of Nanyang Technological University.[20] It comprises of 12 academic groups that cover teacher training, professional development and learning, and educational research.

Teacher development

39. A significant amount of professional development is school based, led by staff developers who identify teaching-based problems or introduce new practices. This gives teachers greater autonomy over professional development and facilitates a teacher-led culture of professional excellence.

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[17] Ng, P. T. (2007). Quality assurance in the Singapore education system in an era of diversity and innovation. Educ Res Policy Prac. DOI: 10.1007/s10671-007-9018-x

[18] http://ncee.org/what-we-do/center-on-international-education-benchmarking/top-performing-countries/singapore-overview-2/singapore-teacher-and-principal-quality/

[19] http://ncee.org/what-we-do/center-on-international-education-benchmarking/top-performing-countries/singapore-overview-2/singapore-teacher-and-principal-quality/

[20] https://www.nie.edu.sg/about-us/corporate-information/

40. Teachers are entitled to 100 hours of professional development per year to improve teaching practice and remain up to date in their field. The Academy of Singapore Teachers was established in 2010 to further encourage teachers to continuously share best practices.

Teacher appraisal

41. After three years of teaching, Singapore encourages teacher development through its Enhanced Performance Management System, part of the career and recognition system under the "Education Service Professional Development and Career Plan". This structure has three components; a career path, recognition through monetary rewards, and an evaluation system. The plan recognises that teachers have different aspirations and provides for three career tracks for teachers:

    a. The Teaching Track, which allows teachers to remain in the classroom and advance to the level of Master Teacher;

    b. The Leadership Track, which provides opportunities for teachers to assume leadership positions in schools and in the ministry's headquarters;

    c. The Senior Specialist Track, where teachers join the ministry's headquarters to become part of a "strong core of specialists with deep knowledge and skills in specific areas in education that will break new ground and keep Singapore at the leading edge".

42. The Enhanced Performance Management System (EPMS) is competency-based, and defines the knowledge, skills, and professional characteristics appropriate for each track. The process involves performance planning, coaching and evaluation. The decision about a teacher's potential is made in consultation with senior staff who have worked with the teacher. It is based on observations, discussions with the teacher, portfolio evidence and the teacher's contribution to the school and community.

43. Teachers are appraised annually, by a board, against 13 different competencies. These are not just about academic performance, but include teachers' contributions to the academic and character development of the students in their charge, their collaboration with parents and community groups, and their impact on their colleagues and the school as a whole. Teachers who do outstanding work receive a bonus from the school's bonus pool.

School leadership

44. The Enhanced Performance Management System identifies three distinct career paths for teachers, one of which provides opportunities for teachers to progress to leadership positions. This means that all school leaders have previous teaching experience and have been identified as having attributes and the desire to pursue the leadership pathway.

45. School leadership appraisal is conducted under the EPMS; goals and development are set by the principal and the cluster superintendent who acts as a supervisor.[21] At the end of the year, the principals undergo an appraisal through their own self-assessment, and feedback from their cluster superintendent and the deputy director (who is responsible for the cluster superintendents).

46. At each stage of their career progression, there is opportunity for professional development courses at the NIE and to visit and learn from their peers. Principals who have served for six or more years are permitted to take one year sabbaticals to pursue their own development.

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[21] http://ncee.org/2016/02/shaping-strong-principals-in-singapore-success-by-design/

Role of choice and competition

47. The PSLE aggregate score is derived from the sum of the T-scores from English, mother tongue language, science, and math taken by students. T-scores are based on where students score relative to each other, and secondary school choices are given on merit. From 2021, the individual scores will be used instead.[22] This has led to competition between students, which has led to reduced student wellbeing. One article noted that a child had committed suicide for fear of sharing his exam results with his parents.[23]

48. Anecdotally, there are reports of significant stress and parental pressure that has been placed on Singaporean students in order for them to excel academically and gain entry into the most prestigious schools.[24][25] This competition has manifested in a culture of significant hours outside of school being dedicated to private tuition and enrichment classes. As stated earlier, PISA 2015 suggests that student wellbeing is much lower than high-performing systems such as Finland, and Singapore needs to address these issues.

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[22] https://www.moe.gov.sg/microsites/psle/PSLE%20Scoring/psle-scoring.html

[23] http://www.scmp.com/lifestyle/families/article/2111822/downsides-singapores-education-system-streaming-stress-and

[24] http://www.abc.net.au/news/2016-01-06/best-education-system-putting-stress-on-singaporean-children/6831964

[25] https://www.channelnewsasia.com/news/commentary/applied-learning-programme-education-singapore-change-elusive-10028462