

## International Education Developments in Singapore

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Gavin Sanderson

Flinders University School of Education [gavin.sanderson@flinders.edu.au](mailto:gavin.sanderson@flinders.edu.au)

*This paper considers contemporary higher education in Singapore and its relationship to the larger international context. It shows that international education has been established as a result of fundamentally different motives than the current full fee-paying programs found in western countries. It argues that on-shore international education in Singapore is a catalyst to prepare local institutions for the next wave of the nation's economic development, as it is oriented to be the regional hegemonic player in a 'knowledge economy' driven by a world class tertiary sector. Considerations of history, culture and economic development add substance and depth to the claim that Singapore, by necessity and design, is on the verge of creating a unique 'hub' of international education which will challenge traditional western models that have been so dominant throughout the final years of the last millennium.*

Singapore, International Education, Internationalisation, Postcolonial Education

### INTRODUCTION

The story of modern Singapore is a remarkable one. After more than one century of colonial rule that established Singapore as an important trading entrepot, the small island emerged as a sovereign nation in 1965 with challenges on a number of fronts that did not auger well for a prosperous future. With the departure of the British and much of their established trade, the newly-independent Singapore inherited a poorly-educated, poverty-stricken workforce beset by chronic unemployment. In a setting characterised by regional disquiet, Singapore was expected to struggle to create "a cohesive and robust sense of nationhood and economic growth" (Gopinathan, 1997a, p.33). In less than four decades, however, Singapore has emerged as one of the strongest of the Asian 'tiger' economies and in 1997 it was classified by the International Monetary Fund (IMF) as an 'advanced economy' (Ministry of Information & the Arts, 1998, p.3).

To a casual observer, such a phenomenal ascendance appears paradoxical, given that the island has no resources apart from its land mass of 687 square kilometres and its four million multi-racial, multi-lingual and multi-religious inhabitants. For a country which imports half of its water, most of its food, and all of its energy, it seems a most unlikely candidate for being the strongest economy in southeast Asia, with a per capita growth that exceeds most industrialised countries. Upon closer inspection, however, it is clear that it is not by accident that Singapore has achieved so much in such a short time against such odds. As far back as the 1960s, the government began promulgating a development-driven ideology in sectors thought to possess the greatest growth potential for the realisation of national goals (Gopinathan, 1997b, p.588). Since then, the policies embraced by the long-serving People's Action Party have led the country through several discernable economic phases to develop and maintain a competitive advantage in an increasingly globalised world.

Underpinning Singapore's success was the Government's recognition that from the very outset, the island's only real potential was its human resource and that this would ultimately have to be the main foundation of the economy. Consequently, a commitment was made in the mid-1960s to

upgrade human capital through investments in education and vocational training (Bercuson, 1995, p.4). As a result, Singapore has a well-developed state education system which comprises primary, secondary and tertiary sectors that provide “human resources to meet the country’s imperative for an educated and skilled workforce” and “inculcate sound moral values in the face of rapid progress and change” (Ministry of Information & the Arts, 1998, p.206). Development of the polytechnics and universities has been a particular focus for the Government as these institutions are the major supplier of Singapore’s skilled, technical expertise.

This paper evaluates contemporary higher education in Singapore and its relationship to the larger international context. It shows that international education in Singapore’s post-secondary institutions is quite established but as a result of fundamentally different motives than the current full fee-paying programs found in western countries such as Australia, New Zealand, Canada, the United Kingdom, and the United States. It argues that the *raison d’être* of on-shore international education in Singapore is to help prepare local institutions for the next wave of the nation’s economic development, as it orients itself to be the regional hegemonic player in a ‘knowledge economy’ driven by a world class tertiary sector which will transform Singapore into the ‘Boston of the East’ (The Straits Times, 29 Jan 1997). Juxtaposed against the current influx of mainly ASEAN<sup>i</sup> students, many Singaporeans have historically had little choice but to study overseas because of the intense demand for limited higher education places in Singapore. Throughout the paper, considerations of history, culture and economic development will add substance and depth to the claim that Singapore, by necessity and design, is on the verge of creating a unique ‘hub’ of international education which will challenge traditional western models that have been so dominant throughout the final years of the last millennium. The journey is not without its challenges, however, and issues of competition, nationalism, and Singapore’s relationship with the ‘east’ and ‘west’ loom as matters which the nation will have to address if it is to achieve long-term success as a sophisticated provider of international education as the means to attract, and develop talent-pool to create, own and exploit innovation and products.

### SNAPSHOT OF SINGAPORE

To understand Singapore’s engagement with contemporary international education it is important to appreciate the unique forces which have shaped the nation to what it is today. Events in the past two hundred years in particular have had significant bearing on how the country’s present Government has positioned itself with regard to its politics, defence, economic development, education, international relations and infrastructure.

### **Geography, History and Life under British Rule**

Singapore is a small, flat island which is conspicuous by its diminutive size, measuring only 42 kilometres by 23 kilometres. It lies close to the equator at the southern tip of the Malay Peninsula and has a hot and humid climate with abundant rainfall all year (NOOSR, 1996, p.1). Although records indicate indigenous and Chinese settlement as far back as the third century AD, the foundation for modern Singapore was set in the early 1800s when it became the centre of government for the British ‘Straits Settlements’ and the major port in the region. Toward the end of the 1800s, the advent of the steamship and the opening of the Suez Canal heralded unprecedented trade opportunities and economic growth for Singapore and this attracted many immigrants. As the nineteenth century drew to a close, Singapore’s population soared above

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<sup>i</sup> ASEAN: Association of Southeast Asian Nations, of which Singapore is a member

80,000 and was comprised of 62 per cent Chinese, 16.5 per cent Indian, 13.5 per cent Malay, and 8.5 per cent ‘others’, including Europeans (Ministry of Information & the Arts, 1998, p.15).

### **The Call for Independence**

The flourishing economy and regional peace was shattered when the Japanese seized the island in 1941 when they invaded the Malay Archipelago that included Indonesia, Malaya, Borneo and Singapore. Although Allied Forces reclaimed Singapore three and a half years later and proclaimed it as a British Crown Colony, the chaos precipitated by World War II would change things forever. Countries and colonies in the region had to redefine themselves and the way they interacted with neighbours and powers further afield. By 1955, the emergence of communist insurgents in the region and the insistence of the local merchant class for a presence in the Government resulted in the British supporting a revised constitution which paved the way to internal self-government in 1959 (NOOSR, 1996, p.2). The People’s Action Party (PAP) collected 53.4 per cent of the votes of the first general election and Lee Kuan Yew was installed as Singapore’s first Prime Minister. The way forward was not entirely without friction, however, and in a bid to sever colonial ties with the British and to quash the possibility of communist takeover, Singapore agreed in 1963 to merge with Malaya as part of a larger federation which included Sarawak, North Borneo and Brunei. Due to political tensions, Singapore was forced to leave the Malaysian Federation and became a sovereign state in its own right on August 9<sup>th</sup>, 1965 and a member of the Commonwealth in the same year. In that same year it proclaimed its independence as a republic (Ministry of Information & the Arts, 1998, p.17).

### **The Reluctant Republic takes the Bull by the Horns**

The proclamation of the republic was made more with trepidation than with celebration, for it had not been a long-standing goal of Singapore’s Government. Indeed, observers in the region commented that the small island nation was nothing more than a political joke (Minchin, 1990, p.163). Prime Minister Lee, 42 years of age at the time, reflects that the expulsion from the Malaysian Federation brought home the enormity of the ‘twin challenges’ of building a nation “out of a disparate collection of immigrants from China, British India and the Dutch East Indies” at a time when its economic development would require much greater returns than the rapidly diminishing role as regional entrepôt could provide (Lee, K.Y. 2000, p.19). In the face of what appeared to be overwhelming odds, a strengthened PAP under the strong leadership of Lee Kuan Yew mobilised itself to address the issues at hand.

Making the most of its strategic location in a stable and growing global economic environment, Singapore embarked on a program of rapid industrialisation by introducing open trading systems and flexible labour markets to court foreign enterprises to locate manufacturing facilities on the island. The Government’s support for such market-leading policies was to be a hallmark for successive phases of Singapore’s economic development which saw it go from being a semi-closed, low wage producer of mainly labour-intensive goods to a very open, high-wage producer of high-technology, capital-intensive products, and diversification into value-added business and financial services from the mid-1980s (Bercuson, 1995, p.11). Singapore’s outstanding economic success is all the more evident by the climb from a per capita Gross Domestic Product of US\$400 in 1959 to more than US\$12,000 in 1990 and US\$22,000 in 1999 (Lee, K.Y. 2000, p.13).

## **THE ROLE OF EDUCATION IN SINGAPORE’S DEVELOPMENT**

Whilst Singapore’s economic policies were a catalyst for stunning growth, the Government’s focus on developing a ‘first world’ infrastructure provided the environment for success and, to

this end, high levels of expenditure were committed to housing, defence, transport, and communications (Carling, 1995, p.21). It was, however, the development of Singapore's human resource which Prime Minister Lee said would determine whether the nation would "sink or swim" (Minchin, 1990, p.242). Only an educated and skilled labour force would be able to respond to the opportunities made available by the developing world economy and provide Singapore with a competitive advantage over other countries in the region.

Although the British had presided over Singapore's education system during the 1800s and into the 1900s, Gopinathan (1997b, p.593) points out that the island's education history during colonial rule is one of 'benign neglect, ad hoc policy making and indifference to consequences'. Schools were segregated on the basis of language and the Chinese, Malay and Indian schools shared no common curriculum with the English schools and were significantly underfunded. It is little wonder that at the time of Singapore's independence, its poorly-educated population showed little potential to respond to the challenges that lay ahead. Regardless of the state of disrepair of Singapore's education at the time, one of Prime Minister Lee's abiding concerns was to restructure the system and harness it to nation-building. In the 1960s, the Government pursued a tripartite system of academic, vocational and technical schools to support the country's basic economic policies. Throughout the 1970s, increased industrialisation saw a diversification of secondary education away from the academic stream in favour of technical skills. Into the 1980s and 1990s, the focus was well and truly on "technically/vocationally trained manpower" and this resulted in significant investment in post-secondary institutions such as polytechnics and universities (Gopinathan, 1997a, pp.36-38).

The advantage of the unicameral nature of Singapore's Government was (and remains to this day) its ability to have direct intervention in the operation of its civic institutions by way of policy. Quite simply, the Government decided that the 'national good' would be served by primary education which would inculcate in the youth a "love of Singapore" whilst secondary and tertiary sectors would be "planned in terms of projected economic growth and manpower requirements" (Tan, O.S. 1996, p.23). To this end, there was never any question that the latter would be anything but focused on technical (and later business) education at the expense of disciplines such as the arts, which would have to "catch up later" (Lee, K.Y. 2000, p.13). Whilst it could be claimed that this is an example of the 'cold-blooded' style in which Singapore's policies are formulated, it could equally be maintained that PAP's style of 'democratic socialism' has been necessary to have the nation evolve from a 'fragile state' at the time of independence, to being a 'strong state' at the turn of the 21<sup>st</sup> century. Arguments aside about the merits or otherwise of 'social engineering', it is clear that Lee's blend of democracy which promoted private ownership yet kept private interests subordinate to those of the state has "liberated his people into the upper reaches of modernity" (Minchin, 1990, p.243). Put succinctly, Singapore's success is founded on its ability to remain vigilant for opportunities in the global marketplace whilst concurrently employing a hard-nosed pragmatism in its domestic policies, and it is this focus which is evident in its education processes.

### **SINGAPORE'S INTERNATIONAL EDUCATION EXPERIENCE**

Whether in its colonial past or as the Republic of Singapore, the nation's history and prosperity is intimately related to its engagement with the outside world. It is hardly surprising, therefore, that the country exhibits a rich tapestry of experience with international education. Whether one's definition of international education is 'acquiring another language', 'completing part or all of studies overseas', 'education by correspondence', or 'education as aid', it is clear that Singapore is not a newcomer to ideas associated with cross-border movements of ideas, institutions, teachers and students. Indeed, it will be shown that contemporary international education in Singapore

shares many of the characteristics associated with other countries which are stakeholders in international education, such as ‘promotion and marketing of courses’, ‘onshore international student programs’, ‘study abroad and exchange programs’, and ‘development of links with institutions abroad’, as well as a myriad of administrative and management processes behind each of the above.

To begin with, Lee Kuan Yew’s own education background and experience as a politician provides a fascinating insight into the richness of international education which can be found in Singapore. He was born in Singapore into Chinese culture but “westernised through upbringing and education” at an English-speaking school (Minchin, 1990, p.ix). He topped Malaya in the senior Cambridge exam and obtained a law degree with highest honours from Cambridge University as an international student between 1946 and 1949 (Tamney, 1996, p.3). In the early 1960s, in a bid to ensure that Singapore’s education system was emulating successful foreign models, he “visited Briton’s Eaton, some of its North American equivalents and even certain schools in Eastern Europe” (Minchin, 1990, p.259). Then, in 1968, after nine years in office as Prime Minister, Lee took a sabbatical at Harvard “to get some fresh ideas and reflect on the future” during which he “learned much about American society and economy” (Lee, K.Y. 2000, p.73). In addition to speaking English, Lee also speaks Malay and learned Mandarin and the Hokkien dialect as an adult. Although Prime Minister Lee’s extraordinary personal experience cannot be extrapolated to the experience of all Singaporeans, it elucidates certain themes related to international education that are pervasive in Singapore to this day, viz. value ascribed to education with an outward-looking perspective, whether it be learning other languages or studying abroad to relate with different cultures and examine their ideas.

### Language in Singapore

One of the foundations of Singapore’s ability to engage with other nations is the ability of its students and workforce to communicate in English, the *lingua franca* to a large extent of both international education and business. Although the British brought the English language to the region, they did not require that it had to be taught in Chinese, Malay and Indian schools. After independence, however, Lee insisted that English had to be used as “the language of the workplace and the common language” because “as an international trading community, we would not make a living if we used Malay, Chinese or Tamil” (Lee, K.Y. 2000, p.170). Whilst it was a controversial issue at the time, the resultant national education system has unified English and non-English medium schools into a single system with a bilingual policy which teaches English as ‘the language of commerce, technology and administration’, as well as ‘languages of cultural heritage such as Malay, Chinese (Mandarin) and Tamil’ (Ministry of Information & the Arts, 1998, p.206). This gives Singapore’s students and workforce a number of distinct advantages:

- Students can travel abroad to a variety of English-speaking countries to study
- Students can travel abroad to the country of their ‘mother tongue’ to study
- Singaporeans can take advantage of distance education or academic programs run in English by foreign institutions on-site in Singapore<sup>ii</sup>
- Businesses and government in Singapore can engage with a variety of English-speaking countries

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<sup>ii</sup> For example, Adelaide University degrees are offered through the Ngee Ann Adelaide Education Centre; Flinders University degrees offered through the Singapore YMCA; the Royal Melbourne Institute of Technology runs degree programs with the Singapore Institute of Management

- Businesses and government in Singapore can engage with their counterparts in countries where the respective 'mother tongue' is spoken

Whilst command of English is undoubtedly critical for Singapore's ongoing success, it is important to note that mastery of other languages is valued as well, including many European languages. The most significant thrust at present is the teaching of Mandarin, given the economic developments in the Peoples Republic of China. Approximately 77 per cent of Singapore's current population is ethnic Chinese and the Government has actively promoted Mandarin in preference to Chinese dialects which have traditionally been used (Gopinathan, 1997a, p.49). As well as the obvious potential that this has for business, the idea of language as a 'carrier of values' cannot be discounted. Lee Kuan Yew relates that when he met students from China when he was studying in England, he became conscious of how deculturalised he felt, given that he had been educated in a 'stepmother tongue' and could not speak to the Chinese in Mandarin or any common dialect. Having never been formally tutored in Asian cultures and yet not belonging to the British culture either, he felt "lost between two cultures" (Lee, K.Y. 2000, p.169). Lee's personal experience was the basis for Government policy which pursued the teaching of Mandarin and other 'mother tongue' languages. Again, it is clear that Singapore is forever 'looking out' on a number of fronts (e.g. education, language, business, culture) whilst building itself as a nation. It is also clear that Lee Kuan Yew was a major determinant of Government policy and, as such, the direction of the republic<sup>iii</sup>.

### **Singaporeans Begin Studying Abroad**

The post-war period witnessed Singapore joining the global trend of large numbers of students moving between countries to obtain their tertiary education. One reason for this was that tertiary sectors in many emerging nations like Singapore did not have the latest technical expertise which was eagerly sought to assist in industrialisation. Another is that the number of tertiary places available to local students in Singapore was limited by virtue of there being only two tertiary institutions on the island, the English medium University of Singapore [est 1905] and the Chinese medium Nanyang University [est 1956]<sup>iv</sup> (Ministry of Education & the Arts, 1998, p.208). "Nanyang" or its equivalent "Nantah" refers specifically to the early overseas Chinese who immigrated to Singapore. The third reason for Singaporeans studying overseas was the outcome of political motives of other countries which were keen to have stability in the face of the 'communist threat' in the region. The Australian Government was willing to offer aid to strengthen social, administrative and economic processes in the less affluent Commonwealth countries in south and southeast Asia and a significant part of this initiative was the granting of scholarships under the Colombo Plan (Australia commemorated the 50<sup>th</sup> Anniversary in July 2001, in Malaysia) for students from recipient countries such as Malaysia, Indonesia and Singapore to study in Australia (Burns, 1958, p.40). Thus began a steady flow of Singaporean students to Australia. In addition, Commonwealth scholarships were offered to Singaporeans for study in New Zealand, Canada and the United Kingdom (Lee, H.L. 2000, p.1).

The early days of travel for sponsored study were instrumental in establishing not only educational outcomes, but also a familiarity with other countries, cultures and systems of education. Although 'education as aid' diminished in the 1970s and 1980s as Singapore's economy strengthened, the flow of students to overseas institutions continued unabated as rising per capita

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<sup>iii</sup> At the end of 1990, Lee Kuan Yew resigned as Prime Minister and was invested into the new position of Senior Minister which is located in the Prime Minister's Office

<sup>iv</sup> These two institutions merged to form the National University of Singapore in 1980

earnings and increases in disposable income meant that families could self-fund the overseas study of their children.

### Singapore's Polytechnics and Universities

The establishment of Singapore's polytechnics and universities has been pivotal in building on the nation's engagement with international education on a number of levels. They have provided Singaporeans with opportunities to study abroad and presently are host to a sizeable population of international students. The Government's financial contribution to this sector is significant and it subsidises all academic programs, both for local *and* international students. Entry is extremely competitive at all levels and can be put down to higher qualifications offering "wider occupational opportunity with commensurate benefits in terms of income and status" (Gopinathan, 1997a, p.40). Given the nation's focus on developing the economy, the academic programs at all universities and polytechnics are heavily biased towards technology and business:

**Table 1. Post-secondary Institutions in Singapore**

Institution and Year Established	Academic Focus
Singapore Polytechnic (1954)	Architecture & Built Environment, Business, Computing, Engineering, Electronics, Transport
National University of Singapore (NUS) [Singapore U and Nanyang U merged in 1980].	Arts, Architecture & Building, Business Administration, Dentistry, Engineering, Law, Medicine, Science, Social Sciences
Temasek Polytechnic [1990]	Business, Design, Engineering, Information Technology & Applied Science
Nanyang Polytechnic [1992]	Business Management, Engineering, Information Technology, Health Sciences
Nanyang Technological University (NTU) [Nanyang Technological Institute, (est.1981 merged with the Institute of Education (est.1973) in 1991]	Accountancy & Business, Communication and Information Studies, Engineering and Teacher Education in the National Institute of Education (1991)
Open University (run with Ministry of Education) collaborates with the Singapore Institute of Management [SIM] whose degrees are conferred by the Open University in the United Kingdom) since 1993.	Arts, Business, Management, Computer Science (SIM is a well-respected, not-for-profit professional institute which also offers Certificates, Diplomas, Degrees, Masters and Doctoral programs in collaboration with universities in Australia, China, the United Kingdom, and the United States. It is largely set up for part-time study and there is no provision for enrolment of international students)

Compiled from Ministry of Information & the Arts (1998), pp.209–227.

Note that Singapore Management University was established in 2000 and will be discussed later in the paper

The polytechnics provide 'para-professional training', which is "distinguished by a combination of practical, hands-on training, overseas/local industry attachments, and research and development work" (Contact Singapore, 2000a, p.3). A less-glossy description is that they produce "technically-competent workers" with "sub-degrees" to fill the "middle section in industry" (Davie, 2000, p.1). In 1998, the four polytechnics had 48,734 full-time students and attracted S\$410,148,000 in Government recurrent grants and S\$287,034,000 in developmental expenditure (Education Statistics Digest, 1999, Tables 15 & 28). Entry is via GCE 'O' or 'A'-Levels<sup>v</sup> or equivalent and is extremely competitive, with only 40 per cent of applicants gaining a polytechnic place. Students are awarded a diploma after two to three years of full-time study. Advanced (or

<sup>v</sup> Singapore-Cambridge General Certificate of Education 'Ordinary' (GCE 'O') Level, Singapore-Cambridge General Certificate of Education 'Advanced' (GCE 'A') Level

postgraduate) diplomas are also offered and usually take one year of full-time study after completion of the diploma and work experience.

The universities, on the other hand, offer a wide range of undergraduate and postgraduate programs and provide Singapore with a highly-skilled, professional workforce. In 1998, NUS and NTU had an enrolment of 32,109 full-time students and attracted S\$551,470,000 in recurrent expenditure from the Government and S\$356,166,000 in developmental grants (Education Statistics Digest, 1999, Tables 16 & 28). Entry is via GCE 'A'-Levels or equivalent and students are awarded a degree after three to four years of full-time study, after which they enter the workforce or, if their results are outstanding, can proceed to postgraduate programs. Neither the polytechnics nor the universities are involved in providing distance education and this is not surprising given that their focus has been largely to satisfy Singapore's workforce requirements.

### **Pathways to Overseas Study for Singaporeans**

Degrees from prestigious foreign universities are seen very much as a passport to the upper ranks of the civil service and business in Singapore (Tan, O.S. 1996, p.23). Countries such as Australia, Canada, New Zealand, the United Kingdom, and the United States are popular destinations and offer a range of foundation (GCE 'A'-Level equivalent), diploma, and degree programs for full tuition fees which attract two distinct groups of Singaporeans. The first group is those who choose to study overseas from the outset, either as a scholarship recipient or as a private student. The second group comprises students who, because of the fierce competition for entry to the polytechnics and universities, have no choice but to travel overseas to study by virtue of not obtaining a place in a home institution, whether at a pre-university college, a polytechnic, or in an undergraduate or postgraduate program at university.

At present, polytechnic diplomates are active travellers to overseas destinations to upgrade their qualifications to the degree level. One study indicates that up to 30 per cent of Singapore Polytechnic diplomates upgraded to a degree within five years of being awarded their diploma, and that the bulk of these had to seek their education overseas (Fong, 2000, p.4). It appears that whilst the Government encourages lifelong learning, it also values the 'manpower'<sup>vi</sup> potential and the investment made in an individual student once they are qualified at a certain level. For example, although it is possible for polytechnic diplomates to continue onto university in Singapore, places are extremely limited and they must have two years of work experience behind them. In addition, they may be only granted exemption from the first year of the university course (NOOSR, 1996, p.14), whereas many Australian universities grant up to two years advanced standing for a three year polytechnic diploma.

Although the Government presently seems to restrict most Singaporeans from staying in the educative process for successive qualifications in Singapore, it does not impede them from studying overseas to obtain the qualification(s) that they desire, even although this results in significant technical and capital outflow from the country. The corollary is that the students return home with a greater level of skill and expertise and this is a positive outcome for Singapore. In addition, their education overseas should instil in them a greater understanding of other cultures and a range of different perspectives on various issues. Given that Singapore's prosperity is based firmly on its relationships with other countries, the value of overseas experience cannot be overstated.

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<sup>vi</sup> The Ministry of Manpower is one of fourteen Ministries in Singapore's Government. 'Manpower' is commonly used in Singapore to describe 'labour' or 'workforce' and is gender-inclusive

It is also worth mentioning that there has been a proliferation of exchange places and overseas industry attachments, which are part of polytechnic and university education in Singapore, especially in the last few years. The trend is for increasing numbers of students to spend part of their study program overseas.

### **International Students in Singapore**

One of the obstacles which hinders an appreciation of the extent of the international student program in Singapore is the apparent lack (for public consumption at least) of any definitive statement on the program by the Government or the institutions themselves. For example, although it is estimated that there are approximately 11,000 international students currently studying in Singapore's polytechnics and universities<sup>vii</sup>, an exhaustive search failed to uncover statistical analyses or any in-depth investigations into current policies of the Government or its institutions, nor documentation of the international student experience. The category of 'international students' simply does not appear in the Education Statistics Digest (1999). To be sure, a plethora of media and website information provide snippets from which various themes can be extrapolated, but the dearth of analysis is glaring. This is most likely a reflection of the fact that Singapore's international student program is still relatively embryonic, let alone its institutions being small in number and half of them established only in the past decade. What the scraps of information do suggest is that the country's international student program plays an important part in supplementing Singapore's workforce as well as being part of a larger plan to help it achieve prominence as knowledge economy. Hence, the policy to enlarge the enrolment of students in both universities to about 30,000. This in turn increases the recruitment of some ten thousand more postgraduate doctoral students, both local and foreign to sustain the pool of researchers that are needed in science and technology.

There are two features of the international student program which are most striking. The first is that the international students (who come mostly from other ASEAN countries) pay only 10 per cent more for tuition than Singaporeans. For example, at Nanyang Polytechnic, a Singaporean pays S\$1,800 per year whilst an international student pays S\$1,980. The Government subsidy for the international student is S\$8,720 (Nanyang Polytechnic, 2000, p.1). At Nanyang Technological University, a Singaporean pays S\$5,500 per year and an international student pays S\$6,050<sup>viii</sup>. The Government subsidy for the international student is S\$13,950 for non-laboratory-based programs and S\$18,800 for laboratory-based programs (Nanyang Technological University, 2000, p.4). Although tuition fees vary slightly between institutions, a calculation of the estimated number of international students in Singapore multiplied by the amount of Government subsidy per student suggests that the international student program is being supported by at least S\$130 million per year; by no means an insignificant investment. The second striking feature of Singapore's international student program is that all students who take advantage of the Government subsidy (called a Tuition Grant) are bonded to stay and work in Singapore for three years after completing their study. The only way to forego this legally-binding commitment is either to pay the full tuition fee whilst studying or 'pay out' the balance of the tuition grant at some stage during the three years work in Singapore; by all accounts, not common practices. The

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<sup>vii</sup> Although a search failed to find this figure in print, it can be extrapolated from various media releases and the websites of some institutions that each polytechnic has 10% international students and each university has 20% international students. Dividing total enrolments by the respective percentages gives approximately 11,000 international students

<sup>viii</sup> The only exceptions are for medicine and dentistry (at NUS), for which for local and international students pay \$15,450 and \$17,000 respectively per annum

Government does not recoup any of the tuition grant from subsequent wages and the nature of the work does not have to be related to the area of study (Ministry of Education, 2000a, pp.1-9).

Clearly, these features are very different to the international student program in Australia, where students pay full tuition fees and more or less have to leave the country as soon as the requirements of the academic program are satisfied. Indeed, the nature of the tuition grant is reminiscent of the Overseas Student Charge (OSC) in Australia, which was the precursor to the FFPOS<sup>ix</sup> program. Of interest, the report from the Jackson Committee in the mid-1980s recommended that the OSC be phased out because it represented a 'hidden subsidy' of approximately A\$70 million per year which was funded by Australian tax-payers and that, instead, Australia could attract significant income by developing the tertiary sector as an 'export industry' (Jackson Report, 1984, pp.10-11).

Why, then, is Singapore beginning its foray into an onshore international student program based on an 'outdated' model, when it could be reaping significant gains from an exclusively full fee program? After all, full fees for only 11,000 international students would result in a yearly income of over S\$178 million. Furthermore, what benefit is there to have international graduates stay on to work for three years if they do not have to repay any money to the Government? Whilst these features of Singapore's international student program seem like poor business sense on the surface, the answers are twofold and lie in Singapore's need for a skilled, foreign workforce, and its institutions having to achieve world-class standing so that the Government can pursue its plan to develop its tertiary sector as a platform for the 'knowledge economy'. In short, Singapore is making a major investment in its future on both counts and its international student program is anything but 'poor business sense'. Whilst an absence of a cohesive source of information about the international student program gives a sense of a lack of coordination at the policy level, the Government is in fact driven in its focus and clear in its objectives. By this token, Singapore goes global with its network of foreign alumni who not only graduate from the universities but also, would have lived and worked in Singapore.

With respect to having international students stay on to work for three years, the idea of foreigners working in Singapore is not a new one. For many years, the Government has maintained that Singapore needs a controlled, revolving pool of foreign workers to complement the local workforce for continued economic growth, especially as the indigenous workforce is growing slowly and ageing rapidly (Ministry of Information & the Arts, 1998, p.247). Indeed, the Government's Population Census 2000 puts the non-resident population at 754,524 out of a total population of 4,017,733 (Singapore Census of Population, 2000, Table 1). The foreign workforce provides a range of services, from labour for construction and infrastructure development to high-level expertise in the manufacturing and business sectors. The Minister for Education, Teo Chee Hean, maintains that foreign students should be seen as an investment to stay competitive in the global economy, not only for the contribution they make during their three years of work, but also because of the strong links they make with people, industry and business for years to come (Teo, 2000, p.1).

### **GEARING UP FOR THE KNOWLEDGE ECONOMY; SINGAPORE AS A MAJOR EDUCATION HUB**

Singapore is on a mission to develop a knowledge-based economy which will transform it into a global hub of knowledge-driven industries with world-class capabilities. The various Government

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<sup>ix</sup> Full Fee Paying Overseas Student program, a significant feature of which was that institutions could keep full tuition fees for their own discretionary use

Ministries have dedicated significant resources to programs such as Singapore 21 Vision, Industry 21 Plan, Technopreneurship 21, and Manpower 21 Blueprint which provide frameworks to drive the ‘twin engines of manufacturing and services’ with a strong emphasis on technology and innovation. An integral part of the vision of the knowledge-based economy is for Singapore to become a world-class education hub by 2010, which will be internationally renowned for its intellectual capital and creative energy. As such, Singapore has invited a number of the “world’s top universities” to set up centers of excellence and research on the island with strong industry links which will offer added diversity and choice for local and international students (Singapore Economic Development Board, 1999, pp.1–14). They are:

- Harvard Business School
- Chicago Graduate School of Business
- Massachusetts Institute of Technology
- Cornell University
- John Hopkins Medical School
- New York Institute of Finance
- INSEAD
- Wharton Business School
- Georgia Institute of Technology

These prestigious western (and mostly American) institutions will be joined by three prominent eastern institutions to offer the ‘crème de la crème in education’ across a spectrum of disciplines, ranging from business and management to medicine, engineering and applied sciences. Those eastern institutions are the National University of Singapore, Nanyang Technological University, and Singapore Management University. Suddenly it becomes very clear why the local institutions are desperately engaged in the pursuit of excellence in education and world-class standing. It also explains why media reports and websites of institutions are replete with references of NUS and NTU becoming the “Harvard and MIT of Asia” (Han, 1999, p.112). When NUS Vice-Chancellor, Professor Shih Choon Fong, weighs in by publicly declaring that “NUS will be to Singapore what Stanford is to Silicon Valley” (Business Times, 2000, p.1), there is no doubt that universities (and polytechnics) in Singapore have received very clear directions from the Government that they are an important part of the commitment to making Singapore into an international education hub.

### **Singapore Management University**

Whilst discussion has dealt with Singapore’s established institutions, it is worth noting some characteristics of SMU, which was opened in 2000 and is an indication of things to come in the proposed education hub of the region. SMU concentrates exclusively on business programs and is Government funded but privately managed. It works in collaboration with the “America’s best business school”, the Wharton School of the University of Pennsylvania, and has adopted its curriculum as well as features of other top American business schools (Contact Singapore, 2000b, pp.1-2). It is anticipated that such an association will “help lay the foundation for SMU to build its reputation and develop as an institution of academic, research and entrepreneurial excellence” (Teo, 2000, pp.1-3). The enrolment in its inaugural year is 306 and each student has the opportunity to study abroad for six months as part of the SMU degree. When enrolments increase over the next few years, SMU aims to have at least 75 per cent of its students engage in exchange with partner universities around the world (Lee, J. 2000, p.1). With regard to international students at SMU, the Government is encouraging a 20 per cent international student enrolment

and is prepared to subsidise their tuition fees with the same grant that is available to international students at NUS and NTU.

The arrival of SMU has brought home the reality of NUS and NTU having to compete with the 'new breed' of institutions which will be established in Singapore by 2010. The response by NUS Vice-Chancellor, Professor Shih Choong Fong, is that "it does not make sense to compete locally or regionally anymore; we must compete in the international arena" (Davie and Quek, 2000). If this is to be the case, then it is little wonder that both NUS and NTU are moving quickly to establish themselves as world-class universities.

### **NUS and NTU as World-Class Institutions**

In 1997, an international advisory panel was set up to advise the NUS and NTU on the future direction of university education in Singapore and, specifically, how both institutions could achieve world-class standard (Han, 1999, pp.106-107). Recommendations included:

- Have more flexible admission criteria and charge affordable fees to attract the best from around the world
- Tie up with world-renowned institutions to collaborate on research and postgraduate education
- Broaden undergraduate curricula to provide students with a broader appreciation of non-technical issues and a deeper understanding of natural and social sciences
- Create an improved environment for teaching and research so NUS and NTU can hire the world's best professors and researchers

In summary, NUS and NTU (and the polytechnics) have recently started to think about what it will take to operate like 'global institutions' instead of local ones which reflect only local demands and conditions. This has meant embracing new paradigms in a bid to increase their international standing, so that they can compete in the 'international arena'. To their credit, there are tangible signs of infrastructure changes such as the formation of 'international relations offices' and 'international business centres' at all institutions, as well as the establishment of many formal links with overseas institutions. The latter has resulted in the broadening of offerings for student exchange and a commitment from the institutions to increase the number of Singaporeans studying part of their home degree abroad. There have also been 'Harvard style' changes in the curriculum, with students being allowed to combine their major field of study with subjects from other disciplines (Han, 1999, p.107). In addition, there are efforts to address issues of pedagogy where "instead of being a guardian/ruler, the teacher is now regarded as a mentor at school" to produce students who are creative and critical thinkers (Contact Singapore, 2000c, p.2). But perhaps the most resource-intensive initiative thus far arising from the 1997 recommendations by the international advisory panel, has been subsidised expansion of the international student program in Singapore with the clearly-stated aim to 'recruit top talent' to enhance the reputation for excellence of local institutions (Davie, 1998, p.1). The Government is in the process of finalising its decision on Singapore's fourth university in the near future, on the firm commitment to the goal that "every good national higher-education system must provide a broad spectrum of institutions to achieve multiple goals" (Quek, 2002). The proposed university will have a practical, technical bent and strong industry links. In addition to degree programmes in engineering, information technology and applied science, as well as foundation subjects such as mathematics and science, along with courses in business and management, the Centre for multi-disciplinary study would offer electives ranging from innovation and entrepreneurship to social sciences.

As such, the universities have been actively promoting study in Singapore by visiting institutions in neighbouring ASEAN countries to tell students that 'there are good universities in the east' and that they should not instinctively look to the west for tertiary education. For example, NUS has recently spent over S\$200,000 hosting a camp in Singapore for top students from 49 schools from 10 countries in the region to 'woo foreign students' (Straits Times, 1999, p.31). The Government, too, has assisted by promoting study in Singapore through an outreach division called Contact Singapore, which has a significant website presence which outlines the attractiveness of Singapore as a place to study, work, and live. In addition to the generous Tuition Grant attracting excellent students, the Government also provides thirty undergraduate scholarships at a total cost of S\$12 million each year for students from ASEAN countries to study at NUS and NTU (Straits Times Interactive, 2000, pp.1-2).

In 2000, the Minister for Education reported that both NUS and NTU had met their targets of 20 per cent enrolment of international students (Channel NewsAsia, 2000, p.1). This appears to be the limit at which the Government is prepared to subsidise the program to achieve goals associated with building the reputation of Singapore's institutions. Public perception is that the increasing numbers of international students are depriving locals of places, but it is clear that the Government's international student program is a separate 'package' running parallel to the education of local students. Senior Minister of State (Education), Dr. Aline Wong, stated that "foreign students who enrol in institutes of higher learning are, on the whole, better qualified than their Singapore peers and they will raise the quality of the institutions and add to the vibrancy of the academic environment". Further, she maintained that all local students who *qualify* for a university place would gain entry to a Singapore university and that places would always be competitive due to their number being determined by 'projected manpower needs' (O.B. Tan, 2000, p.47).

It is clear that Singapore's international student program is focused on 'spreading the word' about Singapore's institutions around the globe. The program has concentrated on enrolling students from neighbouring countries in the first instance, because of the perception that students from western countries do not yet see Singaporean institutions as attractive options for a full degree in terms of relative standing and career enhancement. Many students from western countries are, however, beginning to gravitate to Singapore for exchange opportunities. The Government's subsidy program is akin to the aims of the International Postgraduate Research Scholarship (IPRS) in Australia, where excellent students from abroad are sponsored to undertake postgraduate studies at Australian institutions. A main aspiration of the IPRS is that Australia's reputation as a provider of postgraduate tertiary education will be enhanced by the academic careers of the IPRS students and positive word-of-mouth marketing.

### **Competitive Advantages of Singapore as a Hub for International Education**

For over a decade, the mainstay for international student programs in countries like Australia has been the hundreds of thousands of students from Asia, the region with the mantle of "the golden goose of higher education" (Prince, 1997, p.3). With their own countries either not having enough university places to satisfy demand or with policies restricting entrance to universities, the flow of students from the east to the west for education has been a multi-billion dollar phenomenon to the point where a term like 'education industry' is common usage. Given the focus and energy that is presently being invested in getting Singapore's institutions to achieve world-class standing and attracting prestigious western universities to establish themselves on the island, there is every possibility that Singapore will emerge as a significant competitor to countries like Australia, New Zealand, Canada, the United Kingdom, and the United States over the next decade. Furthermore, by 2010 educational opportunities in Singapore may be very attractive to students not only from

ASEAN countries, but also from other countries across the globe (including the west) who will be willing to pay full tuition fees to obtain tertiary qualifications from the range of high-quality institutions on offer in the hub. Looking ahead, the characteristics that tertiary education in Singapore would offer by the end of this decade are:

- World-class tertiary institutions that are linked to high tech University-R & D Science Parks and Science Hub (the Biopolis)
- Tuition in English, with opportunities to specialise in Mandarin and other languages
- Education that inspires independent, creative and critical thinking
- Education in an Asian country with strong ties to the west
- Education which is competitively-priced
- An environment with a high degree of personal safety
- A clean, green, and healthy space for work and play
- A politically-stable country
- Likelihood of work in Singapore or the region after completion of study
- Excellent opportunities for exchange studies with a multitude of institutions around the globe
- Excellent workplace attachments with leading knowledge-based industries
- Opportunities for cultural interaction that are matched by an internationally vibrant, rich multi-cultural Arts environment
- Advantages of a compact, modern city
- Easy access to international destinations via Singapore's world-class travel hub

These features have the potential to see rapid growth in Singapore's on-shore international education program of the order which was experienced in Australia in the early 1990s, viz. from under 10,000 in 1987 to over 120,000 less than a decade later (DEETYA, 1996, p.9).

### **ISSUES FOR SINGAPORE AS A HUB OF INTERNATIONAL EDUCATION**

Although the pace of reform in education in Singapore is exciting, the developments also herald a number of challenges which need to be explored if the country is to make the desired transition from a provider of post-secondary education to mostly local (and lately ASEAN) students, to a hub of education services for Singaporeans and students from around the world. Apart from competition from other emerging international education providers, questions of education and nationalism, eastern and western influence, and level of discourse on international education loom as issues which will impact in some way on Singapore's competitiveness in promoting its international education program.

### **Malaysia as an International Education Hub**

Whilst Singapore has justly received accolades for the major economic progress and technological advancement that it has made since the 1960s, Malaysia has also been busily pursuing its own development-driven ideology with vigour. Singapore's raft of policies to transform it into a knowledge-based economy are matched by Malaysia's 'Vision 2020' which promotes strategies to have the country shift from a production and industrial-driven economy to a knowledge-driven one "in order to remain competitive in a globalised world" (New Straits Times, 2000, p.2). A major foundation of the plan is to 'strengthen the higher education system in areas of science and mathematics and the English language, as well as to expand vocational and technical education to cope with developing knowledge and skill requirements' (Yip, 1997, p.1). Malaysia also sees itself

as a future hub for educational services, with 20-30 per cent of total university places going to fee-paying international students (Channel NewsAsia, 2000, p.2). As such, Singapore can expect keen competition for international students from its close neighbour as the decade unfolds (as well as continuing competition from traditional western education providers).

### **Role of Education in Singapore**

Since Singapore's independence, the major role of education has been to secure the nation's prosperity by inculcating a sense of nationalism in Singapore's youth and training workers according to the needs of the labour force. The idea of Singapore being a hub for educational services brings into question how the country will assimilate growing numbers of international students from different cultures into a system that has served, to this point, such strong internal needs. To demonstrate the clash of the domestic imperative with new international role of Singapore's institutions, a British exchange student studying chemical engineering at NUS related to me that whilst aspects of the program were excellent, he found the content in some non-technical modules which covered the 'role of citizenry' a bit too 'propaganda-like'. This incident, although anecdotal, illustrates a dilemma that the Government and its institutions may face as growing numbers of international students come to study in Singapore. In a country where the stated objectives of the Ministry of Education (2000b, p.3) for post-secondary education for Singaporeans include "be morally upright and responsible to family, community and country", "be constituents of a gracious society", and "be committed to improving society", the Government will have to give some thought of how it will simultaneously instill such values into local students without alienating the cohort of international students.

### **Eastern and Western Influences**

Since its independence, Singapore has built a reputation as a contradiction in terms by embracing western economic models and technology, whilst concurrently eschewing western ideals in favour of 'eastern' or 'Asian' values (NOOSR, 1996, p.3). The bottom line is, however, that Singapore is a tiny, resource-poor island in southeast Asia which has had to eke out its own version of 'reality' in a post-war economic and technological environment which has been thoroughly dominated by the west. When seen in this light, the comment that "Singapore is an ongoing experiment in alternative ways of living" (Tamney, 1996, p.196), implies that the country is continually in a state of flux to maintain its relevance to the outside world which will always dictate Singapore's heading, whether it be a powerful 'west' leading global development, or at some stage, a powerful 'east'. At present, "life in Singapore is being shaped by the demands of international capitalism, not by Asian traditions" (Tamney, 1996, p.183) and this is evident in Singapore's education.

In the process of gearing up to be a hub for international education, the Government has embarked on a series of changes in its education system which, by Singaporean standards, are quite radical and will have a significant impact on the local population. Although not so extreme by western measures, the introduction of the 'Harvard-style' curriculum changes alluded to at NUS and NTU, plus less focus on academic achievement for entrance to university are dramatic departures from the norm in Singapore (Han, 1999, p.109). Perhaps the most far-reaching change, however, is the idea of changes in pedagogy to produce students who are 'creative, critical and independent thinkers', taught by teachers who "may not necessarily know more than the pupils who would have access to sources of information such as the Internet" (Han, 1999, p.105). This single concept has enormous ramifications not only for education but also for society as a whole in the longer term, for it is a quantum leap in culture and a direct expression of how Singapore will engage with the world through its knowledge-based economy.

## **Discourse on International Education**

One of the striking observations made whilst researching this paper is that there is a paucity of information to bring together themes of international education in Singapore. There is no questioning the volume of facts or plans emanating from government departments, Singaporean institutions, and the media in print and electronic form. The buzzwords of 'excellence in education', 'world class' and 'international education hub' are ubiquitous, as are the offices in post-secondary institutions which are devoted to 'international relations' and 'international cooperation'. What is missing, however, is discourse of the type which would promote a deeper understanding of 'international education in Singapore' itself, viz. an evaluation of issues concerning education policy, pedagogy, curriculum and the international student experience, which would make apparent the subtleties and complexities of having large populations of students from other countries study in Singapore. An explanation for this is that because Singapore presently has only seven post-secondary institutions which have recently engaged in international student programs with a relatively small number of international students per capita head of population, a 'critical mass' has not been reached which would direct attention to the nation's international education experience. In view of Singapore's relatively complex mix of different ethnic groups, languages and cultures and freedom to pursue different religious beliefs and practices, all the more, foreign students will need to be guided progressively into assimilating the different way of life and to coping with the differences in their ways of knowing, in the new socio-political environment.

By contrast, in Australia there are close to forty universities and a myriad of colleges, ELICOS centers, and public and private schools which are host to well over 180,000 onshore international students (Kemp, 2001). Whilst a large number of international students in itself should not be a necessary condition for discourse on issues concerning international education, it is certainly a catalyst for investigation and evaluation. For example, one outcome of a significant on-shore international program is the direct employment of service providers, educators, marketers, administrators and managers. In Australia, this has led to the emergence of organisations such as ISANA: International Education Association, the ELICOS Association, IDP Education Australia, and Australian Education International which act as touchstones for association, networking, professional development, and information for staff and students alike. Furthermore, between ISANA, IDP and the National Liaison Committee, (the peak representative body for international students in Australia), there have been approximately forty national conferences in Australia on international education themes since the late 1980s and this has been a powerful force in bringing issues in international education into focus. As far as it can be ascertained, in Singapore no associations carry out functions of the same ilk as those undertaken by ISANA, the ELICOS Association, and the NLC.

Whilst the lack of discourse into aspects of international education is not necessarily a criticism given the recent introduction of the on-shore international student program, it does highlight a certain superficiality of treatment of international education issues in Singapore to this point. It would be a shame for Singapore and its international students alike if the energies invested into program over time remained as 'another task to do', as prescribed by Government plans for the requirements of the knowledge-based economy.

## **CONCLUSION**

This paper has considered the role of higher education in Singapore and, in particular, its relationship to the larger international context. It has shown that because of Singapore's necessary engagement with other countries, it has significant experience with various aspects of international education, which have their origin as far back as British colonisation in the 1800s. Most of

Singapore's international education experience began, however, in the post-war years with Singaporeans being sponsored to other Commonwealth countries as part of aid packages. As Singapore's economy started to flourish, 'education as aid' diminished and students began to fund their own overseas studies. The outflow of local students intensified throughout the 1980s and 1990s as a result of many not being able to secure a place in relatively small number of home institutions which were geared to meet projected requirements for the labour force, with a focus largely on technical and business studies.

The most significant development in recent times is the Government's plan to transform Singapore into a knowledge-based economy, which will see it strengthen its position as a regional services hub as well as a manufacturing base for multi-national companies. According to the current Prime Minister, Mr Goh Chok Tong, "our goal is to turn Singapore into a magnetic hub of people, minds, talents, ideas and knowledge" (Contact Singapore, 2000d, p.1). Part of the overall initiative is to make Singapore a hub for international education which will give Singaporeans and international students the opportunity to study with prestigious western institutions which have been invited to set up centres of excellence and research in Singapore.

For Singapore, it is an opportunity to once again raise its 'human capital' (just as it did with technical and vocational training after the 1960s) by offering Singaporeans access to world-class institutions. It will also enable it to make inroads into the 'education industry' which has been the exclusive domain of the west for over a decade. The local universities and polytechnics are part of the plan to have Singapore offer the best of 'eastern' and 'western' education and are presently engaged in restructuring activities to raise their standard to 'world-class' by 2010. The Government has assisted by offering significant subsidies to top international students from the region in a bid to enhance the reputations of Singaporean institutions and spread the word about the benefits of living and studying in Singapore. The condition for all international students taking advantage of the Government tuition grant is that they stay in Singapore and work for three years.

When Lee Kuan Yew began his four decades at the helm of the People's Action Party in the 1960s, the future of Singapore looked tenuous to say the least. Between the political uncertainty, the lack of an established economy, the third-world infrastructure, and the poorly-educated workforce, there was little to suggest that the country had much potential for development. After all, it was a tiny, resource-poor island with a largely-immigrant population that had no strong indigenous roots to the land, nor any history of a fierce struggle for independence which might have provided a sense of nationalism to make something of its circumstances. With such a gloomy forecast, to say that it has merely been 'successful' in light of what has transpired in the interim seems something of an understatement. The confluence of the legacy of the English language from a colonial past, a favourable global economic climate, and a unicameral Government promulgating hard-nosed domestic policies in the pursuit of development-driven ideologies, has projected Singapore onto the 'world stage' in terms of its export-led trade and its business and service sectors. This has afforded Singaporeans a high standard of living.

Can Singapore meet its international education objectives? Singapore has an excellent track record in setting and achieving national goals and it is clear that its plan to become a knowledge-based economy is attracting a considerable amount of attention, activity and resources. It has demonstrated in the past that it is tenacious, yet measured, in the pursuit of initiatives for the 'national good'. It currently has the world's second busiest seaport and the seventh busiest airport. For a population of only four million, this is a remarkable achievement and demonstrates how it has made itself relevant, indeed indispensable, as a hub for manufacturing, commerce, trade, and transport. It may soon have tens of thousands of international students from around the globe

as part of a thriving hub of international education. The challenges which have been outlined, however, are very real and it remains to be seen how Singapore will respond to them.

### REFERENCES

- Bercuson, K. (ed) (1995) *Singapore: A case study in rapid development*. Washington DC: International Monetary Fund.
- Burns, C. (1958, March) The Colombo Plan and Australian Foreign Policy. *Australian Outlook*, 37-49.
- Business Times (2000, June 2) *New NUS head is a man with a mission*. Newspaper article, Singapore.
- Carling, R. (1995) Fiscal and monetary policies. In K. Bercuson (ed) *Singapore: A case study in rapid development*, Washington DC: International Monetary Fund.
- Channel NewsAsia (2000, July 9) *NUS, NTU reach 20% foreign students target*. Newspaper article in Singapore News, Media Corporation of Singapore Pte.
- Contact Singapore (2000a) Overview of education. [Online] <http://www.contactsingapore.org.sg/study/edu.htm> [2000, October 4]
- Contact Singapore (2000b) A Centre of Educational Excellence. [Online] <http://www.contactsingapore.org.sg/study/vision.htm> [2000, September 9]
- Contact Singapore (2000c) Frequently asked questions. [Online] <http://www.contactsingapore.org.sg/others/linkfaqs.htm> [2000, October 10]
- Contact Singapore (2000d) Singapore; your world of possibilities. [Online] <http://www.contactsingapore.org.sg/vision.htm> [2000, 10 October]
- Davie, S. (1998, 26 August) *Nanyang technological university convocation*. Newspaper article in Straits Times Press Limited, Singapore.
- Davie, S. (2000) *Expand local varsities intake of poly graduates*. Straits Times Interactive, Singapore, 26 August. [Online] [http://www.straitstimes.asia1.com.sg/singapore/sin33\\_0826.htm](http://www.straitstimes.asia1.com.sg/singapore/sin33_0826.htm) [2000, September 6]
- Davie, S. and Quek, T. (2000, June 2) *NUS aims to match standards in global arena*. Newspaper article in Straits Times, Singapore.
- DEETYA (Department of Employment, Education, Training and Youth Affairs) (1996) *Overseas student statistics 1996*. Canberra.
- Planning Division, Singapore Government Management Information Branch, (1999) Education statistics digest. [Online] <http://www1.moe.edu.sg/esd/esd99> [2000, October 16]
- Fong, D. (2000) Country briefing report from the IDP Singapore Diploma-to-Degree Interview Program, 16–17 September 2000. Unpublished paper, IDP Singapore.
- Gopinathan, S. (1997a) Education and development in Singapore. In J. Tan, S. Gopinathan and H. Kam (eds) *Education in Singapore*. Singapore: Prentice Hall.
- Gopinathan, S. (1997b) Singapore educational development in a strong developmentalist state: The Singapore experience. In W. Cummings and N. McGinn (eds) *International handbook of education & development: Preparing schools, students and nations for the Twenty-First Century*. Exeter: BPC Wheatons.
- Han, C. (1999) Singapore: Review of educational events in 1998. *Asia-Pacific Journal of Education*, 19(2), 103-113.
- Jackson Report (1984) *Report of the committee to review the Australian overseas aid program*, Canberra: Australian Government Printing Service.
- Kemp, D. (2001, September 3) Media release - International student numbers reach record high in 2000. [Online] [http://www.dest.gov.au/archive/ministers/kemp/sept01/k209\\_030901.htm](http://www.dest.gov.au/archive/ministers/kemp/sept01/k209_030901.htm) [2002, April 10]
- Lee, H.L. (2000) Speech by Deputy Prime Minister Lee Hsien Loong at PSC (Open) Scholarship Presentation Ceremony on 22 July 2000. [Online] <http://www.gov.sg/sgip/Announce/scholarship.htm> [2000 August 22]

- Lee, J. (2000) All SMU Students get to go abroad. *Straits Times Interactive*. [Online] [http://straitstimes.asia1.com.sg/singapore/sin7\\_0802\\_prt.htm](http://straitstimes.asia1.com.sg/singapore/sin7_0802_prt.htm) [2000, September 6]
- Lee, K.Y. (2000) *From Third World to First: The Singapore story 1965 – 2000*. Singapore: Times Media Private Ltd.
- Minchin, J. (1990) *No Man is an island: A portrait of Singapore's Lee Kuan Yew*. North Sydney: Allen & Unwin Australia Pty Ltd.
- Ministry of Education (2000a) Higher Education FAQs. [Online] <http://www1.moe.edu.sg/hed.htm> [2000, August 13]
- Ministry of Education (2000b) Desirable outcomes (of Education). [Online] <http://www1.moe.edu.sg/desired.htm> [2000, August 13]
- Ministry of Information & the Arts (1998) *Singapore 1998*. Singapore: Singapore Government Press.
- Nanyang Polytechnic (2000) Frequently asked questions (FAQ). [Online] [http://www.nyp.edu.sg/as/as\\_f\\_6.htm](http://www.nyp.edu.sg/as/as_f_6.htm) [2000, September 18]
- Nanyang Technological University (2000) Information on NTU. [Online] <http://www.ntu.edu.sg/registrar/issu/brochure.htm> [2000, September 11]
- NOOSR (National Office of Overseas Skills Recognition) (1996) *Country education profiles: Singapore*. [Online] <http://www.detya.gov.au/noosr/cep/singapore/index.html> [2000, August 23]
- New Straits Times (2000, October 7) *PM to open conference on K-economy*. Newspaper article in New Straits Times, page 2.
- Quek, T. (2002) *New vision for varsity education here*. Straits Times, Feb. 10.
- Prince, J (1998) "Asian contagion" spreads to American campuses. [Online] [http://www.nafsa.org/publications/ie/fall1997\\_winter/asiancontagion.html](http://www.nafsa.org/publications/ie/fall1997_winter/asiancontagion.html) [1999, May 26]
- Singapore Census of Population (2000) Table 1: Total population by residential status, 2000. Singapore Government. [Online] <http://www.singstat.gov.sg/C2000.html> [2000, October 10]
- Singapore Economic Development Board (1999) *A knowledge-based economy*. Singapore: Singapore Government.
- Straits Times Press Limited (1999, December 7) *NUS hosts camp to woo foreign students*. Straits Times, Singapore.
- Straits Times Interactive (2000) 30 from ASEAN get Singapore Scholarships [Online] [http://straitstimes.asia1.com.sg/singapore/sin18\\_0808.htm](http://straitstimes.asia1.com.sg/singapore/sin18_0808.htm) [2000, June 9]
- Tamney, J. (1996) *The struggle over Singapore's soul: Western modernisation and Asian culture*. Berlin: Walter de Gruyter.
- Tan, O.B. (2000, February 23) *Foreign students don't deprive locals of places*. Newspaper article in Straits Times, Straits Times Press, Singapore.
- Tan, O.S. (1996) *World trends in Higher Education: The Singapore and Southeast Asian context*. 7<sup>th</sup> ISANA National Conference Proceedings, Adelaide 1996, 21-24.
- Teo, C.H. (2000) SMU, A private management university in the city; A strategic resource for Singapore and beyond. Ministry of Education Speeches. [Online] <http://www1.moe.edu.sg/Speeches/sp29072000a.htm> [2000, August 13]
- The Straits Times (1997). S'pore as Boston of the East. 29 January, p. 1.
- Yip, K.L. (1997) *Lifelong learning and vision 2020 in Malaysia*. [Online] <http://www.apec-hurdit.org/yip.htm> [2000, August 12]