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Malaysia's Education Crisis – Can TVET Help?

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Abstract: Realisation of Vision 2020, that is, to become a high-income country by 2020, requires Malaysia to move up the production value chain, away from the current low-cost labour model that relies heavily on imported workers. Education's role in producing the human capital needed is crucial. Unfortunately, despite heavy allocations for education, the quality of education leaves much to be desired. Technical and vocational education and training, an important part of the education system have so far played a minor role in the education system. This is a missed opportunity, given that a systems approach to workforce development can have a salutary impact. Despite improvements over the past decade, several weaknesses have hobbled technical and vocational education and training, preventing it from playing a supportive role to academic education. The lack of coordination among key stakeholders is a major problem. Yet Malaysia's neighbour, Singapore, boasts a vocational training system that has won high praise. At the centre of the Singapore's system is the Tripartite Alliance, which brings together the key stakeholders, namely the Government, employers, and the workforce. In drawing lessons to overcome deficiencies in vocational training, Malaysia does not have to look far.

Keywords: Coordination, education, stakeholders, vocational training, workforce development
JEL classification: H52, I23, I28, J24

1. Introduction

In 1991, Malaysia's then Prime Minister laid out a strategic vision to transform Malaysia into a knowledge-based, sophisticated, united, and developed country by the 2020. This vision would be realised through the development of a highly skilled and talented workforce operating in an environment of economic and political freedom (Mahathir, 1991).[1] This ambitious goal was motivated by two decades of heady economic growth that gave Malaysia membership of a group of countries the World Bank called High-Performing Asian Economies (HPAEs) (World Bank, 1993). However, besides the Asian Financial Crisis putting an end to high growth rates,[2] Malaysia faces major structural challenges to its lofty ambitions.

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[1] Mahathir Mohamad's strategy of focusing on human capital falls short of Sen's (1999) model that emphasises the development of human capability.

[2] From 2000 until 2008, Malaysia's GDP grew at just 5.5%, which whilst was still respectable, was nowhere near the average 9.1% experienced from 1990 to 1997 (National Economic Advisory Council [NEAC], 2010, Figure 5).

With less than four years to go, Malaysia remains largely reliant on unskilled and semi-skilled workers with labour productivity that lags far behind that of most developed economies (Organisation for Economic Cooperation and Development [OECD], 2013; Narayanan & Lai, 2014; Economic Planning Unit, 2015).[3] Like many other economies, Malaysia also faces the conundrum of high youth unemployment in the midst of skills shortages (World Bank, 2014).[4] Although an estimated 60% of new jobs will require skilled labour, the Ministry of Education (MOE) (2013) states that technical and vocational education and training (TVET) will continue to play a subordinate role to academic education. This alone stands in sharp contrast to countries with strong technological capabilities such as Korea, Singapore, and Taiwan, let alone Germany, which all boast strong TVET systems (Ghazlan, 2012; OECD, 2010; OECD, 2014). For Malaysia, aspiring to join the ranks of developed countries, the role of quality TVET, among others, is vital.[5]

The increase in labour demand engendered by decades of rapid growth has not been matched by a natural increase in labour supply. The natural increase in labour supply from population growth has been depleted due to the rapidly increasing number of enrolments in both secondary and tertiary education, the transition of Malaysia as a low fertility country, and an unchanged female labour force participation since the mid-1980s (Aminah, 1998; Ministry of Women, Family and Community Development, 2014). Malaysia is currently getting by with imported labour. Adherence to the low-cost labour model is still Malaysia's ticket to high growth, but to achieve its national goals, Malaysian workers would ultimately have to move up the skills ladder, even though some foreign workers would still be required for unskilled work. Skills upgrading is the responsibility of the education and training system.

Malaysia's education system has been found wanting. International benchmarking shows that competencies of Malaysian secondary school students in English, science, and mathematics and reading at the secondary school level have eroded, while Malaysia's universities have fallen in international rankings despite generous public funding.[6] Problem-solving skills are critical to the development of a knowledge economy, but Malaysian students rank in the bottom quintile of the countries tested.[7] A significant loss of talent through emigration and those studying abroad not returning upon graduation (World Bank, 2011) has added to Malaysia's human capital problem. The reasons for this state of affairs are well known (World Bank, 2007), as are the barriers to overcome them.

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[3] Foreign workers, including illegal workers, who are largely unskilled or low-skilled account for as much as one-third of Malaysia's workforce (Abdul-Rahman et al., 2015).

[4] In 2013, youths (those aged 15 to 24 years) accounted for 16% of the labour force but almost 60% of the unemployed (Department of Statistics 2014).

[5] Employers and industry have an unfavourable assessment of the quality of Malaysia's TVET (Ghazlan, 2012).

[6] The quality of schooling in Malaysia has been on a distinct downward trend, as measured in terms of scores in the Trends in International Mathematics and Science Study (TIMSS), which assesses knowledge, and the Program for International Student Assessment (PISA), which assesses the ability to apply acquired knowledge for full participation in the world of work (TIMSS, Various years; PISA, Various years; Grønmo, & Olsen, 2006; Di Giacomo, Fishbein, & Buckley, 2013). On the international ranking of Malaysian universities see for instance Regel et al. (2007) and Sharifah (2013).

[7] Malaysian 15-year olds had an average score of 422 points compared to the average of 488 among the 44 participating countries in the 2012 PISA, and 549 averaged by Hong Kong, Singapore, South Korea, and Taiwan (Retrieved from: http://dx.doi.org/10.1787/888933003668 [Accessed September 19, 2015]).

Under these circumstances, although handicapped by low-quality basic education, TVET still has to play a major role if it is to at least partially compensate for the aforementioned challenges. Yet, this has clearly not occurred. In the heated debate over Malaysia's education, TVET has hardly received a mention. While, as will be explained later, the reason for this lack of attention has both attitudinal and institutional origins, it does not have to be this way. Neighbouring Singapore, which has historically much in common with Malaysia, has done extremely well both with tertiary education and TVET.

This paper attempted to draw together these developments to better understand the state of Malaysia's TVET subsystem and thereby bring into focus a potentially important education subsector that has been much neglected by the citizenry and officialdom. The specific objectives were to: (1) set the context for a review of Malaysia's TVET subsystem; (2) examine the system's performance focusing on three key functional dimensions, namely policy-making, system oversight, and program delivery, including progress made in each of these areas from 2000 to 2010; (3) draw lessons from the highly-rated system in Singapore; and (4) provide recommendations in light of these lessons. The focus is on the public sector, partly because information on non-state provision of TVET is far from adequate, but also because the public sector dominates the TVET landscape both in terms of policy and delivery.[8]

The rest of this paper is structured as follows. A systems approach to education and skills development that should frame the discussion on TVET is proposed in Section 2. An overview of Malaysia's TVET system is given in Section 3. An evaluation was made of the three functional dimensions of performance over the first decade of this century. The relevant lessons from the highly acclaimed Singaporean system are drawn in Section 4. The policy recommendations based on the lessons drawn are used to conclude the paper in Section 5.

2. A Systems Approach to Workforce Development[9]

In the post-war era, only five low and middle-income countries succeeded in achieving sustained high growth and transitioned to a high per capita income level status, namely Japan, Malta, Singapore, South Korea, and Taiwan (Commission on Growth and Development [CGD], 2008).[10] Like India, for instance, these countries invested heavily in human capital deepening. Unlike India, however, which for a long time produced world-class engineers and scientists and yet achieved limited growth, these countries successfully overcame market and government failures in workforce development to realise high and sustained economic growth (CGD, 2008).[11]

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[8] Apart from sources cited in the text, information on ministries and training institutions were gathered through interviews with key informants in the ministries and departments with oversight over TVET in a World Bank project (Cheong,Singaravelloo, Lee, & Noh, 2013) based on the World Bank (2013) tool for assessing workforce development systems.

[9] The term 'workforce development' is used interchangeably with 'skills development'.

[10] The CGD (2008, p. 20) identified six economies that engaged the global economy and successfully transitioned into high per capita income level countries, with the sixth being Hong Kong.

[11] The successful economies also shared five other striking and equally important features: a) they fully engaged the world economy; b) maintained macroeconomic stability; c) mustered high savings and investment rates; d) relied on markets to allocate resources; and e) had committed, credible and capable governments (CGD, 2008, pp. 21-28).

Left on their own, private markets can and do fail, giving rise to over-investment in some skills for which there is little demand and under-investment in skills that are in high demand. Private market failures arise from imperfections in the labour market (e.g., due to poaching and pecuniary externalities), imperfections in capital markets (e.g., credit constraints), incoordination (e.g., due to innovation and vacancy externalities), and poor decision-making (e.g., inaccurate information about returns from education and training, and inconsistent time preferences) (Robalino & Almeida, 2012). Governments do fail too as a result of weak policy-making processes (e.g., favouring the politically powerful, and focusing on short-term returns), inappropriate governance and institutional arrangements (e.g., budgets based on historic allocations rather than labour market outcomes, and lack of accountability), and imperfect information (e.g., lack of impact analyses) (Robalino, Almeida, & Behrman, 2012).

Where such market failures result, the Government is in the best position to ensure that the investments in education and training by individuals and employers add up more closely to a socially optimal level (Finegold, 1991; Keep, 2006; Australian Government Productivity Commission, 2011). Countries like Singapore, South Korea, and Taiwan overcame these difficulties not through some miracle, but through their ability and capacity to overcome these failures by implementing the right policies and practices that can be replicated to deepen their human capital (CGD, 2008; Robalino & Almeida, 2012).[12] In these countries, the leaders and governments understood the types of coordination failures that can arise and pursued government-led coordination that fostered more effective alignment of skills demand and supply (Robalino & Almeida, 2012).

Given the complexities of living in the globalised modern economy, a systems approach that takes into account market and government failures in skills development is needed to support the realisation of national economic objectives. Recent discussions on workforce development in the United Kingdom and the United States of America (USA), for instance, point to three similar core dimensions in a systems approach to workforce development (Ganzglass et al., 2000; Simon & Hoffman, 2004; Barnow & King, 2005; United Kingdom Commission for Employment and Skills [UKCES], 2009; Wills & Richards, 2010; Puckett, Davidson, & Lee, 2012).[13] The three core elements are also found in the World Bank's systems approach for better education results (SABER) workforce development assessment tool that was designed to evaluate the efficacy of workforce development systems based on international best and good practice (World Bank, 2013).

In accordance with the World Bank's assessment tool, the three interconnected core dimensions are: (1) the strategic dimension, which sets the direction for workforce development that is aligned with the economic objectives of the economy; (2) system oversight in terms of the regulatory framework and governance of the system, the policies and practices that support the operational functions of the system in terms of the quality of TVET and the pathways for skills upgrading; and (3) service delivery, which is concerned with results-based management of public and private TVET institutions to ensure the

[12] Governments also typically intervene to provide education and training because the free market could lead to access inequity that disadvantages the poor, entrenching socio-economic inequality as education and training have the potential to raise incomes (European Centre for the Development of Vocational Training (CEDEFOP), 2009; Australian Government Productivity Commission, 2011).

[13] These are essentially a tri-perspective approach.

provision of relevant skills development programs (Figure 1).[14] For the system to perform efficaciously, a free flow of feedback and information between the three dimensions is required using common standards to minimise duplication and fragmentation in the delivery of education and training services (Barrow & King, 2005).

Drilling down to the operational content of each of the three functional dimensions on the bases of global best and good practices, the World Bank (2013) assessment tool identifies the following policy goals (and the underlying actions in the form of institutions, policies and practices required to realise them) that make for a well-functioning holistic workforce development system.[15] In particular, the policy goals (and the associated core dimensions) may be summarised as follows:

Strategic framework:
- Articulating a strategic direction in workforce development
- Prioritising a demand-driven approach
- Strategic coordination

System oversight
- Diversifying pathways for skills acquisition
- Ensuring efficiency and equity in funding
- Assurance of relevant and reliable standards

Service delivery
- Fostering relevance in training programs
- Incentivising excellence in training provision
- Enhancing accountability for results

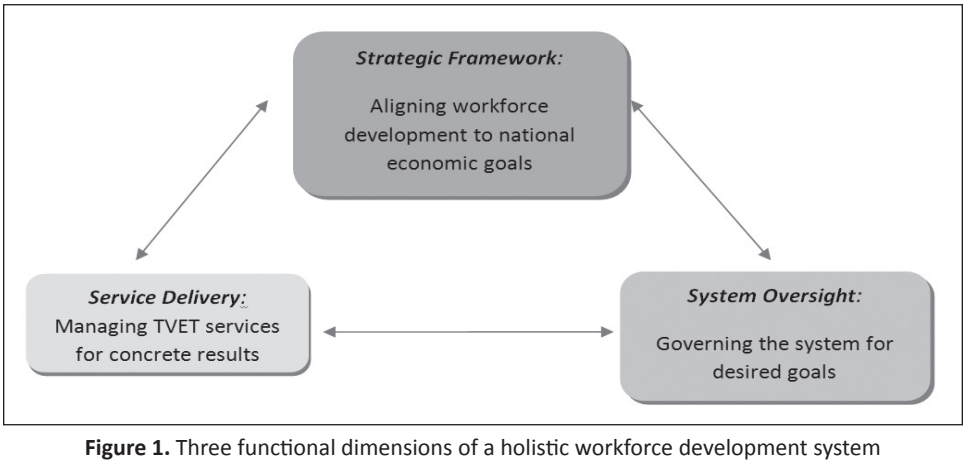

Figure 1. Three functional dimensions of a holistic workforce development system
Source: Adapted from World Bank (2013).

[14] Different terms have been used to describe the three core dimensions. The UKCES (2009, p. 11), for instance, refers to them as a "policy gap," "measurement gap," or "policy to practice gap". The USA's Workforce Investment Act labels them as policy development, program administration, and service delivery (Barnow & King, 2005).

[15] As the International Labour Office (2008, p. 8) notes, "The process of skills development for productivity, employment growth and development is complex and is influenced by policies and institutions." Many of the same elements in these policy goals are found in quality TVET in countries such as Australia, Canada, Germany, New Zealand, the United Kingdom and the USA (Misko, 2015).

The evaluation of the state of Malaysia's TVET system (and that of Singapore) presented below is based on the above framework using the World Bank SABER workforce development assessment tool.[16]

3. Developments in Malaysia's TVET

Given the sorry state of Malaysia's primary and secondary education (as reflected in its students' performance in the TIMSS and PISA), the TVET subsystem could augment the country's human capital. After all, this subsystem is made up of two of the three pillars of the Malaysian education system (the third pillar being academic education):

1. Technical and vocational education offered by polytechnics, technical institutes or colleges, and community colleges. Graduates from these institutions fill supervisory occupations, including as technical assistants, and supervisors.
2. Vocational skills training, undertaken by institutions, both public and private. The graduates from these institutions would take up employment in skilled and semi-skilled occupations. This pillar is likely to contain providers outside the formal system and not licensed by, or registered with, the government.

Furthermore, this sub-system should play an important role in economic development because it should be closely linked to the labour market.

The structure of Malaysia's TVET subsystem within the education system is shown in Figure 2. There are multiple avenues for movement between tracks. Students' selection of tracks can occur on completion of primary education, during secondary education,

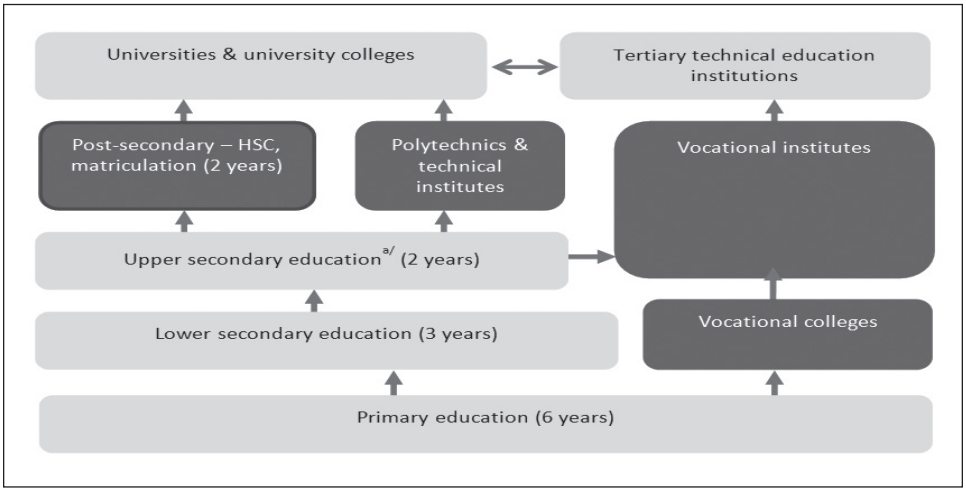

Figure 2. Pathways in Malaysia's education system
Source: Adapted from Abdul Rahman (2012).
a/ Includes secondary technical and vocational education.

[16] For details on the assessment tool see World Bank (2013, pp. 34-36). The tool classifies the policies and practices in each policy goal and core dimension into four levels of development: (1) latent – implying limited or no evidence of good policies and practices; (2) emerging – some evidence of good policies and practices; (3) established – systemic good policies and practices; and (4) advanced – systemic good policies and practices meeting global standards.

or at the tertiary level. Students who complete their primary education can continue in junior vocational education institutions at the secondary school level, while those at the upper secondary level can opt to enter vocational institutes or technical institutes or polytechnics. Movement between the academic and vocational streams is also possible for students in tertiary level institutions.

The oversight of the current subsystem is far more complex than suggested by Figure 2. At the federal level, multiple ministries oversee TVET programs run in institutes under their control, and each of the thirteen states also has TVET institutes under its jurisdiction. In addition to these public sector institutions, there is added an unknown number of private sector institutions regulated by the Ministry of Education, giving rise to an overall system that is highly fragmented, as shown in Figure 3 (Cheong et al., 2013).

One way to gauge Malaysia's TVET performance is to benchmark it internationally. A comparison done by the Boston Consultant Group is shown in Figure 4 (Puckett, Davidson, & Lee, 2012, p. 4) Malaysia is in the lowest performing group of countries, euphemistically referred to as "economies that will see a great upside to improving TVET systems," and is well behind countries with lower per capita GDP such as China, India, and Vietnam.

There are two possible dimensions for Malaysia's TVET lagging behind those of other countries. The first has to do with numbers. How important is the subsystem in the whole education system in terms of enrolment, for instance? The second has to do with quality. How robust, in terms of the substance of training and institutional support, is the TVET subsystem?

In terms of size, the TVET subsystem is nowhere near the academic education subsystem. The total combined enrolment at polytechnics, community colleges, and the Tunku Abdul Rahman College accounts for less than 15% of the total tertiary education enrolment in spite of the projections that 60% of jobs that will be created during the Eleventh Malaysia Plan period will require TVET-related skills (Economic Planning Unit, 2015, pp. 1-13). National-level data for TVET enrolment at the secondary school level have been hard to come by, with the numbers in Table 1 coming from the United Nations Educational, Scientific and Cultural Organisation's (UNESCO) Institute for Statistics database (2013). Although the data covers only full-time enrolment and most likely excludes part-time attendees and those participating in short-term training, the numbers are again small compared with those enrolled in formal tertiary education.

The issue of quality has both generic institutional and attitudinal origins. Institutionally, TVET is complex, multifaceted, associated with many pathways for lifelong learning, and lacks the formality of the academic education subsystem with its familiar institutions of schools, colleges and universities catering to youth of specific age groups and educational attainment. Attitudinally, it is often perceived by parents and students as inferior to and a haven for those academically challenged (Awang, Rahim, Khadijah, & Ismi, 2011; Patel, 2014).

These factors are certainly applicable to Malaysia, but there are specific challenges the country faces as well. A useful framework for discussing these challenges is the aforementioned World Bank's assessment tool, in which TVET is assessed according to the explicitness and clarity of policies and practices, the supervisory efficacy of programs and implementation effectiveness. Malaysia has been assessed using this framework over the period between 2000 and 2010 (Cheong et al., 2013).

In terms of policy, the strategic direction for Malaysia, with implications for human resource development, was set in 1991, when then Prime Minister Mahathir Mohamad

Ministry or Agency [a/]	No. of Institutions	Total Enrolment	Under the Malaysian Skills Certificate (SKM) System					Bachelor of Eng Tech
			Certificates			Diplomas		
			1	2	3	4	5	
MOE	88	25,000	Technical and vocational schools[b/]					
MOHE	71	17,000	Community colleges					
	28	88,000	Polytechnics					
	4	30,000[c/]	MTUN (UniMAP, UMP, UTeM, UTHM)[d/]					
MOHR	22	10,800	Industrial training institutes (ITIs)					
	1	3,200				Japan-Malaysia Technical Institute (JMTI)		
	4					Advanced Technical Training Centre (ADTEC)		
	1	538[e/]			Centre for Instructor and Advanced Skill Training (CIAST)			
MRRD	1	2,000				German-Malaysian Institute (GMI)		
	12	10,000	MARA Vocational Institute (IKM)[f/]					
	9	2,700	MARA Higher Skills College (KKTM)[f/]					
	202	19,000	Local Youth Awareness Movement (GiatMara)[g/]					
	1	15,300				Universiti Kuala Lumpur[h/]		Universiti Kuala Lumpur[h/]
MYS	15	8,200	National Youth Skill Training Institute (IKBN)[f/]					
	1				National Youth Higher Skills Training Institute (IKTBN)[f/]			
MOA	7	700	Ministry of Agriculture Institutes [i/]					
MOD	5	805	Institutes of the Armed Forces Ex-Servicemen Affairs Corporation (PERHEBAT)					
MOW	6	37,000	Construction Industry Development Board (CIDB)					
States	31	20,000	State institutes					
Private	500-600	60,000	Accredited Centres					

Figure 3. Federal, state and private institutions providing TVET by skill level, 2012
Source: Cheong et al. (2013, p. 37).

[a/] Full names of the ministries or agencies are available on request from the author.
[b/] Students sit for the Sijil Pelajaran Malaysia Vokasional (SPMV, Malaysian Certificate of Vocational Education) at the end of their study and some programmes lead to the SKM.
[c/] Of whom 3,500 were at the diploma level, 24,600 at the bachelor's level and the rest at the postgraduate level.
[d/] The acronyms refer, respectively, to Universiti Malaysia Perlis (UniMAP), Universiti Malaysia Pahang (UMP), Universiti Teknikal Malaysia Melaka (UTeM) and Universiti Tun Hussein Onn Malaysia (UTHM).
[e/] Enrollment only in courses leading to Vocational Training Officer Certificate (VTO), SKM level 3 and VTO, Vocational Instructor Advanced Diploma (DLPV).
[f/] Acronyms stand for the Bahasa Malaysia equivalent of the terms in English.
[g/] GiatMARA (Gerakan Insaf Anak Tempatan), established in 1986 as a non-profit, grassroots training institution under MARA, provides skills training and lifelong learning to school dropouts, retrenched workers and poor students from the Bumiputera ethnic community.
[h/] Includes the British Malaysian Institute (BMI), Malaysia France Institute (MFI), Malaysian Spanish Institute (MSI), Malaysian Institute of Aviation Technology (MIAT).
[i/] Includes the Institut Pertanian, Institut Akuakultur, Institut Perikanan Malaysia, and Institute Veterina Malaysia.

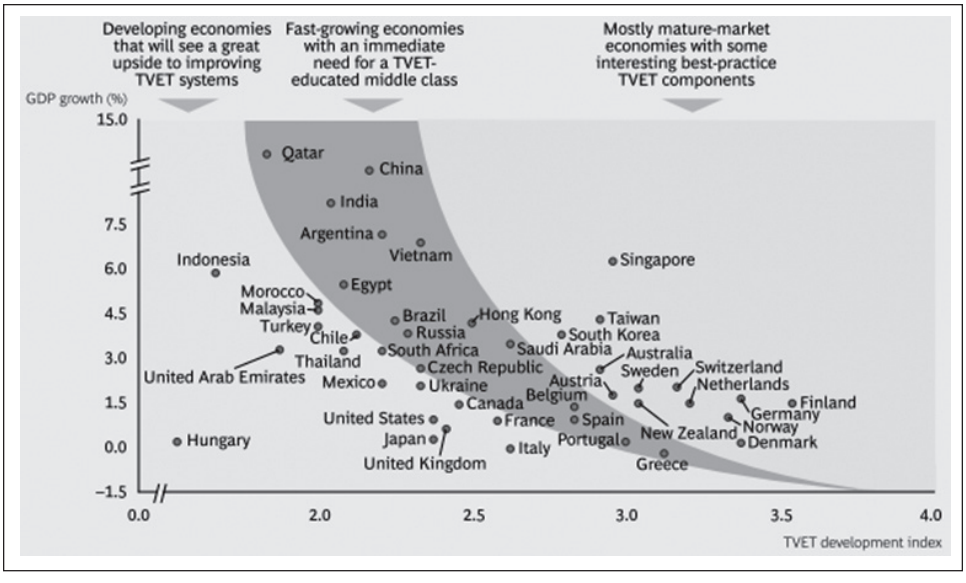

Figure 4. TVET development index for 45 countries, 2011
Note: GDP growth shown is the average of annual growth rates from 2005 through 2011.
Source: Puckett et al. (2012, p. 4)

Table 1. Enrolment in Malaysia's TVET institutions, 2003 – 2011

	2003	2007	2010/2011
Tertiary education			
Polytechnics	53,492	84,250	87,751
Community colleges	6,424	14,438	18,200
TAR College	29,537	25,753	23,774
TVET as % of total tertiary enrolment	12.8	14.2	11.4
Secondary education (full-time)			
Total	138,521	157,812	178,480
Female	57,581	68,853	75,780
% Female	41.5	43.6	42.4

Sources: Ministry of Higher Education (2010); UNESCO (2013).

tabled the Sixth Malaysia Plan in parliament and launched Vision 2020 (*Wawasan 2020*) to see Malaysia become a developed nation by the year 2020.[17] TVET was given greater attention under Vision 2020. This focus was strengthened in successive development plans.[18]

[17] As noted above, this vision was first laid out in a working paper by Mahathir (1991) and presented at the Malaysian Business Council.

[18] For instance, the Ninth Malaysia Plan (2006 – 2010) pledged to increase its focus via the initial vocational education training (IVET) (Economic Planning Unit, 2006), whilst the Tenth Malaysia Plan placed greater emphasis on TVET as a whole, including IVET (Economic Planning Unit, 2010).

Beyond these plan statements, the decade between 2000 and 2010 saw several policy-related developments in TVET. These included: (1) the passage of the Skills Development Act (2006) to strengthen the regulatory framework for TVET; (2) the increase in budgetary allocations between the Eighth and Ninth Plans (Economic Planning Unit, 2000; Economic Planning Unit, 2006); (3) the establishment in 2007 of the Malaysian Qualifications Agency (MQA) to oversee the Malaysian Qualifications Framework approved in 2005; and (4) the establishment of the Department of Skills Development in the Ministry of Human Resources (MOHR) in 2006.

The possibility of Malaysia falling into a 'middle-income trap' (Gill & Kharas, 2007) and the installation of Najib Razak as Prime Minister in 2009 provoked a more proactive approach in achieving Vision 2020. A strategic document outlining a New Economic Model (NEAC, 2010) spelt out Malaysia's human capital deficit, whilst the Tenth Malaysia Plan (Economic Planning Unit, 2010) laid out specific strategies to strengthen TVET.

Quite aside from whether these policies and measures have been effective, they suffer from several weaknesses. The first is the limited involvement of other stakeholders in the policy-making process. Specifically, industry involvement in articulating manpower needs has been limited until formal consultations were organised as part of the input into the Tenth Malaysia Plan. Indeed, projections of manpower needs had been made mostly by foreign consultants such as the Boston Consulting Group (2009). The interaction with private sector providers of TVET has been equally limited despite their growing role in this area, with the Government viewing them as the object of regulation rather than collaboration, at least until the launch of the Economic Transformation Programme (ETP) (Performance Management and Delivery Unit (PEMANDU) 2010). This was clear from the establishment of the Lembaga Akreditasi Nasional (National Accreditation Board, or LAN), which was tasked with the supervision of only the private tertiary education sector. As major stakeholders, private sector training providers had no role in policy making. Additionally, neither did the beneficiaries of TVET, be they students in the vocational stream of the education system or workers in firms.

The second is the challenge of policy coordination within the Government itself. In 2010 there were releases in quick succession of major policy statements and initiatives such as the New Economic Model, the Tenth Malaysia Plan, the ETP, and the Government Transformation Programmes (GTP),[19] each with a plethora of recommendations for moving the economy forward. Although not all these initiatives involved TVET, policy consistency combined with an undiminished focus represents its major challenge. The newly launched Eleventh Malaysia Plan (Economic Planning Unit, 2015: p. 5-19; 22) does have 'transforming TVET to meet industry demand' as a focus area to follow in the footsteps of the Tenth Plan. However, the Malaysia Education Blueprint (Ministry of Education, Malaysia, 2013) which charts the nation's education development up to 2025, is couched in generalities and inspires little confidence that these policy thrusts will be translated into action.

In terms of oversight, Malaysia's performance is a mixed bag of successes and challenges. Over the decade under review, Malaysia has established competency standards and a qualification framework on a national scale that was absent in the decade before. The ensuing years however saw further improvement in qualification standards.

[19] For details of the ETP and GTP, see http://etp.pemandu.gov.my/.

By 2010, the National Skills Development Act (2006) and Malaysian Qualifications Agency Act (2007) had put in place a national qualifications framework, namely the Malaysian Qualifications Framework. The National Occupational Skills Standards (NOSS), introduced in 1993, was subsumed under this Framework, while the MQA had been given much more resources and authority compared to the LAN, the agency it replaced.

Harmonisation of standards was accompanied by the broadening of coverage of occupations and range of occupational skills. The coverage of NOSS had expanded to reach 1,585 by 2010, compared to just a few occupations in 2000, while the range of skills levels had also been enlarged. All NOSS-based training was required to be accredited by the National Vocational Training Council (NVTC) and LAN in 2000, and by the Department of Skills Development (DSD) and the MQA in 2010. Enforcement of these standards has been helped by the requirement that all publicly funded programs be accredited. Together with offering an increasing number of pathways, uniform quality TVET is available to a larger segment of the population.

These positives come with some challenges. The first is funding. In the aggregate, funding is not a constraint, not only coming primarily from Central Government fiscal sources, but also from a dedicated training fund paid into by companies, the Human Resource Development Fund (HRDF) for the training of private sector employees.[20] In practice, however, the emphasis given to tertiary education may mean that funds allocated to TVET have been less plentiful. Scholarships awarded by the government and government-linked companies have been mainly for tertiary education.

Also the allocation of funding has been based primarily on past expenditure and enrolments with scant attention to how the funds have been used, let alone to funding efficiency and equity (Nor Azlina, 2013; Siddiquee, 2013). In the private sector, little of HRDF monies had gone into small to medium enterprises (SMEs) in 2000 (HRDF, 2010). There are, however, encouraging signs, especially since 2009 where greater focus on specific needs have been reflected in such programs as the Graduate Employability Program, which is available to all public higher learning institutions, and HRDF's efforts in targeting SMEs resulted in their fund utilisation rate rising from 34% in 1999 to 76% in 2010 (HRDF, 2010).

An even bigger challenge is institutional coordination. At least eight federal ministries have responsibility over TVET (Figure 3), each with its own institutes running a wide variety of programs at different levels. At the same time private sector provision of TVET programs has increased rapidly (Cheong et al., 2013, p. 38). Yet, as the paucity of data on this segment makes clear, the precise magnitude and nature of its role is not fully known.

This dispersal of public training provision has resulted in substantial overlap in mandates and responsibilities. For instance, the Ministry of Education (MOE) is responsible for community colleges and polytechnics, while the Ministry of Youth and Sports (MYS) and the Ministry of Rural and Regional Development (MRRD) also oversees post-secondary public training institutions. Perhaps the top-down approach renders the potential for

[20] The HRDF consists of a mandatory levy on companies employing 50 or more workers. However, under the provisions of the Human Resources Development Act (2001), the Minister of Human Resources is empowered to exempt fully or partially any employer from payment of the mandatory levy (Pembangunan Sumber Manusia Berhad Act (2001), incorporating all amendments up to 1 January 2006, Act 612, Laws of Malaysia, Part III, Section 19).

waste from overlaps, but it still leaves open the potential for actions by training providers that diminish fund utilisation efficiency. Efforts at coordination have also been piecemeal and inconsequential (Cheong et al., 2013, p. 23)

In terms of program delivery, an important positive is the increase in the number and types of training involving the participation of both state and non-state providers of TVET. However, there is little synergy between the two. Indeed, private sector providers complain that the Government does not treat them as equals. The Government provides almost no direct incentives to non-state providers. For private providers, the main benefit since 2000 has come from the market attraction of accreditation by adopting NOSS and from access to reimbursements from levies paid to HRDF. For private sector providers, profits from training are definitely the primary incentive.

For public sector providers, government targets for enrolment, graduation, and job placement rates set their objectives, especially with emergence of skills shortages, but the nature of institutional rewards for meeting targets beyond continued or greater access to funding is not known. Beyond meeting these targets, the level of monitoring and accountability is hard to determine, especially with the historic reluctance of the Government to release data to the public. In recent years, major improvements in this area have been effected, but this progress is uneven across public training institutions. For instance, secondary and tertiary education institutions under the MOE collect data such as number of enrolments, staffing and budget requirements, graduation rates, and job placements, which are compiled into annual reports that were initially for internal use only but are now also for public dissemination.[21] However, the Ministry of Youth and Sports' institutions generate much less administrative data. Even as of 2010, there was no systematic requirement for them to submit annual reports.

Programme effectiveness in meeting job market needs depends importantly upon the links between training providers and industry as consumers of TVET graduates on the one hand, and research institutions which produce up-to-date pedagogies and generate information on future skills on the other. Among public sector providers, the first link has seen a strengthening over the decade in review, with industry given a major role in curriculum design. Links between training providers and research institutions have also increased, albeit from an almost non-existent base in 2000. Curriculum relevance can also be enhanced by in-service training in industry settings of instructors, especially since they tend to come from the public sector. However, it is unclear to what extent such training, if it exists, has enhanced the instructors' and their affiliated institutions' capabilities, especially in meeting industry needs. It is not known to what extent private sector providers are able to ensure program impact effectiveness, but at least the profit motives provide some incentive to achieve this.

4. Lessons from Singapore

Several challenges confronting Malaysia were gleaned from an analysis of the strengths and weaknesses of the systems described above and are as follows:

Challenge 1: Limited involvement of stakeholders in policy formulation

Challenge 2: Policy coordination issues arising from the release of policy documents in quick succession since 2009

[21] The MOHR conducted tracer studies of graduates from 2004, while student evaluations are conducted bi-annually to evaluate courses, equipment, and instructors (in compliance with ISO 9001 requirements).

Challenge 3: Funding allocation for TVET and criteria used for funding
Challenge 4: Institutional coordination with multiple public agencies undertaking TVET training
Challenge 5: The absence of public–private sector synergy, reflected in 'us versus them' attitude
Challenge 6: Accountability unknown because access to updated data varies from institution to institution

Challenges 1 and 2 relate to policy articulation, challenges 3 and 4 to system governance, and challenges 5 and 6 to implementation of service delivery.

Lessons can be drawn from neighbouring Singapore, which boasts an impressive TVET subsystem (Figure 5), in tackling these challenges. The SABER assessment of Singapore's TVET sector was undertaken before Malaysia's and its report was released in 2012 (Raddon, 2012). The lessons drawn below are based on this assessment.

4.1 Challenge 1: Limited involvement of stakeholders in policy formulation

Singapore has a clear vision of the role of human capital in its development, and TVET is central to this role. This vision is clearly reflected in strong leadership articulated through a strong practical focus on clarifying the pre-employment training (PET) system (including lines of responsibility and a mandate for action) (Raddon, 2012). Very early on, policy formulation benefitted from stakeholder engagement through the Tripartite Alliance, made up of the unions representing the workforce as the beneficiaries of TVET, employers as consumers of TVET output, and the Government, set up as early as the 1970s. This Alliance is central to all policy-direction and development. The establishment of institutions to guide TVET, such as the Industrial Training Board (established in 1973), Vocational & Industrial Training Board (1979), Institute of Technical Education (ITE) (1992), and Singapore Workforce Development Agency (WDA) (2003), is the outcome of this collaboration. This collaboration has produced a system which is demand driven, which is vital to the system's ability to adapt in times of rapid economic change. This adaptation

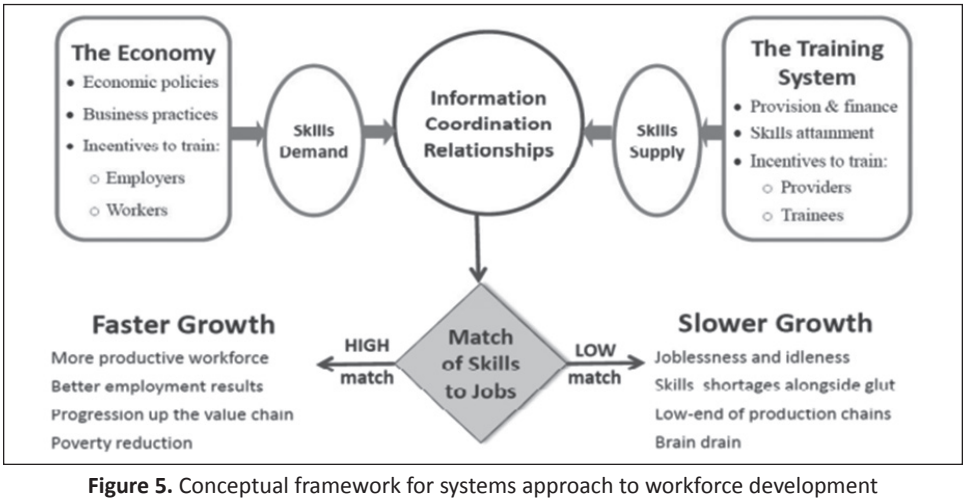

Figure 5. Conceptual framework for systems approach to workforce development
Source: Tan, Lee, Vallerio, & McGough (2012)

was reflected in the greater attention paid to continuing education and training (CET), and the strengthening of quality and standards consistent with the country's move up the value chain in its economic activities in the 1980s.

4.2 Challenge 2: Policy coordination issues with release of policy documents in quick succession

Because the Tripartite Alliance was put in place right from the outset, and was part of the policy-making process, policy coordination has never an issue. As early as the 1960s, the leadership of all stakeholder groups were brought together through both formal and informal channels. Although initially focused on managing labour relations, this coming together on major policy issues brought about a strong tripartite system(referred to above) that facilitated the building of consensus on strategic and policy issues. This institutional mechanism, with the National Trade Union Congress represented within Government, helped to increase policy coherence. The Economic Review Committee, supported by sub-committees, all with stakeholder representation, served as the forum for stakeholder communication. Information gathering by these sub-committees, including public discussion, permitted further input from civil society in the policy process. In the 2000s, the establishment of the Singapore Workforce Development Agency led to greater coherence in the CET sector. The engagement of employers, professional bodies, unions, and other relevant parties in skills development and delivery via the Industry Skills and Training Councils, and the Manpower, Skills and Training Council, and the creation of industry-specific, cross-functional, and generic standards under the Workforce Skills Qualification system,[22] the country's national credentialing system helped further this cohesion. Thus, Singapore's institutional arrangements ensure that all stakeholder bodies are parties to decisions made, and such decisions are rapidly made known to the stakeholders these bodies represent.

4.3 Challenge 3: Funding allocation to TVET and criteria used for funding

Singapore's funding of TVET, like for the rest of the education system, has always been closely tied to achieving Singapore's national economic and educational objectives, though initially less focused on efficiency. Both types of objectives have been underpinned by manpower planning, which was an approach national planners relied heavily upon with industry acting as a close partner. From the 1970s, these objectives were translated into explicit criteria for funding allocation in the education system, including TVET. As efficiency came into focus following the late 1980s recession, the Government introduced the Management Accounting System for Ministries to monitor spending and outcomes. TVET spending would have been scrutinised by the Ministry of Education, Council for Professional and Technical Education (CPTE), whose recommendations on which funding depends[23], and the Ministry of Finance. Since the 1990s, more targeted annual institutional performance reviews have been in place for PET. More explicit funding criteria have been added over time. For PET, funding was targeted to "areas of highest impact, such as sectors that employ a good number of citizens" (Raddon, 2012).

[22] Each of the 34 qualifications frameworks is recognised by the relevant industry (Retrieved from http://www.wda.gov.sg/content/wdawebsite/L102-ForEmployers/L208-WSQforEmployers.html, September 30, 2015).

[23] Sung (2006, p. 71) argues that the CPTE is "the most significant body … that has influence over the output of Singapore's education sectors. It was the institutional link between industry and the education system."

4.4 Challenge 4: Institutional coordination with multiple public agencies undertaking TVET training

In the Singaporean system, institutional coordination is achieved through close partnerships between agencies and institutions. This takes the form of institutions providing resources into one another's programs. Thus, the Economic Development Board (EDB) contributes resources to activities "in areas less easily covered by existing PET institutions, and received applications for funding of in-house or external training. MOE made facilities available for PET and CET activities in partnership with EDB and other PET institutions. EDB, the PET institutions and AEB seconded staff to provide training in-house for companies under EDB schemes" (Raddon, 2012). Thus the close collaboration in the Tripartite Alliance already described ensures close coordination and cooperation between ministries and institutions involved in TVET.

Additionally, the fact that programs are demand-driven ensures that overlaps in program offerings and wastage are minimised. This is possible because the TVET system enjoys strong inputs and buy-ins from employers. The EDB's relationship with multinational corporations has brought these into the fold, and has also facilitated training needs focused co-financing. The Government works with both private sector providers and industry to close emerging training gaps for areas not covered by TVET.

4.5 Challenge 5: The absence of public–private sector synergy, reflected in 'us versus them' attitude

The formalisation of the Tripartite Alliance has unleashed a dynamic of collaboration that extends beyond TVET and affects Singaporean society in general. This has facilitated the building of consensus, and the co-management of initiatives. As a result, implementation of programs has all stakeholders engaged. This is the very antithesis of the 'us versus them' mentality that dominates public sector across the causeway.

This openness extends beyond all domestic stakeholders and affects the international arena as well, and specifically to countries from which Singapore feels it can learn lessons. The EDB, and parts of the TVET system have been established or organised through learning from a Dutch expert, and the German apprenticeship system, respectively (Raddon, 2012). However, Raddon's (2012, p. 16) claim that this "open door" to foreign input sets Singapore apart is incorrect. Malaysia also makes extensive use of foreign consultants. What sets Singapore apart is the level playing field the Government provides to both foreign and local advice. As a result, the latter does not feel alienated even if foreign advice isgiven precedence at any time. Malaysia also relies on foreign advice but keeps local non-government players at bay.

4.6 Challenge 6: Accountability unknown because public access to updated data varies from institution to institution.

Accountability can only be achieved if data on impact are available and systematic monitoring and evaluation take place. In Singapore's case, while some Government reviews have been made available to the public, others have not. This is despite the close institutional collaboration of stakeholders. Strong monitoring capability has not been matched by public disclosure so that non-government stakeholders cannot play an equal role to the Government in ensuring accountability.

Reporting requirements determine the data available for monitoring and evaluation. Singapore has seen reporting requirements strengthened since the 1990s, with

formalised systems put in place. Administrative data, enrolment and graduation rates, graduate placement, employment, and wages are routinely reported by the public sector institutions for which incentives like accreditation and funding are provided. Private sector institutions also provide data, but less extensively since the Government does not fund their operations.

Despite the partial access to information available to the public, what is made available goes well beyond routine administrative data to include occasional audits and the disclosure of actions taken for non-compliance and non-performance. As a result, there is now greater public access to information on outcomes, with information on private education institutions and graduates posted online. Singapore's Council for Private Education[24] has a policy of open access to information.

If there is one lesson Malaysia can take away from the Singaporean model, it is the Tripartite Alliance, an institutionalised mechanism that brings all major stakeholders together from policy formulation, to supervision, and to program implementation. Participation of all stakeholders ensures buy-in, facilitates communication, and information flow, as well as gives confidence to non-state stakeholders of a level playing field. For Malaysia to replicate this, its public sector has to overcome entrenched attitudes about the private sector as well as the secrecy it attaches to the data its institutions generate.

5. Conclusion and Policy Implications

The application of the World Bank's methodology to Malaysia's TVET subsystem has shown up several major challenges revolving around limited stakeholder involvement, and policy implementations lagging behind policy pronouncements. This is despite major improvements that have taken place between 2000 and 2010. These challenges have come to be recognised by the Government, as reflected in its Education Blueprint, wherein improvements have been promised largely in clichés, but with little substantive support.[25] It does not have to look far for these improvements. Neighbouring Singapore has an excellent TVET system from which many lessons can be drawn. Indeed, even within the country, the Penang Government, through the Penang Skills Development Centre, provides lessons almost as valuable as those from Singapore (United Nations Conference on Trade and Development, 2011, pp. 28-29).

It must be noted that since the years between 2000 and 2010, which the SABER methodology covered, there has been some, if limited, progress made to improve the TVET system. At the strategic level, there have been some changes, but it is not clear how effective these have been. The continuing absence of a dedicated, permanent tripartite apex agency dealing with coordination failure, and the coordination of skills supply, particularly within the public sector, such as the Tripartite Alliance in Singapore says much about the limited progress made. Progress has also been made in terms of greater private sector participation in delivery, and in industry participation in public institutions' programs, but the participation seems to be confined mainly to Government-linked companies rather than the real private sector companies. At the same time, the Government's focus on dropouts simply entrenches the public's inferior perceptions of

[24] The Council for Private Education is a statutory body entrusted with regulating and raising the standards of Singapore's private education industry (Retrieved from https://www.cpe.gov.sg/about-us/about-cpe).

[25] The Eleventh Malaysia Plan (Economic Planning Unit, 2015) also contains largely clichés, having little of the substantive data and information found in the earlier five-year plans.

TVET (Patel, 2014). Overall, the apparent lack of explicit and substantive reform policies and practices in the Education Blueprint, and the Eleventh Malaysia Plan that followed on the heels of the New Economic Model, especially at the apex level, paint a less than optimistic outlook for TVET.

Finally, to answer the question posed by the title of this paper, strengthening the TVET sub-system alone will not extricate Malaysia from the dire situation faced by its education system. System-wide reform of the education system and beyond it, strategies for human capital is needed to produce long-term improvement. This is because any improvement in TVET will be dragged down by a deteriorating education system. While this has been explicitly stated in the New Economic Model, it remains to be seen whether sufficient leadership and political will exist to push through reforms without the back-tracking that has come to characterise many education initiatives thus far.

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