

RAMLEE MUSTAPHA

TRANSFORMING EDUCATION TOWARD K-ECONOMY IN MALAYSIA

ABSTRACT: *To advance Malaysia into the forefront of knowledge, investment in human capital is critical, as the K-economy demands creative, innovative, and knowledge human resources. Malaysians demand a better work-life balance and opportunities for career enhancement, social mobility, and self-development. In addition, Malaysia needs to enhance its social capital and community capacity by reinforcing social cohesion and reducing social exclusion. Thus, the purpose of this article is to review critical elements that are needed to transform Malaysia into Knowledge-based society. Promoting and upholding the universal values of multiculturalism, human rights, and zero tolerance to corruption in public and private sectors is absolutely crucial. This is a first step toward achieving true liberty and democracy that may spur an environment suitable for innovative culture to flourish. To support K-economy, schools and universities should be equipped with broadband and seamless internet connection. To date, however, most rural schools in Malaysia have problem with the Internet access. Innovation in pedagogies and curriculum development is required in order to assist teachers in schools to make significant improvements. There are complains about the lack of high-order thinking, English proficiency, cross disciplinary skills, and critical and problem-solving skills among teachers and students. For the innovation culture to flourish, granting flexibility and autonomy is a way of moving forward. In sum, Malaysia needs a strong framework or a roadmap for producing adequate number of world renowned scientists and scholars in order to sustain the knowledge economy.*

KEY WORDS: *K-economy, higher skilled and innovative workforce, education and social systems, transformative and innovative leadership, and Malaysians.*

INTRODUCTION

The wealth of Asia will triple in 2015 to USD 15.8 trillion (Loh, 2011:10). China and India are forecasted to contribute over 40% of global GDP (Gross Domestic Product) in 2011 and 2012. ASEAN (Association of South East Asian Nations)'s GDP is expected to grow at annual rate of 4.8% in 2012 and 5.4% in 2013 (Kok, 2011:3).

As one of the dynamic countries in Asia, Malaysia should maintain its economic competitiveness by transforming itself. Malaysia's transformation is underway. The aspiration to stand equal with other developed nations by 2020 and to become a stalwart of education hub, especially in the Asian region, has made Malaysia one of the vibrant countries in Asia.

The nation's vibrancy lies in its human capital and the strength of its workforce is dependent on the quality of its education. Thus, education is an important catalyst in

developing talented, relevant, skillful, and innovative human resources in Malaysia. Education continues to play a vital role in developing and transforming Malaysia for the next decade.

Government Transformation Program (GTP) and Economic Transformation Program (ETP) were launched in 2010 to achieve the high-income status. With the slogan *1Malaysia: People First, Performance Now* – the government promised to make fundamental changes to deliver significant results fast (i.e. *performance now*) and to ensure every Malaysian will enjoy the fruits of the nation's development and live in an inclusive and diverse society where they consider themselves, first and foremost, a Malaysian (i.e. *1Malaysia*). The ETP builds upon the 10th Malaysia Plan (2011-2015) which focuses on the 12 National Key Economic Areas (NKEAs).

The four largest NKEAs (Oil, Gas, and Energy; Financial Services; Palm Oil; and

Wholesale and Retail) are projected to generate over 60 percent of the future GNI (Gross National Income) growth. ETP was designed to transform Malaysia into a high-income economy with a GNI of MYR 1.7 trillion (USD 0.53 trillion) in 2020 compared to MYR 660 billion (USD 206 billion) in 2009. This means that the GNI per capita will have to rise from MYR 23,700 (USD 7,406) in 2009 to MYR 48,000 (USD 15,000) by 2020 (http://etp.pemandu.gov.my/High_Income_Economy_-@-About_The_GNI.aspx, 9/10/2012). This level of GNI per capita would correspond to that of a high-income economy as currently defined by the World Bank.

However, the recent the USA (United States of America) and Eurozone economic crises have significant impact on Malaysia's economic vibrancy. The vicious circle of raising debts and falling growth has spread globally like "mad cow" disease. On the finance front, Malaysia should expect a shrinking foreign capital inflow as Western funds seek "safe havens" of their own countries during the uncertain economic period (Khor, 2012:25). Malaysia may need to rely more on domestic demand and capital. There is a growing realization that the global economy is in jeopardy. An expected deep recession in global economy could cause emerging economies like Malaysia a bumpy ride ahead.

ECONOMIC DEVELOPMENT AND VISION 2020 IN MALAYSIA

Vision 2020 has charted the Malaysia's dream to become a developed nation. The country was striving toward attaining that goal by shifting its economic activities, from production and exports of primary commodities to manufacturing; and currently on more capital-intensive, high-technology, and knowledge-based industries – has resulted in a structural transformation of the Malaysian economy for the past several decades.

Malaysia's Multimedia Super Corridor (MSC) has provided opportunities for increased R&D (Research & Development) and integration of advanced information and communication technologies (ICT) into

economic operations. In fact, knowledge is becoming an increasingly important factor of production, more important, some analysts would argue, than land, labor, and capital (Drucker, 1990 and 1993). What this implies is that the knowledge workers are very much in demand.

In the Malaysian context, restructuring of the economy has led to a change in the demand and supply of human resources and this has become a critical issue. As the demand for professional and skilled workers increases, there is a corresponding shortage in the supply of such workers. Through the education and training system, various policies and strategies have been implemented to ensure an increasing supply of educated, skilled, and innovative labor force in line with the key thrust of the Ninth and Tenth Malaysia Plans – the development of human capital. K-economy will significantly reduce the need for low skilled foreign labor in Malaysia.

Malaysia, with an estimated per capita GNP (Gross National Product) of USD 8,000, is a significant socio-economic force in the Southeast Asian region. Traditionally, the economy of Malaysia was based on its natural resources. During the 1980s, however, the government recognized the need for a balance between resource-based and technology-based industries, and started to focus on technology and service industries. In 1991, the nation's Vision 2020 was launched (Mohamad, 1991). The Vision 2020 is a 30-year plan to "push" Malaysia to obtain a developed nation status by the year 2020 (Mustapha *et al.*, 2008).

Malaysia struggled economically during the 1997-1998 Asian financial crisis and applied several valuable lessons to its economic management strategies that contributed to the economy's resilience to the 2008-2009 global financial crisis. GDP (Gross Domestic Product) contracted 1.7% in 2009 compared to 4.6% growth in 2008, but has since rebounded and was expected to be around 7% in 2010 (<http://www.traveldocs.com/my/economy.htm>, 9/10/2012).

Recently, Malaysia claims to enter the era of innovation-led economy. Najib Razak, the current Prime Minister of Malaysia, says that innovation is the "key mechanism" to propel

Table 1:
Number of Patents among Selected Asian Countries

Country	Industrial Design	Trade Mark	Patent	R&D as % GDP
China	141,601	389,115	93,706	1.4
Hong Kong	3,035	18,408	4,001	0.8
Japan	29,382	97,525	176,950	3.3
Malaysia	1,483	27,847	2,086	0.6
Singapore	1,781	17,737	6,286	2.2
Taiwan	n.a.	n.a.	n.a.	2.3
South Korea	39,858	62,443	83,523	3.2

Source: WIPI (2010).

Malaysia forward (cited in Kandasamy, 2010). Efforts have been made to churn out more innovative human capital such as MyBrain 15. “MyBrain 15” is an ambitious program to produce 60,000 Malaysian PhD holders by 2023 in order to boost K-economy. In academia, National Council of Professors was established in 2010 to fortify academic visibility in Malaysian Higher Education Institutions (HEIs). However, “intellectual vacuum” is entrenched due to the reservation of the silence majority of the Malaysian intellectuals to offer public comments, especially if the comments were not in favor to the ruling elites in fear of retribution.

Despite the laborious effort to churn out more knowledge workers, the figure remains low. Malaysia only has 25% of high-skilled workers as compared to 49% in Singapore, 33% in Taiwan, and 35% in South Korea (OECD, 1998 and 2011). Research and innovation are also considered lower than other countries, due to the fact that Malaysia is lacking critical mass of cutting-edge scientists and researchers in the country to enhance innovation. In terms of intellectual property, Malaysia only had 2,086 patents in 2010, much lower than South Korea, Singapore, Hong Kong, and China (see table 1).

The number of published academic research articles by Malaysian academics is also lower than Japan, Singapore, Taiwan, and South Korea. The lack of innovation among Malaysians is seen as a major setback for the country in its course that is aspired to be a fully developed nation by 2020. This problem has hampered the growth of the export sector, due to dependence on low-value added outputs.

In addition, several studies have shown that university students in Malaysia are lacking of innovative skills (Quah *et al.*, 2009). Table 1 shows regional comparison indicates that Malaysian registered patents are quite low, due to the smaller number of patents granted.

GLOBALIZATION AND K-ECONOMY

The 21st century is an era full of challenges. In developed countries, innovations are happening at accelerated pace and in large scale. The world is becoming “smaller” and “flatter” in the sense that people can access to information easier and can participate in collaborative works across the nations regardless of their nationalities. The term “globalization” has many definitions. In fact, there is no precise definition and its usage depends on the context it is used (Khonder, 1997).

For instance, M. Albrow (1990) refers globalization as “*to all those processes by which peoples of the world are incorporated into a single world society, global society*”. R. Robertson (1992) describes globalization as “*the compression of the world*” as well as “*the intensification of consciousness of the world as a whole*”. In another context, globalization is “*about the monumental structural changes occurring in the processes of production and distribution in the global economy*” (<http://www.unesco.org/webworld/infoethics>, 15/4/2013).

From these definitions have emerged popular terms like “the global village”, “borderless world”, “shrinking world”, and “the invisible continent” (Ohmae, 2000).

In the old world, producers dominate the economy. They set prices, they control distribution channels, and they dictate the terms of alliance. On the invisible continent, as argued by K. Ohmae (2000), all the power now is in the hands of the consumers. With the emerging ubiquitous technology, universal access to knowledge is getting closer to becoming a reality.

Globalization can be defined in many ways and one simple definition is the expansion of economic activities across political boundaries of nation-states. It is a process of deepening economic integration, increasing economic openness, and growing economic interdependence between countries in the world economy (Govindan, 2000). It is not only openness in terms of trade, financial, and investment flows but also flow of ideas, technology, services, information, and people across national boundaries. All these undoubtedly bring about wider opportunities for developing countries. Globalization, together with the increasing applications of information and communications technology (ICT), has profound impact on the economy where productivity gain is achieved through mainly knowledge-driven industries.

People are getting more ICT literate every day. With the baby boomer generation (1946-1964) is phasing out new cohorts of Generation Y (1964-1981) and the Digital Natives (1982 – today) are roaming the world. Digital natives spent more time in the virtual world than learning in school or at home. *Bernama*, on 3 January 2012, reports that in 2011, the Malaysian household broadband penetration is at 62% or 4 million out of 6.5 million households – an increase of 8% from 2010 (<http://www.theborneopost.com/2012/01/03/2011-the-year-of-success-for-information-technology-sector/>, 3/1/2012). It means that the country is well on its way toward achieving the target of 75% broadband penetration by 2015.

The government has set the national target as part of the National Key Economic Area (NKEA) initiatives to increase the broadband penetration rate and bridge the digital divide nationwide. However, the digital gap between the rural and urban populations in Malaysia

is still significant. In addition, based on 2008 statistics, produced by the World Bank (2010), the number of Malaysians owning computer is still low which at 23 out of 100 peoples, which way below other Asian countries such as Hong Kong, Singapore, and South Korea (see table 2).

EDUCATION AND ECONOMIC DEVELOPMENT

Since the Industrial Revolution in the late 18th century, progress and prosperity have been closely identified with economic development (Jomo, 1993). Economic competitiveness of a country depends on innovativeness of its workforce. Knowledge, skills, and innovativeness of the workforce rely on the education and training systems. Education is perceived as one of the crucial elements in enhancing economic productivity (Min, 1995; and Khalil & Olafsen, 2010). Based on the human capital and social efficiency theories, school should prepare and supply future workers with appropriate knowledge and skills that would enhance their productivity and upward mobility; and, therefore, promote economic growth (Schultz, 1961; Becker, 1964; Harbison, 1974; Finch, 1993; and Labaree, 1997).

Launched in 1988, Malaysia National Philosophy of Education stresses on holistic development of a learner, including physical, mental, spiritual, and emotional domains. Education in Malaysia has developed along the British model (Musa, 2003). *Bahasa Malaysia* (Malay language) is the medium of instruction and English is taught as a second language. Students spend six years in primary school, followed by six more years in secondary and high school. Tertiary education towards the first degree takes from three to six years depending on the discipline. Education is seen as the means by which national goals can be achieved. With the increasing emphasis on the importance of education, there is a growing awareness among government, non-government organizations, and private sector of the importance of life-long education.

As a developing country, Malaysia grapples with the task of building its economies to achieve sustainable development and to

Table 2:
Demographics, Education, and Economic Index of Selected Asian Countries in 2008

Country	Population (Million)	Urban Population (% of the Total Population)	GNI per Capita (USD)	GDP Growth (%)	% Adult Literacy (>15 Years Old)	Tertiary Education Enrollment (% of Population)
China	1,325	43	2,940	10.4	94	24.4
Hong Kong	7	100	31,420	5.2	n.a	56.6
Japan	128	66	38,130	1.6	n.a	47.7
Malaysia	27	70	7,250	5.5	92	28.2
Singapore	5	100	34,760	5.8	95	33.7
South Korea	49	81	21,530	4.5	n.a	70.5

Source: World Bank (2010).

improve the quality of life of its people. There is a growing recognition that the education of the population is essential to sustain economic growth and development (Azman & Ahmad, 2006). As a country that has developed tremendously for the past three decades, Malaysia has become an example and is often cited by economic analysts and developmental planners as a model of a developing country. To become fully developed nation, Malaysia needs a workforce that is well educated, innovative, competitive, dynamic, and skilled (Mustapha & Mohd Salleh, 2007).

Like any developing countries, the focus on education in Malaysia has shifted from policy concern to the economy and employment (Azman & Ahmad, 2006). Essentially, according to M. Tennant and R. Morris (2001), education in developing countries has evolved around two axes: emphasis on life-long learning and employability. Thus, the idea of enhancing human capital and the competitiveness by knowledge-skills acquisition has gained ground with legislators, business, and educational leaders.

In Malaysia, the government, private, and non-government organizations have taken note of the societal and technological changes and, therefore, have recognized the critical need for education and training (EPU, 2006). In addition, there has been a renewed interest in education as a vehicle for addressing national priorities as indicated in the Ninth Malaysia Plan (2006 – 2010) and the Tenth Malaysia Plan (2011 – 2015) such as the formation of adaptable, flexible, innovative and multi-skilled workers, the creation of harmonious

multicultural society, and the promotion and awareness of civic education, health, indigenous rights, and the environment.

However, the percentage of tertiary education enrollment among Malaysians is still low as compared to other Asian countries (see table 2). Malaysia wouldn't be fully readied for K-economy with fewer number of K-workers with tertiary-level education. Table 2 illustrates the basic demographics, education, and economic index of selected Asian countries in 2008.

CHALLENGES

One of the biggest challenges of the 21st century is the creation of jobs. In the next 15 years, more than 700 million young people will enter the labor force, of whom 300 million will come from Asia (Sheng, 2011:3). Unemployment in Malaysia is still below 4 percent. With the advent of global recession, the need for a strong human capital has never been so critical. Literature has shown that several Asia Pacific countries, including Malaysia, have spent relatively low percentage of their GDP (Gross Domestic Product) on ICT (Information and Communication Technology) infrastructure and R&D (Research & Development). As a result, there is a low percentage of skilled and knowledge workers (K-workers) in the population such as the scientists, engineers, and ICT specialists (Reynolds *et al.*, 2002; and Mustapha & Abdullah, 2004). In addition, the level of innovative R&D is also low among these countries which resulted in few numbers

of *technopreneurs* and *technoprises*. Further, the percentage of graduates who are unable to secure proper jobs posed a challenge to the nation. Thus, the education and training system has to gear itself to meet the demands of the new economy.

Malaysia was a colonial back water during the British occupation and the early stage of the independence. However, in the 1980s and 1990s, the Malaysian economy experienced rapid growth and a significant structural transformation. It went from an economy that relied on agriculture and commodities to one dominated by manufacturing and services. Since then, however, Malaysia's growth has dwindled to a level well below its key competitors in Asia, including the large labor-surplus economies of China and India. The economy seems to be caught in a middle-income trap – unable to remain competitive as a high-volume, low-cost producer and unable to move up the value chain, and achieve rapid growth by breaking into fast growing markets for knowledge – and innovation-based products and services (World Bank, 2009).

In terms of politics, the post-Mahathir Mohamad era (1981-2003) has portrayed less political control on the masses but reduced popularity of the *Barisan Nasional* (the ruling coalition). Unlike the “Arab Spring”, the younger Malaysian generation uses subtler means to show their anti-establishment sentiments by using digital and ubiquitous technologies to unfold ruling politicians' Achilles' heel. Thus, the ruling coalition's public image has resonated between populism and paralysis.

With less than 30% of Malaysians pursue higher education as compared to about 60% in the United States of America and 47% in United Kingdom posed a real challenge in producing knowledge workers to support innovative economy in Malaysia. To survive in the emerging innovative economic environment, the present Malaysian workforce has to have an added value apart from the knowledge, skill, or expertise they have gathered through education. The future workers need to be efficient, productive, and innovative to cater for the demands of the competitive, globalized world. They too must

be able to keep up with the rapid expansion of knowledge.

Another important aspect that can add value to our graduates is the mastery of foreign language. Since all knowledge, including new knowledge, is gathered, developed, and disseminated through language, both linguists and economists believe that language competency and communicative skills are important particularly in the education and training of human resource. In fact, language competency is an added value for the workforce in the era of industrialization and globalization.

In addition, Malaysia lacks the critical mass of research scientists and engineers that are much needed to drive the K-economy (Mustapha & Abdullah, 2004). In 2004, Malaysia had only 21 research scientists and engineers (RSEs) for every 10,000 workers (Jarjis, 2006). The target set in the Ninth Malaysia Plan was to achieve 50 RSEs per 10,000 workers by 2010 (EPU, 2006). In launching the ETP (Economic Transformation Plan), the Prime Minister, Najib Razak, also warns the nation about the low and middle incomes trap. He proposed a New Economic Model to achieve the high income bracket for the nation. The model was designed to provide a “concerted, holistic roadmap” to raise income and living standards over the next 10 years; its goals are anchored on strategies outlined in the ETP and GTP (Government Transformation Plan). It targets growth in gross national income of at least 6% a year (Chia & Li, 2011).

By 2020, income per capita is expected to reach US\$ 15,000 (RM 48,000), enough to become a developed nation. To achieve this, the ETP identifies eight strategic reform initiatives (SRIs) to propel transformation and growth, namely: (1) promoting a private-sector led economy; (2) creating a quality workforce; (3) instilling competition; (4) strengthening the public sector; (5) building knowledge-base infrastructure; (6) enhancing sources of growth; (7) ensuring growth sustainability through innovation; and (8) implementing transparent and market-friendly affirmative action.

However, a recent report by WEF (World

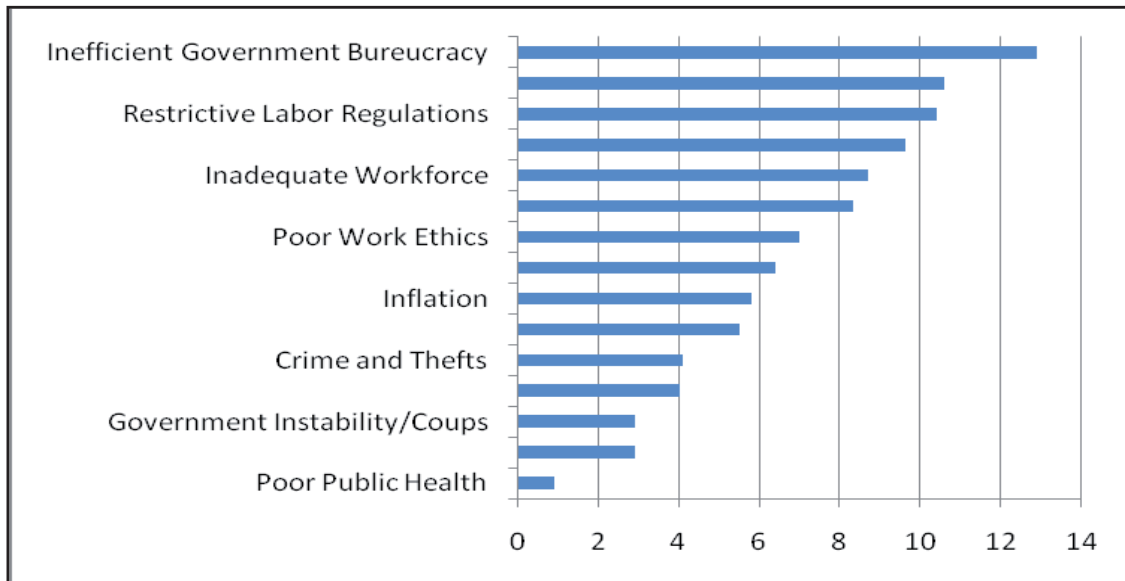


Figure 1:
The Most Problematic Factors for Doing Business in Malaysia
Source: WEF (2011).

Economic Forum) in 2011, highlighted several barriers in doing business in Malaysia such as the inefficiency of the government bureaucracy, inadequate skilled workforce, and poor work ethics.

Malaysia budget for 2012 continues to focus on development, expansion, and liberalization of the critical sectors in the economy such as the education and the service sectors. Emphasis on developing quality human capital in terms of granting higher development allocations for academic and vocational schools, promotion of private education, expanding the role of private sector in supplying of skilled human resources, and efforts to attract talent to Malaysia. While education and tourism sectors have received reinvestment incentives, the manufacturing sector has been marginalized.

DIVERSIFICATION OF ECONOMIC ACTIVITIES

The government has already recognized the importance of adapting to this new economy and is committed to transform the economy from a production-based to knowledge and innovation-driven economy. So far, several incentives have been introduced to encourage the private sector to participate more actively in R&D (Research & Development). These

incentives are in the forms of Double Tax Deduction, Industrial Building Allowance, Capital Allowance, and Import Duty exemption on machinery/equipment, materials, raw materials/component parts, and samples used for R&D.

However, Malaysia should no longer rely on the strategy of offering foreign investors liberal industrial incentives and cheap labor to generate economic growth. Thus, the country should not bank on the traditional approach of “catching up”. In view of this, economic growth has to be endogenously driven with increasing emphasis on knowledge, productivity, education, and human capital. The productivity and innovation-driven growth is crucial to achieve sustainable growth with low inflation. It is essential to make the transition to the K and I-economies because labor and capital input could no longer provide the impetus for rapid economic growth. The injection of more capital to stimulate growth was not necessarily a good strategy, because this would result in a diminishing marginal rate of productivity and consequently the deterioration of the incremental capital-output ratio.

Global economic stagnation has forced Malaysia to find alternative ways to rejuvenate the economy. The ETP (Economic

Transformation Plan) was designed to be driven by 12 National Key Economic Areas (NKEAs) announced in the 10th Malaysia Plan, which are: (1) Oil, Gas, and Energy; (2) Palm Oil; (3) Financial Services; (4) Tourism; (5) Business Services; (6) Electronics and Electrical; (7) Wholesale and Retail; (8) Education; (9) Healthcare; (10) Communications Content and Infrastructure; (11) Agriculture; and (12) Greater Kuala Lumpur/Klang Valley.

Malaysia has also launched five economic corridors, namely: Iskandar Malaysia (IM), East Coast Economic Region (ECER), Northern Corridor Economic Region (NCER), Sabah Development Corridor (SDC), and the Sarawak Corridor of Renewable Energy (SCORE). IM project could boost stronger economic ties between Malaysia and Singapore, because of the proximity and the economic activities could be mutually beneficial. But the recent scandal in the IM (Iskandar Malaysia) has deteriorated the good image of the project.

The ECER has an initiation of development having a time span for 12 years starting from 2007. PETRONAS, the Malaysia owned oil and gas company, is the primary player and master planner for the ECER. The NCER is being expected to be a world-class economic region by the year 2025, in which it will be among the world's best in a number of its key economic sectors, such as Electrical and Electronics, Agriculture, Tourism, and Bio-Technology. The main aim of the SDC was to make Sabah a getaway for trade, investment, and tourism. The SCORE was launched on the 11th February 2008 to accelerate the state's economic growth while improving the quality of life for the people of Sarawak (<http://www.slideshare.net/annesunita>, 20/5/2013).

However, critics have highlighted that there are too many economic corridors in Malaysia and the hegemonic roles played by the Federal government in these corridors, raising the questions of the roles of the state and local governments in these projects. Another significant issue is the inadequacy of the skilled human resources needed to support the industries in these corridors.

Tourism has been one of the contributors

to the Malaysian economy since 1990 and has been on the increase ever since. It is the second largest foreign exchange earner after manufacturing sector, reaping a profit of MYR 49.6 billion (USD 15.5 billion) in 2008. A country of 27 million multicultural population with relatively good infrastructure, education, and natural resources, Malaysia could attract foreign investors and tourists. In order to meet the requirements of this sector, the country needs to preserve its natural heritage as well as to enhance the country's accessibility, infrastructure, and services. By concentrating on each state's strength and propelling them under corridor initiatives, Malaysia should be able to bring in further influx of visitors not only from abroad but also locals who look for get-away during holidays.

Malaysia's tourism may be booming in the coming years. Local tourism market like handicrafts, textiles, and tourist spots would benefit from this surge. The five economic corridors are mega projects aimed at using the strengths and opportunities in each concentrated region by making use of idle and existing resources of land, natural reserves, and labor to revive each location through different economic approaches. Thus, a quality workforce is needed to meet the new industry requirements. Fresh graduates need to embrace a different mindset of innovation, creativity, invention, and risk taking approach. Nevertheless, the extent to which these corridors would be a success still remains unknown.

TRANSFORMATIVE AND INNOVATIVE LEADERSHIP

Mooted by J. Schumpeterian theory of growth and P. Romer's theory of endogenous growth, innovation and investment in human capital are critical to generate economic development (Schumpeter, 1911/1934; and Romer, 1986). However, economic development is not sustainable without transformative and innovative leadership. According to W. Bennis and J. Goldsmith (1997), leadership is about innovating and initiating reforms. To instill the culture of innovation, leaders have to reward people for disagreeing, thinking outside of the box,

and to tolerate failure. Great leadership keeps great talents. As Apple genius and innovation icon, Steve Jobs, aptly put it: “*Innovation distinguishes leaders from followers*” (cited in http://thinkexist.com/quotes/steve_jobs/, 15/4/2013).

For Malaysia to move forward, it needs a critical mass of transformational and innovative leaders (leadership). Transformative leaders would be able to empower and to transform the people under them. In higher education, Malaysia’s Ministry of Higher Education (MoHE) has established AKEPT (*Akademi Kepimpinan Pengajian Tinggi* or Higher Education Leadership Academy) in 2007 to nurture future higher education leaders; to produce excellence university lecturers and researchers in line with the Strategic Plan of Higher Education.

Transformative and innovative leadership is required to boost Malaysia’s economic development (Yusof & Bhattasali, 2008). The transformative leadership in HEIs (Higher Education Institutions) must demonstrate the following attributes: visionary, highly motivated, confident, committed to the attainment of excellence in academic endeavors, far-sighted and skilled in strategic planning, human resource development, and financial management. Furthermore, they should possess impeccable personal credentials in terms of integrity and character.

In order to produce the right quality and quantity of human capital, the transformation of Higher Education Institutions emphasizes five crucial factors: Administration, Leadership, Academia, Teaching and Learning, and Research and Development (http://www.mohe.gov.my/akept/about_2.html, 25/4/2013). In addition to the provision of systematic and integrated implementation plans to ensure the success of the objectives set out in the National Higher Education Action Plan, Key Performance Indicators (KPIs) should provide the benchmarks to measure the progress in the overall transformational efforts undertaken by the Higher Education Institutions.

However, a major drawback for Malaysian Higher Education is the hierarchy of power which determines the leadership of the public

universities. Leadership in academia should be selected among the best academicians based on merit, scholarship, academic performance, and respectability from the academic community. To achieve a genuine excellence in academia, the political intervention in academia should end graciously. Furthermore, the voice of the young generation must be heard. Students’ freedom should be put in place for students to voice their true opinion; revoke any rules and regulations that suppress their thinking and innovation. This is a first step toward achieving true liberty and democracy that may spur an environment suitable for innovative culture to flourish.

Thus, many have suggested that repressive laws that curb students’ freedom such as the AUKU (*Akta Universiti dan Kolej Universiti* or University and University College Act) should be evicted. The speaker’s corner which was a platform for open debates should be revert back as a norm as it was in the 1960s and early 1970s before AUKU was enacted and enforced upon university students in Malaysia. According to K. Raslan (2011), the new geopolitical landscape in Malaysia demands prodigious powers of the leadership. Mere rhetoric will be useless.

In the post-capitalist and post-modernist era, innovation has become the industrial “religion” through which firms believe it could increase market share and profits (Valery, 1999). According to P. Fisk (2011), idea is a new currency of success. According to MIT (Massachusetts Institute of Technology) former President, Charles M. Vest, in 1997, the challenge of the future will be to create new ideas and to make innovation (cited in Fisk, 2011). The next round of competition is likely to be won by those who innovate, i.e. those who create new ideas, products, and services; and those who solve new human problems and create new commerce.

According to J.O. Moller (2011), historically around 1975, Japan, Germany, Switzerland, and Sweden were at the top of the economic league. All four had specialized in high quality – and expensive – investment goods. This was marvelous at the crest of the industrial age. Their societal structure supported this economic positioning. When the industrial age

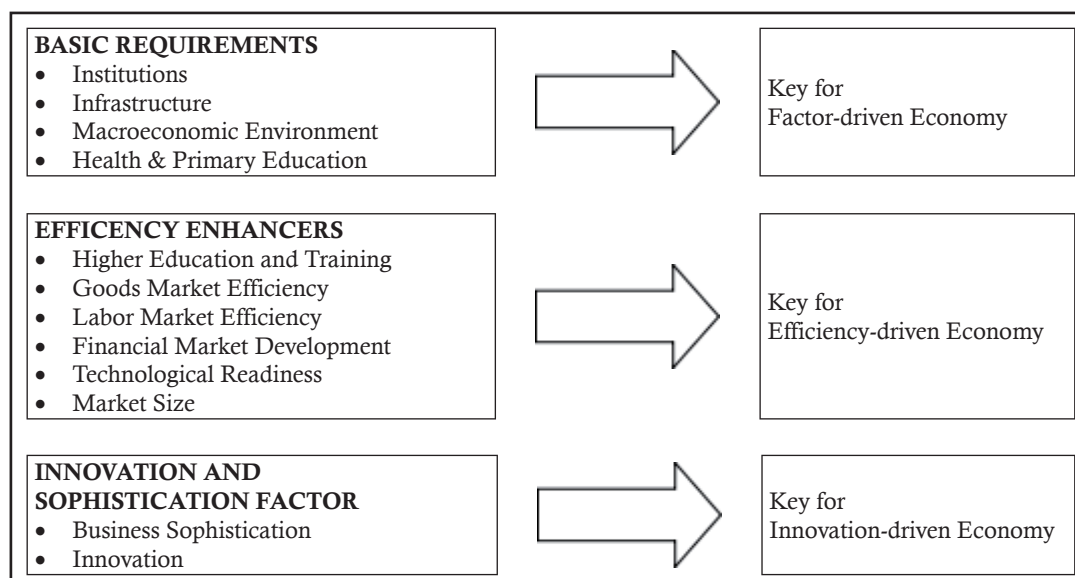


Figure 2:
World Economic Forum's 12 Pillars of Competitiveness

Table 3:
Global Competitiveness of Selected Asian Countries

Country	Global Competitive		Basic Requirements		Efficiency Enhancers		Innovation & Business	
	Index	Rank (score)	Rank (score)	Rank (score)	Rank (score)	Sophistication	Rank (score)	
China	26	(4.90)	30	(5.33)	26	(4.70)	31	(4.15)
Hong Kong	11	(5.36)	2	(6.21)	4	(5.48)	25	(4.58)
Japan	9	(5.40)	28	(5.40)	11	(5.19)	3	(5.75)
Malaysia	21	(5.08)	25	(5.45)	20	(4.88)	22	(4.65)
Singapore	2	(5.63)	1	(6.33)	1	(5.58)	11	(5.23)
South Korea	24	(5.02)	19	(5.65)	22	(4.86)	18	(4.87)
Taiwan	13	(5.26)	15	(5.69)	16	(5.10)	10	(5.25)

Source: WEF (2011)

was replaced by the information era, they all ran into difficulties. Economic policy did not suffice to turn them around. It is fair to say that these countries actually benefited from a particular societal structure in the era of industrialization, but were hit when the trend changed, forcing them into – not an economic adjustment – but a social restructuring requiring much more time and efforts (Landes, 1998; and Moller, 2011). It is thus reasonable to assume that innovation at least be partly determined by societal structure, culture, and mindset.

Recent statistics show that Malaysia's population is reaching 28 million with GDP (Gross Domestic Product) of USD 238 billion and GDP per capita is USD 8,423.

The GDP of Malaysia as share (%) of the world is 0.56 (WEF, 2011). In terms of global competitiveness, Malaysia is ranked in the middle tier by World Economic Forum (WEF) categorized as Stage 2 – Efficiency driven. WEF measured world competitiveness of 142 countries in the world based on 12 pillars and three main categories: Factor-driven, Efficiency-driven, and Innovation-driven. Figure 2 illustrates 12 pillars of competitiveness set by World Economic Forum.

Table 3 shows the global competitiveness of selected countries in Asia. In terms of basic requirements and efficiency, Singapore and Hong Kong lead the ranks. But in terms of innovation, Japan and Taiwan seem to move

far ahead of other Asian countries. Malaysia is ranked in the middle, meaning that Malaysia needs to make leap and bound in order to reach the competitive level by transforming the political, education, and economic systems.

Malaysia Minister of Science, Technology, and Innovation has admitted that some factors that may suppress the innovation of Malaysians such as the inability to match inventions with investors, shortage of loans for commercialization, and lack of publicity for “grassroot” inventions (Pandiyan, 2012). In recent years, the government was stunned by the departure of relatively significant number of its professional and highly skilled workers to other countries. Brain drain or talent loss has taken a toll on Malaysia’s aspiration to join the developed nations’ club. Malaysian diaspora may find attractive incentives to move and live in other countries such as higher salary, better quality of life, and conducive working environment. It is estimated that 700,000 to 1.3 million Malaysian diaspora working in various countries (Nawawi, 2011). The question is: how to curb the brain drain?

Asian countries such as South Korea, Taiwan, and Singapore have propelled themselves to developed nation status within relatively short period of time by a precise, deliberate, and purposeful prioritization of focus sectors while concentrating on developing, up-skilling, and delivering the right talents required to drive growth in those sectors (<http://www.pagemalaysia.org/news.php?readmore=410>, 2/6/2012). Thus, it seems urgent to optimize local and foreign talents for Malaysia to achieve the Vision 2020.

Due to the brain drain and talent loss, the government has launched Talent Corporation in 2010 with the intention to re-coupe the talent loss and to plan strategies to bring home Malaysian and foreign talents who are working abroad in order to build a larger talent pool for the country. In the nutshell, the roles of Talent Corp are to: (1) Attract and engage Malaysian diaspora; (2) Nurture and leverage on Malaysian talents; (3) Unleash and retain foreign talents within Malaysia; and (4) Attract and facilitate entry of foreign talents into Malaysia.

However, critics such as B. Wain (2011:50)

argues that: “[...] *in the absence of improvements on the ground – in the quality of life, including a safe and clean environment, in sound public infrastructure and services, and in education and an end to ethnic discrimination – the program is unlikely to be any more successful than two similar initiatives in the past fifteen years*”. For some Malaysians, it is not so much about the competitive salaries and better working, but they detest any type of discrimination put upon them. Simply put, people despise to be “categorized” as second or third-class citizens. All Malaysians should be treated equally.

The idea of *1Malaysia* is a good start but it needs to be put in practice honestly and wholeheartedly. Malaysia has achieved many great achievements in many fields such as ICT (Information and Communication Technology), business, entertainment, foods, recreation, and sports. But when it comes to political arena, the political leaders seldom act like statesmen but more like narrow-minded politicians. With this type of mentality, it will never be fully recognized as first-class mentality or civil society.

In other words, a close-minded society will not attract the best brains. In addition, according to Z. Arifin (2012), to attract foreign talent, Malaysia has to compete with the rest of the world. To get the former Malaysians is relatively difficult because a number of them left because of the negativity toward the country that their interests would be better served by migrating. As Z. Arifin (2012) suggests, the inequality could be the reason Malaysians are leaving. Thus, the brain drain could be a political issue.

Furthermore, to develop Malaysia into a world class talent base, the education and social systems need significant revamp. If the government aims to make Malaysia a center of educational excellence, improving the quality of local education system needs to be the top priority (Yap, 2011). The effort requires nothing less than a comprehensive, all inclusive national concerted effort from the public and private sectors as well as a civil society.

K-WORKERS AND SKILLS TRAINING

As Malaysia moves into a higher-end of economic echelon, there is a greater demand

for highly skilled knowledge workers. However, the shortage of K-workers and skilled human resources in Malaysia is perceived as the “biggest obstacle” in transforming Malaysia into a knowledge-based economy (Mustapha & Abdullah, 2004; Mustapha *et al.*, 2008; and World Bank, 2009). In 2012, vocational education and skills training have made a come-back. With the launching of Vocational Education Transformation Plan, pupils can now enroll in vocational school as young as 13 years old (Form One) under *Program Asas Vocational* (PAV) – Basic Vocational Education Program.

PAV, aimed at exposing students with vocational skills at an early age, is part of the Government Transformation Program (GTP) for education which is under the National Key Result Area (NKRA). The Vocational Education Transformation Plan is to “re-engineer” the current vocational education system. Its objective is to produce 3.3 million skilled human resources to fulfill the local industry demand in the next 10 years (Bendahara, 2012). The Plan listed five strategies: curriculum transformation, institutional upgrading, strategic collaboration with industry, new assessment, and organizational transformation. The national economic growth requires an increase in the number of graduates in the technical and vocational fields.

In Malaysia, one of the major obstacles to economic progress and higher productivity are inadequate numbers of highly educated and highly skilled personnel in the workforce (Mustapha & Abdullah 2004; and Chia & Li, 2011). In addition, workplace policies and regulations are still inadequate to attract Malaysian women into the employment market (Hamid, 2012). Randstad’s 2011-2012 World of Work Report (cited in Hamid, 2012) found that few companies in Malaysia are actively putting in place the structure and policies needed to retain female workers. When those workers leave, the firms lose vital human resources as well as the diversity of experiences that enriches the workplace. To tap into a more diverse talent pool and meet critical demands, the industry needs to put forward attractive incentives to get female

workers back into the workforce.

For those already in the workforce, about 40% of them still need to improve their literacy and numeracy skills to meet requirements of the fast-paced companies. Workers need to update their skills in order to participate in the changing workplaces and new technology. Vocational Education and Training (VET) sector has unique position because it connects learning and skills development with the labor market, the workplace, and community development as well as with individual learner and employer.

Currently, only 23% of Malaysian workforce is highly skilled compared to 51% in Singapore, 43% in Finland, and 36% in the United States of America (<http://www.pagemalaysia.org/news.php?readmore=410,2/6/2012>). This percentage is much lower when compared to other developed countries. Malaysia is targeting to achieve 40% of skilled workers by 2020. With the establishment of *Skills Malaysia* in 2011, it is expected that the program will rejuvenate competency-based education and training to be at par with other developed countries such as South Korea, Japan, and Germany.

Development of a high level of knowledge and skills in the critical sectors is very important if Malaysia wants to achieve the high skills and knowledge-intensive economy. The need for low-skilled foreign workers may be reduced if Malaysia is making a faster transition to full fledged knowledge-economy. Presently, there are about 71,000 unemployed graduates, and the number remains high despite government’s effort to retrain them (Say, 2012). Almost one in five of unemployed Malaysians hold a degree or diploma. In addition, employers are concerned with the poor command of English among Malaysian workforce. Malaysia needs an adequate supply of competitive and highly skilled human resources who are proficient in English and are able to acquire cutting-edge knowledge.

The Malaysian VET system is school-based. Vocational school teachers themselves often lack of industrial experience. School learning is not well integrated with the workplace. The practical skills training facilities in school is often outdated and may no longer use in

industry. One way to solve this problem is to develop partnership with industry and trade. Modern apprenticeship or “dual-system” might be a viable solution. Thus, the government, through the decision of the Minister Council on 19th May 2004, has agreed to implement National Dual Training System (NDTS). NDTS was introduced to provide the comprehensive training to produce K-workers. NDTS will provide the competencies and fulfill the industries’ needs. The approach involves the delivery of training in two places, namely 30% of the total training on basic skills and theoretical knowledge being taught in the training institute, while the remaining 70% on the practical and hands-on training being delivered in the workplace in the industry. The most distinguishing feature of the NDTS compared to other skills training programs is the requirement for coaches and trainers to infuse or integrate human and social skills as well as learning skills besides the technical skills.

According to the mid-review of the Ninth Malaysia Plan, the expected outcome of the NDTS in 2010 was 3,200 companies involved in NDTS with about 16,000 apprentices (MG, 2008). In order to enhance effectiveness of NDTS, a more flexible approach in terms of training module preparation, assessment, and certification should be considered. New fields in various sectors will be added to attract more participation from the industry. However, those with skill training certification most often have difficulty to further their studies in Malaysian public HEIs (Higher Education Institutions).

Lack of bridging program between skills-based training institutions and public universities is identified as the main problem. Bridging program should be created to articulate skill-academic equilibrium. High skills equilibrium is an articulated and integrated concept based on underlying skills qualification framework. Bridging program should be an open system that graduates from vocational institution can further their studies in HEI including university. Stagnation of skilled-based vocational education is largely due to rise of service sector and knowledge-intensive economy. Thus, to alleviate this problem, some scholars suggest integration of

vocational and academic education instead of separating it (Mustapha, 2000).

Knowledge society should have a critical mass of entrepreneurs, *technopreneurs*, and social entrepreneurs because innovation is essential in current trends and the dynamic business environment requires organizations to quickly detect market changes, sense future demands, and innovate to meet these demands in creative and novel ways. Entrepreneurs are required to have knowledge and capabilities to transform ideas into marketable products and services. VET system needs to focus on improving the attractiveness of VET to prospective students, providers, and industry and to raise VET teacher standards. To gain international recognition, the development of transnational standards for technical and vocational education and training with a multidisciplinary and industrial orientation is critical.

CONCLUSION

In this article, I have argued that it is critical to transform the mindset and psyche of the Malaysians in order to realize the vision of becoming a developed nation. In addition, transformative and innovative leadership is required to boost Malaysia’s economic development. To develop Malaysia into a world class talent base, the education and social systems need significant revamp. There is a strong link between innovation and economic robustness of a nation. Innovation is key to social and economic progress. Innovation-led economy has changed the economic scenario of the world, including Malaysia. The Malaysian government has introduced GTP (Government Transformation Program) and ETP (Economic Transformation Program) as a roadmap to chart the nation’s path toward achieving Vision 2020. The transition from a manufacturing to technology-based economy calls for higher skilled and innovative workforce that can adapt rapidly to changing job requirements.

The Malaysian leadership has expressed their commitment to regain Malaysia’s earlier growth (as in 1980s and 1990s) and reposition Malaysia as high-income economy. However, the real litmus test lies in the attainment of

full employment and sustaining economic growth in the global economy. In the rise and fall of civilizations, the quality of the leaders is often the determining factor. Thus, innovative leadership is the *raison d'être* to drive the new economy. The prime movers in this country must have strategic thinking. It is not enough to declare high performing schools but it is critical to develop thinking and well-rounded students who are the future high performing thinkers and innovators. For the innovation culture to flourish, granting flexibility, and autonomy is a way of moving forward. In sum, Malaysia needs a strong framework or a roadmap for producing adequate number of world renowned scientists and scholars in order to sustain the knowledge economy. This scholarship roadmap is urgently needed to rejuvenate the culture of excellence.

REFERENCES

- Albrow, M. (1990). *Introduction: Globalization, Knowledge, and Society*. London: Sage.
- Arifin, Z. (2012). "The Art of Courting Talent" in *New Sunday Times*. Kuala Lumpur: 23 January, p.20.
- Azman, N. & Ahmad, A.R. (2006). "History, Trends, and Significant Development of Adult Education in Malaysia" in *HISTORIA: Journal of Historical Studies*, Vol.VII/2, pp.66-82.
- Becker, G.S. (1964). *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*. New York: Columbia University Press.
- Bendahara, A. (2012). "Emphasis on Vocational Studies" in *New Straits Times*. Kuala Lumpur: 7 January, p.4.
- Bennis, W. & J. Goldsmith. (1997). *Learning to Lead*. Cambridge, MA: Perseus Books.
- Bernama [News Agent of Malaysia]. Available at: <http://www.theborneopost.com/2012/01/03/2011-the-year-of-success-for-information-technology-sector/> [accessed in Tanjong Malim, Malaysia: 3 January 2012].
- Chia, W.M. & M. Li. (2011). "Malaysia" in M.J. Montesano & P.O. Lee [eds]. *Regional Outlook: Southeast Asia, 2011-2012*. Singapore: ISEAS [Institute of South East Asian Studies].
- Drucker, P. (1990). *The New Realities*. London: Mandarin.
- Drucker, P. (1993). *Post Capitalist Society*. New York: Harper Row.
- EPU [Economic Planning Unit]. (2006). *The Ninth Malaysia Plan, 2006 – 2010*. Kuala Lumpur, Malaysia: Economic Planning Unit.
- Finch, C. (1993). "The High Performance Workplace and the Evolving Nature of Vocational Education Research" in *Journal of Vocational Education Research*, 18(2), pp.1-19.
- Fisk, P. (2011). *Creative Genius: An Innovation Guide for Business Leaders, Border Crossers, and Game Changers*. North Mankato, MN: Capstone.
- Govindan, K. (2000). "Globalization, K-Economy, and the Virtual State". Paper presented at the 12th National Real Estate Conference in Kuala Lumpur, Malaysia, on 31st October – 1st November.
- Hamid, H. (2012). "Policies Not Attracting Women" in *New Straits Times (Business Times)*. Kuala Lumpur: 3 January, p.4.
- Harbison, F. (1974). *Human Resources as the Wealth of Nations*. New York: Oxford University Press.
- http://etp.pemandu.gov.my/High_Income_Economy_-_About_The_GNI.aspx [accessed in Tanjong Malim, Malaysia: 9 October 2012].
- http://thinkexist.com/quotes/steve_jobs/ [accessed in Tanjong Malim, Malaysia: 15 April 2013].
- http://www.mohe.gov.my/akept/about_2.html [accessed in Tanjong Malim, Malaysia: 25 April 2013].
- <http://www.pagemalaysia.org/news.php?readmore=410> [accessed in Tanjong Malim, Malaysia: 2 June 2012].
- <http://www.slideshare.net/annesunita> [accessed in Tanjong Malim, Malaysia: 20 May 2013].
- <http://www.traveldocs.com/my/economy.htm> [accessed in Tanjong Malim, Malaysia: 9 October 2012].
- <http://www.unesco.org/webworld/infoethics> [accessed in Tanjong Malim, Malaysia: 15 April 2013].
- Jarjis, J. (2006). "Transformation into a Knowledge-Based Economy: Malaysian Experience". A Speech by Malaysia Minister of Science, Technology, and Innovation in Helsinki, Finland.
- Jomo, K.S. (1993). *Industrialising Malaysia: Policy, Performance, Prospects*. London: Routledge.
- Kandasamy, D. (2010). "PM: Innovation is Key to Propel Malaysia Forward" in *The Malay Mail*. Kuala Lumpur: 20 July.
- Khalil, M.A. & S. Olafsen. (2010). *The Global Opportunity in IT-Based Services: Assessing and Enhancing Country Competitiveness*. Washington, DC: The World Bank.
- Khonder, H. (1997). "Globalization Theory: A Critical Appraisal" in H.M. Dahlan et al. [eds]. *ASEAN in the Global System*. Bangi, Malaysia: Penerbit UKM [Universiti Kebangsaan Malaysia].
- Khor, M. (2012). "Year of Full-Fledge Crises?" in *The Star*, 2 January, p.25.
- Kok, C. (2011). "Crunch Time for Eurozone" in *Starbiz*, 7 December, p.3.
- Labaree, D.F. (1997). "Public Goods, Private Goods: The American Struggle Over Educational Goals" in *American Educational Research Journal*, 34(1), pp.39-81.
- Landes, D. (1998). *The Wealth and Poverty of Nations*. Oxford: Pergamon.
- Loh, J. (2011). "Asian Wealth to Triple by 2015" in *StarBizWeek*. Kuala Lumpur: 17 September, p.10.
- MG [Malaysian Government]. (2008). *The National Action Plan for Employment in Malaysia*. Kuala Lumpur: Malaysian government.
- Min, W. (1995). "Vocational Education and Productivity" in M. Carnoy [ed]. *International Encyclopedia of Economics of Education*. Oxford: Pergamon.

- Mohamad, Mahathir. (1991). *Malaysia: The Way Forward*. Kuala Lumpur: Prime Minister Department.
- Moller, J.O. (2011). *How Asia Can Shape the World? From the Era of Plenty to the Era of Scarcities*. Singapore: ISEAS [Institute of South East Asian Studies].
- Musa, M.B. (2003). *An Education System Worthy of Malaysia*. Kuala Lumpur: Writers Club Press.
- Mustapha, R. (2000). "Pengintegrasian Akademik dan Vokasional: Cabaran Pendidikan Alaf Baru" in *Jurnal Teknologi*, 32(E), pp.11-22.
- Mustapha, R. & A. Abdullah. (2004). "Malaysia Transition toward Knowledge-Based Economy" in *Journal of Technological Studies*, 1(1).
- Mustapha, Ramlee et al. (2008). "K-Economy and Globalization: Are Our Students Ready?" in *Jurnal Personalita Pelajar*, 11, pp.1-23.
- Mustapha, R. & N. Mohd Salleh. (2007). "Self-Fulfilling Prophecy and Digital Divide Revisited: Vocational and IT Competencies of Special Needs Population in Malaysia" in *Malaysian Journal of Social Work*, 6(1), pp.33-65.
- Nawawi, M.K. (2011). "Where Has Malaysians' Talent Gone?". Paper presented at Asian World Summit at Royal Chulan Hotel in Kuala Lumpur, Malaysia, on 13-14 September.
- OECD [Organization for Economic Co-operation and Development]. (1998). *University Research in Transition*. Paris: OECD.
- OECD [Organization for Economic Co-operation and Development]. (2011). *Higher Education in Regional and City Development: State of Penang*. Pulau Penang: OECD Publication.
- Ohmae, K. (2000). *The Invisible Continent*. London: Nicholas Brealey.
- Pandiyani, M.V. (2012). "Jobs, Innovation, and Taxes" in *The Star*. Kuala Lumpur: 13 October, p.35.
- Quah, Chun Hoo et al. (2009). "Employers' Preference for Foreign Trained Graduates: Myth or Reality?" in *European Journal of Scientific Research*, 34(3), pp.372-383.
- Raslan, K. (2011). "The Decline of the West" in *The Star*, No.33. Kuala Lumpur: 4 October.
- Reynolds, P. et al. (2002). *Global Entrepreneurship Monitor*. London: Ewing Marion Kauffman Foundation.
- Robertson, R. (1992). *Globalization: Social Theory and Global Culture*. London: Sage.
- Romer, P. (1986). "Increasing Returns and Long Run Growth" in *Journal of Political Economy*, 94, pp.1002-1037.
- Say, T.L. (2012). "RM 60 M Training Contract" in *StarBiz*. Kuala Lumpur: 4 January, p.2.
- Schultz, T.W. (1961). "Investment in Human Capital" in *American Economic Review*, 51, pp.1-16.
- Schumpeter, J. (1911/1934). *The Theory of Economic Development*. Cambridge, MA: Harvard University Press.
- Sheng, A. (2011). "The Millennium Generation and the Challenge for Social Stability" in *StarBizWeek*. Kuala Lumpur: 17th September, p.3.
- Tennant, M. & R. Morris. (2001). "Adult Education in Australia: Shifting Identities, 1980-2000" in *International Journal of Lifelong Learning*, Vol.20/2, pp.44-54.
- Valery, N. (1999). "Survey of Innovation in Industry: Industry Gets Religion" in *The Economist*. Kuala Lumpur: 20 February.
- Wain, B. (2011). "Malaysia" in M.J. Montesano & P.O. Lee [eds]. *Regional Outlook: Southeast Asia, 2011-2012*. Singapore: ISEAS [Institute of South East Asian Studies].
- WEF [World Economic Forum]. (2011). *The Global Competitive Report, 2011-2012*. Geneva: World Economic Forum.
- WIPI [World Intellectual Property Indicator]. (2010). *Global R&D Funding Forecast*. Washington, DC: The World Bank.
- World Bank. (2009). *Malaysia Productivity and Investment Climate: Assessment Update*. Washington, DC: The World Bank, Report No.49137-MY.
- World Bank. (2010). *The Little Data Book on ICT 2010*. Washington, DC: The World Bank.
- Yap, B. (2011). "Big Breaks for Education Sector" in *Business Times*. Kuala Lumpur: 10 October, p.4.
- Yusof, Z.A. & D. Bhattasali. (2008). *Economic Growth and Development in Malaysia: Policy Making and Leadership*. Washington, DC: The International Bank for Reconstruction and Development.



Development in Malaysia
(Source: www.google.com, 3/7/2013)

In sum, Malaysia needs a strong framework or a roadmap for producing adequate number of world renowned scientists and scholars in order to sustain the knowledge economy. This scholarship roadmap is urgently needed to rejuvenate the culture of excellence.