

Managing and mobilising talent in Malaysia: issues, challenges and policy implications for Malaysian universities

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ABSTRACT

The future of Malaysia as a high-income and competitive nation largely depends on its pool of highly skilled human capital. Hence, the issue of human capital development has taken centre stage in numerous reform agendas of Malaysia. This paper seeks to provide examples of policy initiatives aimed at facilitating the management of highly educated talent in Malaysia. It subsequently considers the role of higher education institutions, particularly the universities, as attractors, educators and retainers of intellectuals, in shaping talent. In conclusion, we argue that more significant underlying shortcomings of talent development are derived from the still transitional nature of the reforms and incomplete structural changes occurring in the national system, and that a change in mindset is the first necessary step towards nurturing and developing a human resource talent pool.

KEYWORDS

Academic talent; knowledge-based economy; Malaysia; mobility; research capacity; talent development

Introduction

A knowledge-based economy pertains to an economy that is directly based on the production, distribution and use of knowledge and information (Hwang & Gerami, 2006; Organisation for Economic Co-operation and Development [OECD], 1996). The major characteristics of a knowledge-based economy include massive knowledge creation, knowledge consumption and knowledge dissemination (Organisation for Economic Co-operation and Development [OECD], 2008; Seguin, State, Singer, & Daar, 2006). The principal argument of knowledge-based economy is that economic growth is built not upon the production of things, but upon the production of ideas and intellectual capital (Faggian & McCann, 2009; Strulik, 2005). The growing intensity of intellectual capital indicates that all countries have a greater need for highly skilled workers who are able not only to develop new ideas, but also access, understand and use knowledge for technological and economic progress. These arguments confirm that competitive advantage nowadays lies in having highly skilled workers and that the global competition for talent will only continue to intensify.

Significant theoretical and empirical evidence shows the relationship between economic development and the ability to attract, develop and retain talent (Docquier &

Rapoport, 2009; Florida, 2002; Glaeser & Saiz, 2004). According to human capital theory, human capital (knowledge and skills embodied in an individual) can be created, acquired, accumulated, developed, retained and managed, and its value can be manifested at all levels of society (Becker, 1993; Becker & Gerhart, 1996). The central facet of this theory is that the presence of talented human capital has been shown to predict growth in population, productivity and overall economic growth (Florida, 2002).

Drawing on the notion of human capital, Florida (2002, 2003) suggested that the advancement of countries and regions depends on whether they possess a specific type of talented human capital or creative capital. From his perspective, the major driving force of economic development is creative people, or the creative class. The creative class is recognised as the class comprising individuals who are preoccupied with high-level problem solving that demands a considerable amount of critical judgment and requires high levels of education or human capital (Florida, Mellander, & Stolarick, 2008). The notion of the creative class goes beyond the traditional representations of a highly skilled labour force or knowledge workers. The creative class may be viewed as being based on two conceptual elements, namely, human creativity (which defines 'creative') and economic or labour status (which defines 'class') (Florida, 2003, 2005). The growing importance of creative workers in the new economy has triggered changes in the manner in which economic development is conceived and human capital is developed.

Porter (1998, 2000) posited that talented human capital produces and maintains a set of competitive advantages in efficiency, effectiveness and flexibility that enhance productivity and the ability to innovate. Florida, in turn, offered three major components of competitiveness in the new economy, namely, technology (defined in its broadest sense as a primary output of innovation and is measured by the concentration of the high-tech sector in a metropolitan area), talent (a measure of a highly educated labour force) and tolerance (conceptualised in terms of openness, inclusiveness and diversity) (Florida, 2005). Florida reported that all three major components of competitiveness (or the 'three T's') were closely related to high levels of economic competitiveness. According to Florida (2005), nations that are well endowed with all three T's have an advantage in accumulating creative capital and achieving high levels of economic competitiveness (Florida, 2005; Florida, Gates, Knudsen, & Stolarick, 2006).

The literature on talented human capital implies three factors that contribute to human capital formation, namely, education (Psacharopoulos, 1985), training (Stevens, 2001; Useem, 1993) (both being the concerted efforts of the government, employing organisations and learning institutions) and knowledge, skills or talent transference (Haque & Khan, 1997), which depends on the ability and willingness of the individual to learn. Further research (Becker, 1993; Glaeser & Saiz, 2004) has confirmed the causal relationship between education and economic growth, particularly in a developing economy. For example, policy conclusions from Stevens's (1999, 2001) theoretical human capital indicated that similar to any other type of capital, human capital must be invested in through education, training and enhanced benefits that will improve the quality and level of production (Fagerlind & Saha, 1997).

Universities are considered an institutional hub of the creative economy and are vital to the regional development of human capital and technology (Mellander & Florida, 2006). This argument is predicated on the fact that universities are substantial

beneficiaries of research and development (R&D) as well as traditional breeding grounds for innovation and spin-off companies (Florida et al., 2006). Universities also have an incredible capacity to influence talent levels. In addition to drawing researchers and students, universities also attract other innovative and entrepreneurial individuals seeking to benefit from the positive externalities created by universities. Finally, universities may foster the creation of a diverse and global community, as they attract students and academics from a wide variety of racial and ethnic backgrounds, economic statuses, religious orientations and national origins (Florida et al., 2006). Hence, Florida argued that although universities are indispensable to economic growth and development, they are insufficient by themselves because a nation or region must have both the will and the capacity to reap the full benefits of the creative capacity of its universities (Florida et al., 2006). Nevertheless, the implication is that the successful development of a knowledge-based economy will largely depend on the efficiency and quality of the university system. Thus, numerous countries have developed policies on talent development, with an emphasis on developing tertiary education, research and innovative capacities.

Similar to other developing countries, Malaysia acknowledges the role of universities in generating the intellectual human capital required to transform the country into a developed nation. Consequently, the higher education system has undergone multiple rounds of reforms accompanied by a remarkable amount of financial investment, which all aim at developing world-class universities. Despite tremendous growth and achievement in the economy and the university system, Malaysia still faces a shortage of creative capital or talented human capital (Yahya & Kaur, 2010). Malaysia's stock of human capital domestically has not grown as rapidly as those of other countries, such as India and China. The World Bank's investment climate assessment suggests that Malaysia continues to face a tight labour market for skills and that this situation is affecting productivity (World Bank, 2007). Consequently, as Malaysia prepares to become a high-income nation, it has embarked on a structural transformation of its economy with the agenda of human capital development taking centre stage in the reform agendas. In turn, Malaysia has developed policy support for innovation and human resource quality development as the key precondition for successful transition to a knowledge-based economy. Education, in particular higher education, has been identified as the critical factor in developing the talented human capital that the country requires. Many of the policies undertaken by the Malaysian government underscore the need to spearhead human capital formation through the development of a 'world-class' higher education system.

Having provided the background to the discussion, the rest of the paper is presented in four main sections. The next section sets the context for the formulation of government policy initiatives by showing the mobility trends of the Malaysian labour force. The subsequent section provides a selective overview of policy initiatives related to higher education and training aimed at facilitating the development and management of talented human capital in Malaysia. This section is followed by the section that explores the roles of Malaysian universities in talent formation and development in three areas, namely, research, postgraduate education and academic talent. The final section concludes with a reflection on the general issues and challenges that Malaysia faces in developing and nurturing a talent pool of human resources.

Malaysia's talent pool and mobility

When Malaysia began its journey towards becoming a knowledge-based economy with Vision 2020, the government had hoped to engage the capability and capacity to innovate; adapt and create indigenous technology; and design, develop and market new products with the ultimate aims of achieving a sustainable and rapid economic growth and international competitiveness. However, in the early 1990s, Malaysia found itself in dire need of talented Malaysians and a tight labour market for skills to move the country's agenda forward. This need accentuated its concern for talent and its mobility. To address this problem, talented and highly skilled foreigners were allowed to be employed in the IT and other high-technology sectors.

In Malaysia, highly skilled workers from overseas are categorised in its records as either 'expatriates' or 'foreign skilled workers'. On the one hand, those categorised as 'expatriates' are professionals and technical migrant workers who earn more than RM 3000 (equivalent to USD 912) monthly and who are issued with an 'Employment Pass' with employment contracts of 2 years or more. On the other hand, 'foreign skilled workers' are professionals and technical migrant workers on contracts of less than a year and are issued a 'Visit Pass for Professional Employment' (Kanapathy, 2008).

In 2000, at 10.4 per cent, the emigration of the tertiary-educated population from Malaysia was lower than that of many other ASEAN countries (Vietnam, 39.0 per cent; Brunei, 21.0 per cent; Singapore, 15.2 per cent and the Philippines, 14.8 per cent) (World Bank, 2007). Malaysia's lower rate was partly attributed to the massification of education (hence higher education), which accounted for an increased higher education enrolment rate of the 17–24 years' age-group cohort of roughly 30.0 per cent at the time. For comparison, the rate of skilled-worker emigration from Malaysia had declined from 24.7 per cent in 1990 to 10.4 per cent in 2000 (World Bank, 2007).

Using the Brain Drain Database of the World Bank, Fong (2010, p. 27) reported that between 1990 and 2000, the emigration of Malaysians to Canada had increased by 43.5 per cent (8480–12,170), to Australia by 14.1 per cent (34,716–39,601) and to the United States by a large 100.5 per cent (12,315–24,695). Whether these emigrants were tertiary students-turned-immigrants or Malaysian-educated graduates who emigrated overseas cannot be ascertained because relevant data are unavailable at the Malaysian immigration agency. However, considering that these countries are the traditional destinations of higher education for students who seek overseas qualifications, the emigration was believed to be related to talent mobility. For purposes of comparison, the ratio of Malaysian science and technology (S&T) researchers in the United States to those residing in Malaysia (76.4:100) (Docquier & Rapoport, 2009; Fong, 2010) is significantly lower than the ratios from Vietnam (449.5:100) and Hong Kong (214.4:100) (Fong, 2010, p. 3). To some extent, this scenario indicates that the brain drain problem of Malaysia was not as serious as that of Vietnam and Hong Kong.

The numbers of highly skilled immigrants from Singapore (46,400), Japan (8800), the United States (5750), Australia (3100) and New Zealand (1250) appear significantly smaller compared with the total number of immigrants from Malaysia in 2000 (Fong, 2010; United Nations, 2010). Although many immigrants came from Indonesia (627,700), the Philippines (124,600), and China, India and Bangladesh (combined total of more than 150,000) (Fong, 2010, p. 2), the number of highly

skilled workers among them migrating to Malaysia cannot be determined. Considering the total population of Indonesia and China, those numbers could be huge, despite the low emigration rate of the tertiary-educated population (e.g., 2.0 per cent for Indonesia and 4.2 per cent for China) (Docquier & Marfouk, 2007; Docquier & Rapoport, 2009).

According to Tan and Santhapparaj (2007), important sources for skilled immigration to Malaysia in 1997 were East Asia (30.4 per cent of the total skilled immigrants), South Asia (21.0 per cent) and Southeast Asia (22.5 per cent). The marked inflow of skilled immigration from East Asia to Malaysia is attributed to the mushrooming of Japanese and Korean multinational corporations in regional production centres, such as Penang, Johor and the Klang Valley (Best, 1999; Rasiah, 2005, 2007). By 2004, the migration of skilled workers from these regions remained high (East Asia 32.1 per cent, South Asia 28.1 per cent and Southeast Asia 20.7 per cent). To some extent, this phenomenon spurred the decline in the share of skilled workers' immigration to Malaysia from the European Union from 15.3 per cent in 1998 to 10.0 per cent in 2004. Although some regions maintained their share of skilled workers' immigration to Malaysia, the total number of immigrant skilled workers markedly decreased between 1998 and 2004. Economic prosperity in Malaysia and economic difficulty in source countries both play important roles in determining the volume and intensity of immigration flows. Malaysia was suggested to relax the entry requirement to increase the size of skilled migration and to offer attractive incentives to skilled immigrants (Fong, 2010; Tan & Santhapparaj, 2007). Fong (2010) recommended that Malaysia should not only facilitate skilled workers' immigration to Malaysia, but also implement strategies that would retain skilled workers in the country.

Given the intense competition with other developing countries, Malaysia will continue to experience a steady decrease in skilled worker immigration and would ultimately have to depend on locally produced talent to meet the demands of Vision 2020. Malaysia has to retain local talent and engage talented Malaysians abroad more aggressively because it has been unable to attract significant numbers of highly skilled workers from other countries. Current policy that emphasises the tapping of potential of overseas diasporas for home country development needs to be reviewed because many talented Malaysians abroad continue to adopt an outdated view of the socio-political situation. As overseas Malaysians are more likely to question Malaysia's policies on interethnic relations, future political scenario and bureaucracy, the country should not overly focus on bringing home only overseas Malaysian talent; instead, it should attempt to attract overseas talent in general. The search must be global in scope, and the target must be talented workers who view Malaysia as a land of opportunity where their dreams can be realised. For Malaysians who prefer to live overseas, the mode of 'contributing from a distance' can be explored. Malaysia should facilitate transnational practices to enable its citizens abroad to rely on their homeland as well as their host countries to construct their contribution to the nation building of both countries.

Thus, despite having a population of only 28 million, Malaysia is capable of competing globally because of the low turnover rate of its employees and because a significant proportion of Malaysians studying abroad actually return home to augment the supply of human capital.

Policy approaches to talent management

Malaysia has implemented bold and creative strategies that are backed by national policies to provide world-class educational opportunities, construct knowledge-based R&D industries and sustainably finance the required investment for talent management strategies. Three specific policies hastened the move towards producing and retaining talent, namely, the Science and Innovation Policy (2011), MyBrain15 under the National Higher Education Strategic Plan (2007–2020) and the Talent Corporation Malaysia Berhad (Talent Corp), which is a project under the Economic Transformation Plan (Performance Management and Delivery Unit, Prime Minister's Department [PEMANDU], 2010).

Established in January 2011 under the Prime Minister's Department, Talent Corp drives initiatives towards catalysing talent for the Economic Transformation Plan and serves as the bridge between talent, industry and relevant government agencies to deliver the human capital that Malaysia critically requires from local and international sources. Talent Corp is mandated to attract, motivate and retain talent needed for Malaysia to become a high-income economy (Malaysia, 2010). Talent Corp carries out this mandate by undertaking these activities:

- Developing and driving specific catalytic and innovative talent management initiatives to attract and develop world-class talent in collaboration with both the public and private sectors;
- Facilitating industry and private sector efforts in creating, motivating and retaining a skilled workforce and
- Ensuring the delivery of major national initiatives on talent across the human capital development pipeline in line with Malaysia's economic transformation plan.

Various strategies have been developed by Talent Corp to optimise talent, and the focus has primarily been on the pipeline of young Malaysian talent. Initiatives for the strategy to attract and facilitate global talent include International Outreach and Engagement sessions, which are targeted at the Malaysian diasporas and are intended to increase awareness of job opportunities in Malaysia while promoting opportunities for collaborations and contributions while remaining abroad. Talent Corp also facilitates the return of notable Malaysian professionals from abroad through the Returning Experts Programme initiative. Recognising that expatriates in Malaysia are beneficial in spurring the competitiveness and innovative capabilities of the local workforce, Talent Corp, together with the Ministry of Home Affairs (MoHA) and the Immigration Department, oversees the Residence Pass-Talent (RP-T), which is an employer-independent 10-year multiple entry visa to attract and retain top foreign talent to stay and contribute for the longer term. Since its establishment in 2010, the Returning Experts Programme initiative has gained stronger momentum, as about 1000 Malaysian talents from abroad have been approved to work in Malaysia.

Talent Corp also initiated a structured internship programme to expose young talents to Malaysia's key industries. The programme targets internship placements with top graduate employers, key universities and regional corridor authorities. In

addition to awareness and exposure, training programmes provide training to local talent, particularly up-skill training to young Malaysian talent, to meet the requirements of specific industries. Training programmes ultimately aim to ensure that Malaysian talents are optimally equipped to maximise the exciting career opportunities in Malaysia. Thus far, Talent Corp has facilitated 12,000 internship places through this programme.

Talent Corp has welcomed the government's inclusion of female talent, as reflected in Budget 2014, given Malaysia's strong pool of female talent. However, with 68 per cent female enrolment in public universities, only 49.5 per cent female participation is found in the workforce. Hence, Talent Corp has recently introduced the Women Talent Programme (WTP), which is a joint programme between Talent Corp with the Department of Women's Development in the Ministry of Women, Family and Community Development, to attract professional women on a career break to return to the workforce. In July 2014, the Ministry of Women, Family and Community Development and Talent Corp launched the Flexible Work Arrangement (FWA) to promote best practices and jobs with flexible work arrangements. In line with Talent Corp's advocacy efforts in championing women in the workforce, the proposed measures aim to encourage Malaysian employers to provide a more supportive work environment to attract and retain latent women talent to return to work.

Despite the various initiatives connected with the establishment of Talent Corp, Malaysia's stock of local human capital has not grown as rapidly as expected. Although Talent Corp has exceeded its targets in bringing Malaysian talents home in 2013 (1000 workers since it started), the organisation noted the increasing difficulties in attracting more Malaysians from abroad. These difficulties are primarily attributed to a diminishing pool of those qualified and interested in returning to Malaysia. Other challenges faced by Talent Corp include the implementation of the Scholarship Talent Attraction and Retention (STAR) programme aimed at ensuring that scholars are fully committed to serving the private sector upon returning, and that they fully comply with the scholarship bond.

Under the National Higher Education Strategic Plan (NHESP), MyBrain15 is one of the nation's critical agenda projects aimed at producing top-class human capital, which is critical in promoting economic growth, triggering industrial development and exploring new areas of research that can sustain Malaysia's competitive advantage. NHESP estimated that 60,000 doctoral degree holders in Science and Technology, Medicine, Engineering and other built environment disciplines, and in Humanities and Social Sciences need to be produced by 2020 to contribute to the levelling up process.

Various funding and financing schemes that increase access to postgraduate education such as the MyMaster and MyPhD have been created under the MyBrain15 scheme, as it aims to increase the number of postgraduate degree holders, particularly at the doctoral level. Since the launch of the scheme in 2008, 22,356 candidates have received sponsorship under the MyMaster scheme, whereas 4048 scholarships have been given out under MyPhD, amounting to RM 252.3 million and RM 18 million, respectively. In addition, RM 9.5 million has been allocated for the MyBrainSc programme, to be divided into 50 overseas scholarships and 150 local scholarships (Ministry of Higher Education [MoHE], 2011a). For 2013, the Ministry has allocated

RM 130 million to accelerate the programme, including RM 80 million to be disbursed to 8000 MyMaster candidates, and RM 50 million to be distributed to 1000 MyPhD candidates and 100 Industry-PhD candidates. The Ministry further aims to produce 5000 PhD graduates, 40,000 Master's graduates and 500 industrial PhD holders by 2015.

The National Science and Technology Policy 2001–2010 (Academy of Sciences Malaysia, 2000) also made the case for specific actions required for the development of talents, in particular those with postgraduate qualifications. The first policy aimed at increasing R&D spending to at least 1.5 per cent of the gross domestic product by 2010 in an effort to enhance national capacity in research and innovation and achieve a competent workforce of at least 60 researchers, scientists and engineers per 10,000 labourers by 2010, thus enhancing national capability in S&T. According to the Ministry of Science, Technology and Innovation (MoSTI), Malaysia has only 29.1 researchers, scientists and engineers per 10,000 workers in 2010 (MoSTI, 2012). Thus, building a critical mass of researchers, scientists and engineers in Malaysia would require more than the intensification of existing training programmes such as the academic training schemes and MyBrain15. Beyond merely increasing the numbers, these professions must also be made more attractive and held together by a vibrant research culture that celebrates accomplishments and thrives on collaboration. Despite increases in funding, Malaysia's investment in R&D still pales by comparison to that of advanced countries, such as Singapore, Taiwan, South Korea and Japan (Azman et al., 2014).

Role of Malaysian universities in talent management

In Malaysia, as the role of university education in the development of human resources is emphasised, policies and initiatives have been expanded and diversified to ensure that potential and future talent is developed. Some of the key initiatives relate to R&D, postgraduate education and scientific/academic talent.

University research and development

Research occupies a critical position in promoting a nation's prosperity and its citizens' well-being in the knowledge-based era (Abbott & Doucouliagos, 2004; Etzkowitz et al., 2000). Research is also regarded as an important indicator of a nation's economic competitiveness for the present and the future (Abbott & Doucouliagos, 2004). Given the central role of university research in a nation's competitive capacity in the world market and the prominent position it occupies in the nation's overall research efforts, research would be an important component of a university's mission and a key indicator of its performance.

The Malaysian government has established research and education as top priorities, reinforcing its commitment with a 25 per cent increase in government expenditure from 2008 to 2011. The National Science and Technology Policy 2001–2010 provides a framework for the improved performance and long-term growth of Malaysian research and innovation through seven key priority areas, and one which is closely related to talent is developing human resource capacity and capability. In developing human

resource capacity and capability, R&D must produce the required number of researchers and attain the quality of postgraduate education.

To support the National Science and Innovation Policy, universities are expected to facilitate the development of an international research hub to nurture the innovation and creativity-led ecosystem (MoHE, 2010). As the hub's success heavily depends on the ability to produce new knowledge and use it effectively, a pressing need exists to increase investment in university R&D. This aspect is reflected in the significant investment in research and research training that the government provides through the establishment of five research universities. With RM 1.3 billion of direct funding for research universities available from 2007 to 2010, the nation's young researchers and researchers-in-training will be nurtured in an environment that provides relevant experience, delivers high-quality research outputs and values creativity. The available financial and structural resources are provided to ensure that research and research training undertaken in Malaysian research universities can aim at and achieve excellence.

Nevertheless, Malaysia still lags behind most developed countries in terms of the number of researchers per capita and the quality of output generated by research. Generally, a research tradition has yet to be instituted in the scientific community of some public universities, particularly in the newly established universities. Some universities still lack the appropriate self-sustained research capacities both in the number and quality of trained researchers and the appropriate institutional capacities for high-level research. The resources required to build such capacity by providing training at central venues where researchers from various universities and countries can share experiences are also limited. Consequently, a fragmented approach has prevailed, in which each institution conducts training according to the available resources at its disposal, thus missing out on the benefits of networking across universities and countries. Since 2010, the Ministry of Higher Education has prioritised research capacity building in universities by providing postdoctoral training as a key source of continuity and maintenance of the human capital stock for research.

The National Survey of Research and Development Review 2011 (MoSTI, 2012) suggested that the national innovation system framework must be fully conceptualised and implemented to improve R&D outputs. The links among research universities, various higher education institutions, R&D centres, public research organisations and the industry must be encouraged and facilitated to enhance the commercialisation of R&D. Tighter collaboration and networking must also be extended internationally where appropriate to ensure better outcomes and to attract talent, research opportunities and funding. Postgraduate education and training have assumed a new importance to underpin this policy approach.

Postgraduate education

Postgraduate programmes represent a crucial part of university education and research. Traditionally, they used to be regarded primarily as a gateway to future academic careers. The link between talent and graduate status attainment is indisputable chiefly because talent management is clearly connected to competency-based human resource management practices (Barron & D'Annunzio-Green, 2008; Scott & Ali, 2013). The

graduate is frequently identified as a prioritised targeted talent in the recruitment and selection process. According to Scott and Ali (2013), a strong connection exists between the notions of graduateness and the requirements to be recognised as talent for the industry.

Malaysia is committed to producing 48,000 PhD graduates by 2020. The macro-level value placed upon graduate education is reflected at the micro level in the steady increase in graduate enrolment over the past decade. To nurture more young talents, Malaysian public universities, in particular research universities, have been enrolling more research students, the majority of whom are local citizens. A change has been observed in the distribution of postgraduates by taught and research programmes from 2007 to 2011. The number of PhD graduates by research has increased steadily from 11,133 in 2007 to 28,544 in 2011, whereas the number of taught master's graduates rose sharply from 34,755 to 67,584 in the same period (MoHE, 2011a, 2011b). This increase was attributed to various policies, such as MyBrain15, aimed at developing graduates with higher degrees.

Although postgraduate education remains a strategic measure related to the importance of developing and increasing R&D activities under the MoSTI, current statistics indicate that Malaysia has to expand the human resource base in S&T to fulfil the expected requirements for scientists and engineers in 10 years' time. The shortage of S&T personnel is estimated to be between 20 per cent and 30 per cent across all levels of scientific, engineering and technical areas (MoSTI, 2011). This estimate indicates that a substantial investment in human resource development needs to be injected into the establishment of more S&T-based institutes and courses in universities.

Thus, a policy action of the National Science and Innovation Policy is to intensify the development of critical mass for S&T. The policy strongly recommends the further expansion of postgraduate education. The policy document calls for the adoption of a 60:40 ratio in favour of students pursuing science, technical and engineering disciplines in universities and the increase in postgraduate students in science, technical and engineering disciplines from at least 10 per cent of the undergraduate population. Measures such as the establishment of postgraduate research S&T centres of excellence and attractive incentives to entice more students to pursue science, technical and engineering disciplines at postgraduate levels have been introduced. The policy also calls for universities to provide training and skills that are fully relevant to national needs, particularly with respect to the choice of postgraduate programmes and fields of research. Moreover, policy makers would like research universities and their graduate programmes to significantly contribute to the development of S&T talent-rich ecosystems that have been identified as the drivers of successful competition.

Academics as scientific talent

Finally, a key but frequently neglected role of the university in a knowledge-based economy is being a collector of talents – a growth pole that entices eminent academic scholars or scientists who attract energetic graduate students, who in turn create spin-off companies that would draw other companies to localities nearby. However, we still argue that the university is only one part of the system of attracting and keeping talent in an area. Since the establishment of research universities in 2007, Malaysian academic

scientists have become actively involved in the production of new scientific knowledge on both regional and global scales. A key indicator that underlies this orientation is the improvement in the Malaysian S&T publication record. As of June 2014, the number of publications in Science, Technology and Innovation (STI) journals stands at 28, whereas the target is 750. The STI publication rate is considered low compared with the publication rates of Korean and Japanese academics (Azman et al., 2014). Malaysian academics need to move towards the international frontiers of scientific research and become more prominent in international networks of new knowledge creation.

Malaysia also faces a shortage of qualified medical, IT, biotech and finance academics, which is an obstacle to offering more places to study in these fields. A recent Auditor-General's Report (2011) by the Prime Minister's Department highlighted a serious issue related to the Academic Training Scheme for Institutions of Higher Learning (SLAI) provided by the Ministry of Higher Education. Under the Ninth Malaysia Plan, the SLAI objective is to ensure that at least 60 per cent of the academic staff of public institutions of higher learning (IPTA) are equipped with PhD qualifications or the equivalent by 2010. According to the report, the Ministry lacked monitoring on the progress of sponsored students. Consequently, 99 sponsored recipients reported to their respective IPTA that they had not submitted their theses. The Ministry of Higher Education was also reported to have only managed to sponsor 3,517 staff members as opposed to its target of 6103 from 2006 to 2008. Furthermore, the report concluded that the target had not been met despite an expenditure of RM 1.102 billion from 2006 to 2011.

To make matters worse, graduation rates among those in the SLAI as shown earlier were low and the dropout rates were high in several fields, indicating that the output of graduates vis-à-vis intake was far from desirable. These circumstances diminish the capacity of Malaysian universities to generate the requisite number of graduates who will stay on to teach others. Many established universities are having difficulty replenishing academic staff numbers at requisite levels, inducing a situation in which the current age distribution is skewed towards those who are in the retirement years. In addition, these universities need to deal not only with the challenge of a greying academic staff but also with replacing today's professoriate with a group of equally qualified, committed and excellent academics. The increased number of academic staff members, without the requisite quality and level of training, is inadequate for providing quality instruction and training for students and for maintaining the standards of a world-class university. This shortfall of quality academics is further exacerbated by the question of the quality of academic talents pursuing PhD in recent years as a result of the 'brain drain' to professional fields that offer higher incentives than the academic profession.

The lack of academic talent and its quality raises questions of academic credibility that need to be addressed urgently if Malaysian universities intend to gain acceptance as reputable members of the global intellectual community. Such recognition is necessary to foster collaborative initiatives and build equitable partnerships with counterparts in other parts of the world. In the globalisation era, collaboration across boundaries is critical to path-breaking intellectual enquiry. If Malaysian universities yearn to attract young academics talents, in particular those have trained and/or worked abroad, to return either as regular staff or visiting scholars, then they will have to ensure that the

environment is appropriate for nurturing a scientific academic community. An increase in the number of academics with doctoral degrees is a crucial but not the only factor in spawning such a community. The shortage of a quality professoriate also constrains the ability of the universities to generate high calibre academics to staff the expanding university sector.

Ageing professoriate and the retirement of experienced academics further exacerbate the shortage of academics in Malaysian universities. From all accounts, academics who have aged and moved on to retirement are not being replaced at the rate required to maintain the appropriate levels of mentorship of junior academics and leadership of universities. In concert with the efforts to increase the number of young talent entering the academy, the government and universities may reassess the relative value of the mandatory retirement age. Numerous universities currently depend on a sizeable number of retired contract staff to keep their programmes afloat. If these individuals are considered a necessary part of the institutions' operations, then considering the extension of the retirement age from 60 years to 65 years may be useful. If the universities are governed by performance indicators that ensure that the continued appointment for any academic staff is conditional on meeting the expectations of his or her position, then advanced age should not pose any major problems for research and teaching contributions. In fact, retaining productive older academics could be an asset in various aspects, particularly in mentoring and leading university management.

The urgency of the need for initiatives to build the next generation of academics in Malaysian universities is also made clear by the fact that the current crop is ageing without adequate replacement from the numbers of young scholars entering the profession; at the same time, only a small number of academics (8 per cent) are reaching the top rank. A more balanced distribution of scholars across the various ranks is required to build a solid community of scholars. Mentoring is a key part of the strategy that universities must adopt to support and develop the next generation of academics. However, building a pool of appropriate mentors is constrained in many Malaysian universities, where a large percentage of the academic staff remains at the rank of senior lecturer or below. This unequal rank distribution will obviously limit the number of people who can be mentors for the larger pool of younger scholars. It also places an enormous burden on established scholars who are willing to be mentors, and the quality of the relationship may be affected if the mentors are overextended (Buetel & Nelson, 2006; Zellers, Howard, & Barcic, 2008). These challenges are even more constraining, as only 25.5 per cent of professors in the top rank are female, thus limiting the pool of female mentors.

Thus, a major issue for universities in Malaysia is not only ensuring the recruitment of adequate numbers of talent into the academic profession, but also sustaining the continued excellence of their academics. This responsibility falls most heavily on research universities as the producers of future academics and as the major sites of cutting-edge research that would enhance Malaysia's competitiveness in the global economy. Similarly, each institution needs to institute a variety of academic recruitment, development and monitoring strategies to help recruit talented scientists and accelerate their career paths.

Pressing issues and challenges

Having discussed the issues and challenges specific to the roles of the university in developing talent, we focus on several general policy issues that continue to seriously challenge the development of talent for the country. Although conducting a fair assessment of the government policies on talent management is premature, some early observations are clear. First, most of the policies on talent management in Malaysia obviously concentrate on developing and retaining local talent, but international comparisons suggest that the Malaysian skill base remains narrow (Organisation for Economic Co-operation and Development [OECD], 2011). The low-skill base is inherently related to the challenges Malaysia faces in its education sector. The rapid expansion of higher education since 1997 and the emphasis on the number of graduates has raised serious questions about quality. However, with both internal and external quality assurance mechanisms put in place and regulated by the Malaysian Qualifications Agency and by higher education institutions, the issue of quality may become moot in the future.

More pertinent issues include spurring the growth of the economy to absorb graduates and ascertaining whether graduates are versatile and adaptable to the changes in the employment market. Some evidence seems to demonstrate a mismatch between educational levels and job opportunities that require higher skills in Malaysia (World Bank, 2007). The government has substantially funded the retraining of local graduates who are incapable of securing employment because of their inability to adapt to employment and occupational shifts (PEMANDU, 2010).

Admittedly, Malaysian policymakers may have unrealistically expected that a quantitative leap in university enrolment and graduation would yield substantial qualitative improvements across the ranks of an available talent pool with an accompanying scientific and technological leap forward. In ensuring that the demand for skills can be satisfied, further efforts are required to improve both the quantity and quality of skilled labour. These efforts require attention to incentives, competition and merit-based recruitment in education, as well as curriculum development, better teacher training and leveraging efforts with the help of the private sector (PEMANDU, 2010).

Second, although Malaysia continues to further increase and strengthen its investment in R&D, the universities in particular should not only attend to absorbing more academic scientists, but also expend effort on raising the sophistication and efficacy of their activities. Malaysia's priority nowadays should be developing a talent pool by lifting the professional standards of the workforce to change Malaysians from being mere 'followers' to 'leaders'. The development of an indigenous innovation capability must also be emphasised by inculcating a culture of creativity into students and the S&T workforce, as well as into the overall approach to education and the R&D environment.

Finally, we argue that deep cultural inhibitors hamper the development of more creative and talented human resources as well as of an innovative atmosphere in Malaysia. The widespread acceptance of mediocrity, the practice of prioritising local heroes and hierarchical power structures continue to be ubiquitous features of the work environment, even in universities. However, more significant underlying shortcomings are derived from the still-transitional nature of the reforms and the incomplete structural changes occurring in the system. In essence, Malaysia has yet to fully realise the onset of an achievement-

oriented set of norms and values that fully define the framework of performance, compensation, rewards and incentives. Numerous organisations, in particular those in the public sector, have been unable to completely assimilate the critically required notions of personal responsibility and accountability into their own operating environments. In other words, a major change of mindset among Malaysians is truly needed.

Although the aforementioned limitations and the challenges will not dampen Malaysia's aspiration to be a high-income nation, we argue that they create sufficient friction to reduce the efficacy of several new policy initiatives and financial investments directed towards talent development.

Conclusion

Malaysia has embarked on an effort to move the country in the direction of building a knowledge-based economy in which innovation and talent are positioned as the primary drivers of enhanced economic performance. The actions are driven by a rather pervasive sense of urgency about the need for Malaysia to catch up more quickly with the rest of the world, especially in terms of S&T capabilities. Reforms coupled with policy initiatives are accompanied by a remarkable amount of financial investment, all aiming at developing innovative talents. However, the outcomes thus far have been questionable.

Notwithstanding the multiple challenges and issues that Malaysian leaders must address to develop and nurture an effective and talented human resource pool, Malaysia's universities definitely constitute an emerging source of competitive advantage in the development of science, technology, innovation and talent. However raw or immature the Malaysian talent pool may be at this time, the present set of shortcomings, which frequently have transformed talent issues into a serious problem, can be addressed in a concerted, coherent fashion. Therefore, the question is not whether talent will become a source of competitive advantage; instead, the question focuses on when and under what conditions talent will flourish.

Disclosure statement

No potential conflict of interest was reported by the authors.

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