

ECONOMICS WORKING PAPER

Education in Malaysia Towards a Developed Nation

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Abstract

Education plays a key role in realising Malaysia's aspirations to be a developed nation. This paper provides a critical assessment of the state of education in Malaysia. The issues that will be discussed in this paper includes the country's current ethos and philosophy of education, technical and vocational education (TVET), technology and flexible learning, and governance and financing of higher education. The paper also highlights critical omissions in the current Eleventh Malaysia Plan.

Keywords: Education; Malaysia

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Education in Malaysia Towards a Developed Nation

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1. Introduction

Dr Mahathir Mohamad articulated the Vision 2020 during his first term as Malaysia's Prime Minister. In Vision 2020, the goal was for Malaysia to become – by year 2020 - a fully developed nation economically, politically, socially, spiritually, psychologically and culturally in terms of national unity, social cohesion, social justice, political stability, quality of life, social and spiritual value, and national pride and confidence (Mahathir 1991). It was further articulated that by 2020, “Malaysia should be a united nation that is infused by strong moral and ethical values, living in a society that is democratic, liberal and tolerant, caring, economically just and equitable, progressive and prosperous, and in full possession of an economy that is competitive, dynamic, robust, and resilient” (Mahathir 1991).

Even though the Vision 2020 per se is no longer discussed much by the current government and policymakers, its lofty aspirations remain useful goals for Malaysia. In its original form, for the Vision to be realised, nine essential challenges that need to be overcome were identified.¹ Some of these challenges are economic in nature and hence should be incorporated in the country's existing development plans. The latest of these plans, the Eleventh Malaysia Plan (11MP), is the most recent five-year economic plan. As rightly pointed out in the 11MP, the critical enabler in driving and sustain Malaysia's economic growth towards the status of an advanced nation is its “people” (Malaysia, 2015).² Yet, for Malaysia to fully realise its potential of a developed nation, whether it be by 2020 or after, it is necessary to go beyond the mere economic aspiration of having an efficient and effective labour market.

In this paper, we argue that for education to play its role as a critical enabler, there is a need to first re-humanise education which involves going beyond the mere economic imperatives of

¹ Challenge 1: Establishing a united Malaysian nation. Challenge 2: Creating a psychologically liberated, secure and developed Malaysian society. Challenge 3: Fostering and developing a mature democratic society. Challenge 4: Establishing a fully moral and ethical society. Challenge 5: Establishing a matured liberal and tolerant society. Challenge 6: Establishing a scientific and progressive society. Challenge 7: Establishing a fully caring society. Challenge 8: Ensuring an economically just society, in which there is a fair and equitable distribution of the wealth of the nation. Challenge 9: Establishing a prosperous society with an economy that is fully competitive, dynamic, robust and resilient.

² The authors do not subscribe to the idea of human “capital”, which we argue de-humanises our discussion and understanding of education.

producing skilled human capital for economic growth and higher income. Education, instead, guided by the National Philosophy of Education, must aim to develop a holistic person that is intellectually, spiritually, emotionally and physically balance and harmonious based on a firm belief in and devotion to God (MOE 2008). Thus, we maintain that only such a holistic focus on education can propel Malaysia towards becoming, not merely a high-income economy, but a truly developed nation.

This paper discusses the state of education in Malaysia. It provides a critical assessment of the extent to which development in education will be able to contribute towards achieving the goals of Vision 2020. To enable a more contextualised discussion, the study will begin by examining the current state of education from pre-school to higher education, as well as the relevant plans in education, especially in the recent decade. This is followed by a critical analysis of 11MP in terms of its focus and initiative in education.

2. The State of Education in Malaysia

Malaysia's achievement in education enrolment is significant. Although pre-school education is not compulsory in Malaysia, it was reported that almost 91 per cent of children at the age of four and five in the country were enrolled in some form of pre-school education in 2014 (Malaysia, 2015). As for primary education, for which enrolment is compulsory, Malaysia has achieved an enrolment rate of almost 98 percent; while in secondary education the rate was 90 percent in 2014. In terms of post-secondary education in 2016, 20,232 students were enrolled in public community colleges, 99,551 students in public polytechnics, 695,026 in private higher education institutions (including colleges, university colleges, universities), and 532,049 across the twenty public universities in Malaysia (MOHE, 2017). In addition, there were also 98,379 registered Malaysian students studying abroad at the post-secondary level. As of 2012, the enrolment in tertiary education for the age cohort of 18-23 years of age has achieved 48 per cent, a level that exceeded the universal target set by the World Bank and UNESCO.

The high enrolment in education has, to a large extent, been adequately supported by existing educational facilities. As of 2014, there were 5,984 pre-school institutions across the country; of which 1,450 were located in urban areas and 4,534 in rural areas. There were 7,756 primary schools where 27 per cent of these schools were located in urban areas. In

terms of secondary schools, there were 2,376 schools with half of them in urban areas. These primary and secondary schools included government and government-aided schools; more precisely, the national, national-type (vernacular), religious, technical, vocational, special education, sports, and arts schools (MOE 2015b). To date, there are twenty public universities (including five research universities, four comprehensive universities, and eleven focused universities in fields of technical, education, management and defence), fifty-three private universities with seven branch campuses of foreign universities, twenty-six private university colleges, thirty public polytechnics, eighty public community colleges and more than 350 private colleges.

Although Malaysia's education enrolment figures are remarkable, there is still a vast room for improvement qualitatively. For example, in the case of students progressing through primary and secondary schools, there is an absence of a mechanism (such as examinations) to assess and determine progression. As a consequence, students that have progressed to a certain level may not have achieved sufficient level of proficiency in schools.

In comparison to students in other countries, the average reading competencies and performance in science and mathematics of Malaysian students still lags behind. Their performance is not even near that of other developing countries such as China, Vietnam and Thailand. For instance, in the Programme for International Student Assessment (PISA) 2012³, the average performance of Malaysian students of fifteen years old in reading was 398 points, as compared to the average of 496 of OECD countries (see Table 1). In comparison, the average score in reading among Malaysian students was ranked 59th in a list of 65 participating countries. In addition, the average performances of fifteen years old in Malaysia in science and mathematics were also below average. The average scores of Malaysian students were 420 and 421 in science and mathematics respectively as compared to the OECD average of 501 and 494. Likewise, the performance of Malaysian students of fourteen years old in the Trends in International Mathematics and Science Study (TIMSS) was on a downward trend between 2003 and 2011 (see Figure 1). Although there was some improvement in 2015, the average scale of scores of Malaysian students in mathematics and science at 465 and 471 respectively, were still below the global centre point of 500. In terms of position, Malaysia was ranked 22nd and 24th for mathematics and science in a list of 39

³ Although Malaysia participated in PISA 2015, Malaysia was excluded from the official results because the weighted response rate among the initially sampled Malaysian schools (51 per cent) falls well short of the standard PISA response rate of 85 per cent. (OECD 2016).

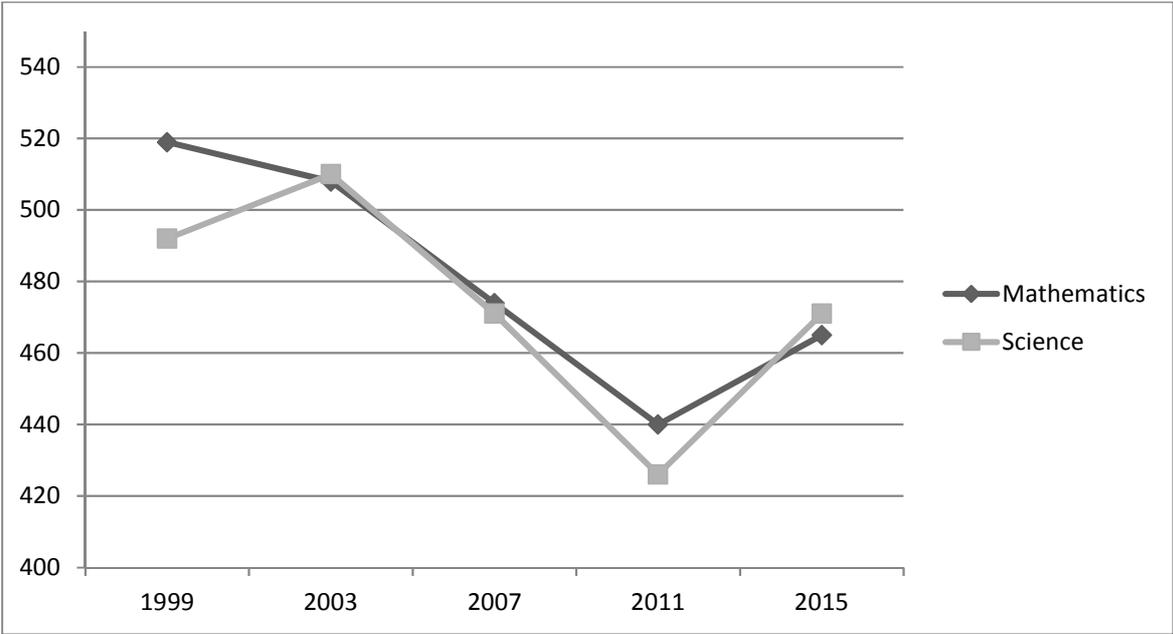
participating countries (Martin et al., 2016a; 2016b). Thus, to address the performance of students, the Malaysia Education Blueprint (MEB) 2013-2025 has been focusing on developing High Order Thinking Skills (HOTS) of students in primary and secondary education.

Table 1: PISA 2012 Performance of Selected East and South East Asian Countries

Country	Mathematics		Reading		Science	
	Points	Position	Points	Position	Points	Position
China*	613	1	570	1	580	1
Singapore	573	2	542	3	551	3
Hong Kong	561	3	545	2	555	2
Taiwan	560	4	523	8	523	13
South Korea	554	5	536	5	538	7
Macau	538	6	509	16	521	17
Japan	536	7	538	4	547	4
Vietnam	511	17	508	19	528	8
Thailand	427	50	441	48	444	48
Malaysia	421	52	398	59	420	53
Indonesia	375	64	396	61	382	64

Note: *Shanghai ; *Source:* OECD, n.d.

Figure 1: TIMSS Performance for Malaysia in Science and Mathematics, 1999-2015



Source: Martin et al. (2016a; 2016b)

In terms of higher education, university rankings are commonly used as yardsticks of quality. We argue elsewhere that this is an over-simplified measure with a strong leaning towards research and publication indicators (Wan, Morshidi and Dzulkifli 2015). Hence, these rankings can be misleading and are distorted indicators of quality. Such indicators are not useful for understanding universities as the other purposes of universities (such as teaching and service) are not captured (see Azman and Mydin Kutty 2016; Morshidi Azman and Wan 2017; Wan 2015).

Over the last decade, Malaysian universities have not fared well in terms of institutional rankings. The commonly publicised university rankings that focused on individual universities does not reflect the quality of the nation's higher education system. The Universitas 21 Ranking (which combines the assessment in terms of resources, environment, connectivity and output) is arguably a more accurate indicator that assesses national higher education systems. In this regard, the Malaysian higher education system is ranked 27th overall in 2015 (Universitas 21, n.d). While Malaysia is ranked 8th in terms of government expenditure on higher education as a share of GDP and 12th in terms of expenditure per student; the system is ranked 32nd in terms of the quality of its best universities and 39th in terms of educational attainment of the workforce. Clearly, the input in terms of resources invested into higher education has not yielded the expected level of output. Thus, from the point of view of overall rankings, we can infer that there remains a vast room for improvement in terms of the quality and performance of higher education.

3. The Philosophy and Plans for Education

Understanding the state of education in Malaysia, apart from the quantitative and qualitative developments, also entails an examination of the philosophy and various plans that steer and guide the development of education in Malaysia. The National Philosophy of Education (NPE) was formulated in 1988 as the philosophical guide to all educational activities in Malaysia. The NPE reads:

Education in Malaysia is an on-going effort towards further developing the potential of individuals in a holistic and integrated manner, so as to produce individuals who are intellectually, spiritually, emotionally and physically balanced and harmonious, based on a firm belief in and devotion to God. Such an effort is designed to produce Malaysian citizens who are knowledgeable and competent, who possess high moral standards, and who are responsible and capable of achieving high level of personal well-being as well as being able to contribute to the harmony and betterment of the family, the society and the nation at large (MOE, 2008, p. ix).

Furthermore, Dzulkifli (2015b) argues that the NPE contains four significant dimensions. For instance, the first dimension focuses on enhancing the potential of individuals towards the development of a holistic person. The second dimension involves a balance of intellectual, spirituality, emotion and physical well-being in line with the religious faith in God. This is followed by producing Malaysian citizens with the virtuous outlined, and the fourth dimension outlines the capability of individuals in contributing to their families, communities and the Malaysian society.

The NPE has served as the fundamental principle in the formulation of various educational plans in Malaysia. Over the six decades, there have been many reports, policies and legislations that shaped the Malaysian educational system. Among the notable ones include: the Barnes Report (1951); Fenn-Wu Report (1951); Razak Report (1956); Rahman Talib Report (1960); Education Act 1961 (and subsequent revisions); Universities and University Colleges Act 1971 (and subsequent revisions); the New Economic Policy (1971); and Private Higher Education Institutions Act 1996 (Act 555).

In 2013, the Ministry of Education launched the Malaysia Education Blueprint 2013-2025 (MEB). The MEB claims to be the first comprehensive plan that covers education from

pre-school to post-secondary school. In the MEB, there are five system aspirations – access, quality, equity, unity and efficiency – and six student aspirations – knowledge, bilingual proficiency, thinking skill, ethics and spirituality, leadership skill and national identity. Besides outlining the aspirations of the Malaysian education system, eleven shifts have also been identified as necessary in transforming the existing system (MOE 2013).

When the Ministry of Higher Education⁴ was first established in 2004, the Committee to Study, Review and Make Recommendations Concerning the Development and Direction of Higher Education in Malaysia was established. The findings of this committee then became one of the major inputs in developing the National Higher Education Strategic Plan 2007-2020 (NHESP). The NHESP includes seven thrusts with plan of action aimed at producing human “capital” with first class mentality and making Malaysia an international hub of higher educational excellence (MOHE 2007). Following the merger of ministries that led to a perceived need of a more comprehensive blueprint for the entire spectrum of education, the Malaysia Education Blueprint (Higher Education) 2015-2025 (MEBHE) was launched as an extension to the MEB by extending into higher education, and the MEBHE was also considered as an improved continuous development of the NHESP. Similar to the MEB, the MEBHE has five system and six student aspirations (MOE 2015a). In addition, the MEBHE outlines ten shifts that are believed to spur the Malaysian higher education towards excellence. Four of the shifts are concerned with the outcomes for key stakeholders in higher education, and six other shifts focus on the enablers in creating the higher education ecosystem. Yet, unlike the NHESP which was accompanied by the Action Plan, the implementation of MEBHE is intended to take the form of “playbooks” known as University Transform Plans. To date, four playbooks have been launched.

4. Education and Human “Capital” Development in 11MP

In the 11MP, the focus on education and human “capital” development is encapsulated in the third of the six strategic thrusts titled, *Accelerating Human Capital Development for an Advanced Nation*. This underlying focus of this thrust is to improve labour productivity and

⁴ The Ministry of Higher Education was first established in 2004. Prior to that, higher education was under the purview of the Ministry of Education. In May 2013, the Ministry of Higher Education and Ministry of Education was merged into a single Ministry of Education. Subsequently in the reshuffling of the Cabinet in July 2015, the Ministry of Higher Education was re-established. Under the current administration, the Ministry of Higher Education has been merged once again into a single Ministry of Education.

create more job opportunities for highly-skilled workers. In this thrust, there are four foci. The first is to enhance the efficiency of the labour market to accelerate economic growth. The second is about technical and vocational education and training (TVET) to meet industry demand. The third focus is to strengthen lifelong learning for skills enhancement. The last focus is to raise the quality of education system for better student outcomes and institutional excellence.

In addition to the third strategic thrust in 11MP, a strategy paper has also focused on transforming the education system, where six sets of strategies were proposed to address the various issues related to the education system. Three of these strategies focus on basic education, namely: (i) improving student outcomes for basic education; (ii) enhancing governance of schooling system; and (iii) strengthening community support for education. The other three strategies focus on higher education and they are: (i) enhancing programme effectiveness and the quality of students in higher education; (ii) strengthening research and innovation for better outcome; and (iii) attaining excellence in higher education institutions governance. These strategies are further reflected in the following twelve initiatives:

1. Reduce centralised administration of schools and higher education institutions;
2. Reduce dependency on government funding for higher education institutions;
3. Reduce higher education institutions programmes that are irrelevant to industry;
4. Raise attractiveness of national schools;
5. Raise quality of early childhood care and education and basic education curriculum;
6. Raise community support for education;
7. Raise entrepreneurship education at tertiary level;
8. Raise soft skills for higher education students;
9. Raise commercialisation of research, development and innovation;
10. Raise industry involvement in higher education curriculum and practical training;
11. Create niche professional development programmes for teachers and school leaders;
and
12. Create massive open online courses/learning

With the descriptive understanding of the third strategic thrust in 11MP and the strategy paper, the next section of the articles will provide a critical analysis on the focus, thrust and initiatives in the 11MP. The discussion will be organised thematically.

4.1 Ethos and Philosophy

Given that 11MP is an economic plan, it is not surprising that the focus on education is driven by economic impetus. Three of the four foci have explicitly been devoted to the concern of labour market efficiency, the relevance of TVET to industry and lifelong learning for skills enhancement - all addressing the economic needs and relevance of education. Even with the fourth focus that is aimed at improving the quality of education, the gist of the focus and its strategies have been concerned about the economic perspective in terms of expected quality of outputs that match the needs and expectation of industries as well as the financial aspect of institutions and research activities.

However, the strong economic focus on education and human capital development in 11MP, as well as in the MEB and MEBHE, may be at odds with the NPE in producing an *insan seimbang* (literally translated as the balanced person). As articulated in the NPE, the aim of education is about developing a holistic person intellectually, spiritually, emotionally and physically. Conversely, the economic plan has centred on producing a competent, skilled and efficient graduate for the labour force. There is a significant contrast in terms of the articulation about the product or outcome of education between the NPE and 11MP, where finding a balance in the relevance for a balance and holistic education in an economic-driven context can be challenging (Morshidi 2015).

It is also important to point out that in the articulation of Vision 2020 and its nine challenges, the economic focus and justification has notable differences with the ethos of 11MP. Vision 2020 is much more than an economic goal of becoming a high-income economy; it is a goal of becoming a developed nation. The economic focus and justification is geared towards equitable and just economic development. Importantly, the role of education in the Vision 2020 extends beyond the economic imperative, but the emphasis on education in the 11MP has been reduced and simplified into meeting the needs of the labour market.

Moreover, the 11MP further affirmed and strengthened the ethos of neo-liberalism and new public management (NPM) in the education sector, especially in higher education. As Wan, Morshidi and Dzulkifli (in press) argue, the philosophical underpinnings of the MEBHE has been the principles of neo-liberalism and NPM, and these principles have shaped the landscape of higher education into focusing on concepts such as efficiency and cost effectiveness (see also Morshidi 2010; Morshidi and Abdul Razak 2008). In the process of doing so, universities became much more like business entities than educational institutions.

The ethos and principles of neo-liberalism and NPM in the context of education continue to be the narrative in the 11MP, where strategies to strengthen and enhance educational institutions, especially higher education institutions, have to be driven by efficiency, cost effectiveness and the need to measure tangible outputs. Hence, such an ethos will fail to capture the importance of education in contributions through the intangibles and unmeasurable elements of developing holistic and learned citizens and creating an equitable, just and knowledgeable Malaysian society.

4.2 TVET as a Game Changer?

The focus on TVET in the 11MP is commendable and a move in the right direction. The academic pathway of going to university has traditionally been regarded as the golden route, and TVET was considered as the second choice or alternative route. Hence, the 11MP proposes for the Malaysian Qualifications Framework to become a dual track system that recognises and gives equal emphasis to TVET as the equivalent to academic pathway. This recognition is crucial in getting rid of the perception of TVET as a second option pathway for those students who fail to get into the academic pathway. In addition, the 11MP also proposes to increase efficiency and effectiveness of TVET and to streamline programmes to meet the needs of industry.

However, it is important to point out that in the Malaysian Qualifications Framework (MQF) is far from being a dual track system. Programmes and qualifications above Level 6 in the MQF are solely in the academic pathway. Hence, for those with a TVET qualification, either their educational journey has to be terminated at Level 5 in the TVET track, or they have to shift to the academic track.

Furthermore, despite the initiatives to rebrand TVET and with the much-welcomed participation of the private sector and industry, the focus of TVET remains parochial. However, to fully enhance the potential of TVET and for this sector to become a real game changer, consideration should focus on two aspects. First, emphasis should be given to turn Malaysia into a hub of international certification for various skills and qualifications in TVET. Initiatives to turn TVET into a global sector will not only improve the quality of TVET in Malaysia, but also enhance the attractiveness of TVET as a viable post-secondary pathway into the global skilled workforce. Second, for TVET to be an essential part of

Malaysian higher education, consideration should not only be given to develop graduates from TVET who are skilled, but also be aligned with the National Education Philosophy in developing holistic individuals.

The situation of TVET in the Malaysian education system is also quite complex. This sector is not strictly under the purview of one governmental ministry but involves seven ministries in one way or another. Furthermore, TVET programmes also extend beyond public and private universities, and include all other types of higher education institutions from public polytechnics and community colleges, to private university colleges and colleges. Such fragmentation may compromise the efficacy of TVET, and the 11MP does not mention any strategies to address this situation.

In addition, while the 11MP and MEBHE have rightly pointed out the importance of industry partnership in developing TVET, there seems to be a lack of articulation and consideration on the cost for students. The role of the industry, as described in the 11MP and MEBHE, seems to gear towards validating the relevance of the programmes. Yet, these plans remain silent on the ways and the extent to which industries and private sector can partner with educational institutions to provide TVET. For instance, industry-funded apprenticeship, programmes or studentships may further strengthen the public-private partnership of TVET. Hence, a lack of clear articulation may become a real challenge for TVET.

4.3 Massive Open Online Courses and Flexible Learning

Massive Open Online Course (MOOC) is considered to be the next frontier of education. It is expected to increase access, lower the cost of delivery, bring Malaysian expertise to the world, and enhance and branding and visibility of Malaysian higher education institutions. It is believed that this form of learning will also make education in Malaysia more flexible. While there is no doubt that open online courses increase access in terms of reaching out to more students, it remains to be seen to what extent the increase of access can be translated into wider participation. One of the major elements needed for open online courses is the infrastructure to access the World Wide Web. Although in the 11MP, the goal is to achieve 95 per cent broadband coverage, 71 per cent of broadband subscribers with the National Telecommunication Company are reported to subscribe for packages with the speed of 1 Megabyte per second (Mbps) (MCMC 2015). Furthermore, in comparison with countries in

Asia Pacific, connectivity in Malaysia is also much more expensive. For instance, broadband package of 1Mbps is RM 116.60, but with approximately the same price, the speed of broadband connection in Thailand is 30Mbps, China 50Mbps, Singapore and South Korea 100Mbps. In other words, even with access to broadband, a large majority of Malaysians still do not have the connectivity needed to participate fully with open online courses that require large bandwidth for video and interactive virtual discussion. Hence, although in theory this form of education has the potential to reach out to a larger population, the under-privileged and under-represented groups in education and higher education may continue to be excluded due to the lack of access to technology and connectivity.

Furthermore, the proposition that open online learning may reduce the cost of delivery is based on the hypothetical assumption that the cost needed to produce the open online course is one-off. However, the course of maintaining and updating an open online course may be higher than the conventional programme in universities. For instance, the cost and effort needed to reproduce a new lecture via video can be much more expensive than adding new content in a lecture by a professor. Yet, the hidden costs of maintenance and upgrading of MOOCs have not been considered while encouraging this new frontier of education.

4.4 Strengthening Governance and Financial Sustainability of Higher Education Institutions

The 11MP proposed to empower public universities and extend more autonomy to these institutions, but without significantly reforming the regulatory framework and ecology of public universities. One of the strategies outlined in 11MP proposed universities to operate “freely within the regulatory framework established by the Government with strong governance structures, clear decision rights, and effective stakeholder management” (Malaysia 2015). As reported in the MEBHE, twelve of the twenty public universities have been granted the autonomous status, and autonomy has been operationalised into financial, human resource, institutional and academic autonomy. Importantly, the key ingredients of a world-class university are autonomy and freedom for the institution to chart its own direction (see Altbach and Salmi 2011; Salmi 2009). Therefore, while the 11MP and MEBHE have outlined the need to empower public universities and granted these institutions with autonomy, the fact remains that they continue to operate within the existing regulatory frameworks of the civil service in terms of human resource, the Treasury and Ministry of

Finance in terms of finance, and the Ministry of Higher Education in terms of key institutional appointments (Fauziah and Ng 2015; Wan and Abdul Razak 2015).

The issue of autonomy in public universities is also closely related to the plan for gradual reduction of financial support from the government. The MEBHE has clearly outlined the intention of the administration to shift funding for public universities from block grants to competitive funding. Earlier in the NHESP, autonomy was directly associated with a gradual increase in the percentage of universities to be self-generated. Hence, the financial sustainability of public universities has been geared towards reduction of reliance on the Government, and universities are required to generate own income through commercialisation and other income generating activities. The underlying principles of MEBHE and NHESP therefore amplify the influence of neoliberalism and New Public Management in Malaysian higher education, and expectedly, may intensify further under the 11MP given the strong economic focus with these ideologies. To date, annual allocation for public universities had drastically reduced two years in a row since the announcement of 11MP, with an average decrease of 17 and 20 per cent for 2016 and 2017 respectively. The reduced allocation from the government and the increased pressure for the universities to generate their own income, undoubtedly, will further push universities to become more economic-driven. Hence, there is a danger for universities to lose sight of the greater objective of developing holistic individuals for Malaysia in becoming a developed nation.

The Higher Education Student Loan Fund (more commonly known as PTPTN) has been a major supporting tool to increase access and enhance equity in higher education. However, PTPTN has been plagued by several problems such as being a mortgage-type loan, with low administration rate/interest and high non-repayment rate, which raised questions about the sustainability of this major funding mechanism for students. One of the proposals to ensure sustainability of the student loan scheme in Malaysia is to change the PTPTN from a mortgage-type loan into the income contingent loan (ICL) (Russayani 2013). The ICL is a loan whereby the repayment is tied to the income level of the borrower, instead of a fixed repayment schedule, and the ICL has to be carried out with close collaboration of other governmental agencies such as the Inland Revenue Board and Employees Provident Fund. In the MEBHE, the idea of ICL has been outlined as the initiative needed to ensure sustainability of financing higher education, albeit with some minor modifications to include elements of Graduate Tax, but there seems to be a reversal in the 11MP that has diverted its focus back to reforming the PTPTN through equitable disbursement and operational efficiencies. The

reversal of the student financing mechanism in higher education in the 11MP from the MEBHE is a worrying reversal of policy in higher education.

5. Critical Omissions

While the 11MP has outlined many strategic directions for development of Malaysian education, there are two critical omissions in this five-year plan.

5.1 Where is STEM?

One of the nine challenges of Vision 2020 is for Malaysia to become a scientific and progressive society. As the then Prime Minister Mahathir (1991) elaborated, “the [sixth] challenge of establishing a scientific and progressive society, a society that is innovative and forward-looking, one that is not only a consumer of technology but also a contributor to the scientific and technological civilisation of the future”. This would mean that the focus should not be entirely on science, technology, engineering and mathematics (STEM), but importantly STEM would need to be anchored to a more transdisciplinary approach with humanities and social sciences that would lead to the idea of a scientific and technological civilisation.

Hence, Malaysia has a long-standing policy of having 60:40 ratio of science to non-science has been put in place at the higher education level to ensure thta the nation can become a true contributor that is competent in harnessing, utilizing and advancing science and technology as a developed nation. However, in the last decade or so, the number of applicants into public universities for science-based programmes has been decreasing to the point that universities encountered difficulties in meeting the pre-determined ratio (Aida Suraya, Ibrahim and Wan 2015), and given the rigid disciplinary classification within Malaysian universities, students may not have been exposed to an educational ecosystem that foster the development to meet the sixth challenge of Vision 2020. This situation reinforced the needs for the introduction of liberal arts education in the higher education system, and importantly also a shift towards STREAM (Science and Technology with Mathematics, Religion, Ethics, Arts and Management) (Dzulkifli 2015a), which have been missing in the 11MP.

Surprisingly, even without the paradigm shift away from STEM to STREAM, the 11MP has been silent about the role of STEM in terms of education. There is an obvious lack

of emphasis to inculcate the interest and capabilities of Malaysian students in this crucial discipline at the primary and secondary levels. Although the emphasis on TVET is commendable, but without strong initiative at the primary and secondary level to develop the interest and capabilities in STEM, TVET will encounter challenges at the tertiary level where universities and TVET institutions may not have a sufficient pool of students with STEM grounding. Without addressing this shortage at the schools, it is beyond the reach of TVET and higher education institutions to develop sufficient skilled and knowledgeable graduates to realise the challenge of a scientific and progressive Malaysian society that contribute to the scientific and technological civilisations.

5.2 Sustainability and Aligning with the Global Agenda

Another glaring point that was missing in the 11MP is the lack of consideration about sustainability. It is understandable that Vision 2020 did not address the issue of sustainability, given that this vision was carved about two decades ago. However, given today's emphasis and focus on the Sustainable Development Goals (SDGs) globally, the absence of SDGs and an emphasis on sustainability in the education system are glaring.

For Malaysia to become a developed nation, the education system has to also play a role in educating Malaysians in addressing global problems and challenges. For example, the Vision 2020 and 11MP have not touched upon the concern for environment. Similarly, the MEB and MEBHE also have not addressed the concern for sustainability, SDGs or the environment. Yet, it is crucial for the future of Malaysia as a developed nation to educate and develop Malaysians who are mindful and cognisant to the global issues of sustainable development. Hence, it is imperative for the education system to begin incorporating the importance of these issues into all levels from primary to secondary to higher education and TVET.

6. Post-Announcement of 11MP

A critical assessment of the educational situation of Malaysia with regard to 11MP and Vision 2020 cannot ignore the fact that since the release of the 11MP in May 2015, there have been major “turbulences” in the educational landscape of the country. The reshuffle of Cabinet in

July 2015 has led to re-emergence of the Ministry of Higher Education as a separate ministry from the Ministry of Education. One of the implications to the emergence of two ministries overseeing different aspect of the spectrum of education is the likelihood of development in silo. The two MEBs are meant to be a continuous blueprint, but with the current situation of two ministries having ownership of separate portion of the blueprint, inter-ministries coordination has now become an added challenge to the implementation of the blueprints.

Due to the global economic and domestic political situations, the Budget 2016 which was tabled in Parliament in October 2015 has to be recalibrated in January 2016. Although allocation for education took up almost 20 percent of the total budget, the allocation for higher education was significantly reduced. Allocation for PTPTN was slashed between 15 and 25 per cent, while allocation for public universities went down by 17 per cent. The latter reduction effectively put all public universities under drastic austerity drive to sustain with the reduced funding. Following the recalibration of Budget 2016 due to the falling oil prices, it was announced that the Public Service Department Scholarships for overseas and local studies, as well as the Ministry of Education's bursary for pre-university programmes would be suspended. Budget cuts for 2017 have persisted where allocation for public universities experienced another 20 percent reduction. These developments, therefore, underline the fact that Malaysia is undergoing a painful period of economic adjustment/reality check and will seriously undermine the effort to achieve Vision 2020.

7. Conclusion

Vision 2020 is much more than just an economic vision. It is a comprehensive and holistic direction for the development of Malaysia based on the assumption that the growth trajectory for Malaysia is always on the upward trend. Importantly, education, guided by the National Education Philosophy of developing a balance and holistic individual, has been regarded as the most crucial enabler for the country to strive towards Vision 2020. However, the 11MP has remained very much an economic plan because people of Malaysia are regarded as a factor of production in the capitalist production function, which includes land, resources and technology. Hence, we wish to emphasise that there remains much room for more strategies and initiatives to address the needs of the education system in unleashing talents and developing the pool of learned, emotionally balanced and trained Malaysian citizens to transform the country into a developed nation as articulated in the Vision 2020.

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