

# Globalization and Education: Drawing Lessons from Japan for China, Malaysia and Other Emerging Economies\*

Lau Sim Yee  
Reitaku University

Chen Hongxu  
Reitaku University

Takatsuji Hideoki  
Reitaku University

Sim Kim Lau  
Wollongong University

## 1. Introduction

Gary S. Becker said: “My work on human capital began with an effort to calculate both private and social rates of return to men, women, blacks, and other groups from [investments in different levels of education]” (Becker, 1992, p. 43). He further emphasized: “The accumulating evidence on the economic benefits of schooling and training also promoted the [importance of human capital in policy discussions]. This new faith in human capital has reshaped the way governments approach the problem of stimulating growth and productivity.” (Becker, op. cit., p. 44). Hence formal education is undoubtedly one of the vital channels in the accumulation of human capital, which was and will continue to be the driver of development in industrialized countries and the developing world.

China, Malaysia and other emerging economies in Asia are late industrializers that have commonly been given special emphasis on learning from Japan in the past decades. These countries have learned enormously from Japan. However, they still have plenty to acquire unceasingly from Japan in the age of intensified globalized world. The learning includes, among other things, work ethic, business management skills, and production techniques, human interactions for maintaining social harmony, culture of reconciliation instead of conflict resolution, other social cultural elements in strengthening mutual respect in public and private spaces. Similar to Japan, China and Malaysia have progressed quite impressively and effectively in education sector. China’s gross domestic product (GDP) per capital in 1980, 2010, 2015 and 2018 was USD347, 1,768, 6,484, 7,752 (2010 constant price). Malaysia’s GDP was, in the same order, USD3,317, 7,007, 10,912, 12,120, and Japan’s GDP was USD25,855, 42,170,47,103, 48,919. The stark

discrepancy is due to the difference in development level. This deviation in fact is disadvantageous to China, Malaysia and other emerging economies in learning more intensely from Japan in coming years.

Many developing and emerging economies in Asia have and still are learning from “The Land of the Rising Sun.” Many of them have generated remarkable results in economic progress. Asia is the home for about 50 countries where there are slightly more than 4.5 billion inhabitants (about 60% of world population), producing USD31.58 trillion GDP (nominal, about 36% of the world total GDP). GDP per capita is about USD7,350 (nominal). Furthermore, Asia’s total trade in 2016 was USD10.1 trillion (33% of total world trade). Most of the remarkable achievements in Asia are attributable to the miraculous progress in the Indo-Pacific Asia region countries/economies. As the Asian economies expanded their share in the global economy, they are narrowing their income gap with the industrialized West. Moreover, the impressive rise of China—the second largest economy—and the emerging India are becoming stronger, and their economic ascendancy in coming years will definitely reshape the economic future of the world. For these reasons, we are witnessing a shift of global economic center from the West to the East. At the same time, leaders, businessmen, academics and public intellectuals from all over the world are giving close attention to the impressive economic performances of the developing Asia, particularly to China, India and the ASEAN countries.

Physical capital and human capital—i.e., labor—are two crucial inputs for promoting development. Since 1950, these two factors have contributed impressively in shaping the development trajectory of political, economic, social and cultural terrains in Asia. While education drives social

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mobility but it also generates income disparity. However, income inequality is rectifiable by income redistribution and hence Kuznet's inverted U-hypothesis on income inequality is still valid. An enhanced education sector, especially in primary and secondary levels, has brought about outstanding economic development in East Asia in past decades. Effective education induces a virtuous cycle for continuously propelling development. A better quality of human capital strengthens labor productivity that pushes the capacity for climbing the technological ladder to achieve a higher level of value added output, which in turn reinforces the needs for a higher level of education (Selami Ahmet Salgur, 2013, pp. 54-55).

Against this backdrop, this paper aims to focus on what are the challenges for education in re-shaping approaches to strengthen human capital in China, Malaysia and other emerging economies in order to enable them to ride the wave of transformation in coming years. The sail will be rough if education sector in these countries is not well prepared for the challenges in strong winds and rough seas. This paper intends to draw lessons—positive or otherwise—from the Japanese experiences.

## **2. Definition and observation**

This paper uses definitions outlined below inter-changeably.

Article 1 of "Aims and Principle of Education" stipulated by Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) defines the goal of education as follow:

"Education must be provided with aim of fully developing the individual character, as we endeavor to cultivate a people that is sound in mind and body and imbued with the qualities that are necessary in the people who make up a peaceful and democratic nation and society."

In addition, the goal of education is, in the words of Marc Prensky (2014):

"The real goal of education, and of school is becoming a good person and becoming a more capable person than when you started. Learning is nothing but a means of accomplishing that goal, and it is dangerous to confuse the ends with the mean."

Education from 1960s to 1980s (regardless of the level—primary, secondary, tertiary) focused on how to prepare children and the youth to navigate their future life. However, until the great transformation generated by the digital or information technology (IT) since the 1990s, life in those days was quite reasonably structured. Every child, through formal education, was groomed to deal with problems he or she would have to encounter such as graduating from the school, making a living as financially independent individual in the form of an employed person or a self-employed person

or in a professional job, getting married and having a child or children, buying "my home," and accomplishing in other aspects of quality of life. Because of the structured life, education had broadly installed several milestones to gauge children's and young adults' achievement in their learning process in the formal setting.

However, since the early 1990s, IT revolution has influenced dramatic changes in education landscape. The most notable is the flip from the reasonably structured life to the unstructured one. For this reason, education in the formal setting is emphasizing more on how to make children and young adults do better in examinations in order to achieve a higher level of financial income and social respects.

This study aims to examine four crucial issues of concerned that are interrelated and mutually reinforcing. Firstly, how education has strengthened the accumulation of human capital. Secondly, the enhanced human capital powers in development and social progress. Thirdly, improving education in adapting global knowledge economy and other forms of inevitable great transformation in national and global dimensions. Lastly, are there any lessons to apply from the Japan's experience.

## **3. Development in Japan and the relation with education and human capital**

Japan is the third largest economy in the world. Her nominal GDP in 2018 is about USD4.97 trillion. Japan is about 14 times bigger than Malaysia's whereas China is 2.7 times larger than Japan's. Much ink has spilled about the miraculous economic performance of Japan after the end of World War II. Many factors—such as strong government interventions in mobilizing resources, allocation of resources, acquiring foreign technology and development of indigenous technological development, promotion of exports, restriction of imports and others—have driven the development process in Japan since 1950s. These factors were implemented in the form of industrial policy package, fiscal investment and loan programs and other economic means under a relatively stable macro-economic environment. It is not because of but in spite of the scarcity of natural resources, this island nation has relied on its people to transform imported low value added raw materials into higher value added manufactured goods targeted at local and international markets.

The success story of Japan is persistently attributed to human resources development (HRD) and human resources management (HRM). They will continue to play a crucial role for Japanese firms in unceasingly maintaining their comparative advantage. Education systems provided the basic foundation for creating Japan's man made comparative advantage in international market place. On the one hand, at the macro-level, education undeniably has contributed directly

and indirectly in strengthening the accumulation of human capital. On the other hand, at the micro-level (viz., at firm level), the emphasis of continuous HRD and HRM has created productive human capital that is vital for improving labor productivity, which as a consequence, has influenced Japanese competitiveness in higher value added goods and services.

Burgess (2016) refers to human capital as “the stock of skills, traits and knowledge that an individual possesses..... Like other capital, human capital grows through being invested in, and that investment is called education. Not all education is done in schools; families are a very important part of the process. But education in schools is perhaps the primary lever for policies on human capital” (Burgess, 2016, p. 6). In Japan, HRD does not confine to education in school. Koike (1990) stressed that a Japanese organization places particular emphasis on on-the-job-training (OJT). He has substantiated that a Japanese organization does not require a new employee to endow with a specific skill or knowledge before joining. In other words, what an employee has learned in school (either at a secondary or at a tertiary level) is necessary but not sufficient. Rather, a Japanese firm demands a new employee to acquire a firm-specific skill or knowledge through the OJT process (Koike, 1990 p. 5).

Lau (2017) has conceptually illustrated the following.

“There are two types of learning. First, learning is a process of obtaining knowledge in order to solve specific problems based upon existing premises. Second, learning is a process of establishing new premises (such as a new paradigm, schemata, mental models, or new perspectives) to override an existing one. In these contexts, therefore, OJT in a Japanese organization is indeed a process of learning by doing.

OJT has several advantages. First, when a particular skill is largely indefinable and also partially communicable through words or documents. Second, OJT helps to improve the understanding of a specific task, in which frequently, it strengthens accumulated knowledge in overcoming specific problems either based upon existing premises or creating new premises that override existing one. Third, OJT is a career ladder, which begins from the easiest task to a slightly more difficult one, and eventually to the most difficult jobs. Fourth, OJT specific provides broad career paths within an organization. Hence career development process is of a firm specific, which reinforces lifetime employment system (i.e., no incentive for job hopping). Last, but not least, in encouraging continuous learning, OJT costs

less than off-the-job training.

Furthermore, there are three types of OJT, viz., broad OJT, supplementary OJT, and short-inserted OJT. Broad OJT is a system that rotates a person through several sections/divisions within an organization. Supplementary OJT is for a person to acquire a new knowledge/skill by observing other peers/seniors. Short-inserted OJT is conducted either outside or within the organization so as to facilitate a person to acquire a new knowledge/skill in a short period of time (usually for a few days or for a few weeks)” (Lau, 2017, p. 54).

#### 4. Education system in Japan

##### (a) Institutional arrangement

School system in Japan was established in 1872 but education system in present day was drastically reformed in 1952. Schools in Japan are of public and private. Like most other countries, present education system is based on 3-6-3-3-4 format of formal education. The first 3 years are nursery school—under the jurisdiction of Ministry of Health, Labor and Welfare—and kindergarten, which is not compulsory for children between 3 and 5 years old. Every admitted child used to pay about USD350 per month. However, it is nearly free now because government has started to give subsidy from 1 October 2019. Primary and middle schools are compulsory education but high school is not. Tertiary level is divided to 4 years of university and 2 years of vocational or technical college. Informal education was also well developed since 1960s.

Article 1 of the School Education Act stipulates public education covers kindergarten, primary school, middle school, compulsory education school, high school, secondary school, special school, college and university (Nakazawa, 2018, p. ii). At the same time, academic ability of Japanese students from primary to secondary levels is supported by shadow education system that is built from private tutoring and cram school. Shadow education system, like other countries, is vital for supporting students to pass admission tests into esteemed ivory universities because those exams form the necessary condition in education system for acquiring a passport to occupational prestige in Japan.

Education does not only benefit students but it also gives positive influences to family and friends in particular and the society in general. Hence education creates positive externality. More specifically, a student who has invested in education generates a benefit beyond the portion he or she receives. The additional benefit spills into people at large in the society and thus it is known as the external marginal benefit (EMB). The EMB thus warrants governmental subsidy that enables tuition

fees being maintained at an affordable level and at the same time it raises the number of educated people.

Essentially, teachers in Japanese schools and colleges emphasize on teaching contents in the textbook and students are obliged to memorize them without excuses. Put differently, rather than teaching students the content of textbooks and then improving their critical thinking skills, the core of educational method puts emphasis on the effective means for students to acquire the ability to derive correct answers to exam questions by memorization. In our view, the education method in Japan generally stresses 80% on memorization whereas the rest is focused on the importance of critical thinking. It is not wrong to assert the miraculous development performances in Japan are caused by the 80-20 rule (i.e., Pareto Principle) of her education method. The method is not peculiar but unique because of very high motivation of Japanese people, since Meiji Restoration, in catching up with the developed world and then their persistent desire to stay as one of the top economies in the world from early 1960s. Thus, the key question to ask from this respect is two-fold. First, are Chinese, Malaysians and other citizens in emerging economies being motivated to learn from Japan today? Second, do they desire to achieve the income and living standards as those in developed countries?

In post war Japan, the demand of education rose rapidly because of the first baby boomer cohort. The number was more than 8 million people, and they were born in between 1947 and 1949. This cohort rushed to school from 1953 and beyond. As a result, numerous public schools ranged from primary schools to colleges and universities were established rapidly across the island country in 1950s and in 1960s. The population bonus for education sector was inherited by the second baby boom generation who were born between 1971 and 1974. This group of baby boomer cohort comprised more than 6 million people. These two groups of baby boomer cohort not only expanded the demand of education but also intensified means of education method both in terms of the quantity, quality, and equally crucial, they also inevitably intensified competition for achieving good results in order to secure reputable professional careers after the completion of their studies.

Consequently, Japanese style of the “sushi stuffing” education was established from mid-1950s. For post war reconstruction and subsequent sustained economic growth, education had condensed by *shinkansen* (bullet train) speed. The rise of enrollment progressed along with mass education for mass production in manufacturing and the rise in tuition (but still cheaper relatively vis-à-vis other advanced countries except Germany). Since the expansion of public education, national and local authorities have worked hard to improve the quality of education by improving the institutional arrangement. By continuously adapting the institutional setup after Meiji Restoration, MEXT has specifically emphasized on

two arrangements, viz., Board of Education and Curriculum Guidelines.

#### (b) Implementation

The former is a council-run executive body established by local government in each prefecture and municipality. Each Board of Education is obligated to develop a wide range of measures such as lifelong learning, education, culture, and sports. In principle, a Board of Education comprises four members who are appointed by the government or mayor of each prefecture and municipality with the consent of local assembly. It is an administrative committee independent of each governor and mayor because the provision of education is a de-centralized system. Furthermore, the function of a Board of Education comprises: making decision in important issues and basic policies in educational administration, and on that basis, it delegates the execution to the Director of Education; it meets regularly once or twice a month, but when deemed necessary, it organizes special and informal meetings too. It is worthy to note each member of the Board of Education is prohibited to assume the Director of Education. The term of office is 3 years for the Director of Education and 4 years for each member in the Board of Education. From this institutional perspective, are there similar setups in China, Malaysia and other emerging economies? If yes, is the institution independent and de-centralized from the central government? Also, how can this type of institution perform better? If no such kind of setup exists, then to what extent can China, Malaysia and other developing countries replicate Japan’s experience? This is a pertinent question that each government has to provide a convincing answer.

Curriculum Guidelines is established based on the School Education Act. MEXT stipulates them as the standard for the curriculum in primary and secondary education. This standard enables a specify level of education is attained regardless of where students live in Japan. By adhering to Curriculum Guidelines, each elementary school, middle school, high school, and any one equivalent school entity can establish the target of each subject approximate contents of education. Each school determines a curriculum according to the actual situation of the region and school (Table 1). Additionally, Curriculum Guidelines also specify the number of standard classes per year for elementary and middle school subjects. The guidelines are revised periodically when deemed necessary while they are changed or upgraded every 10 years since 1961.

At the same time, on the one hand, the ability to select, adapt, assimilate foreign technology/knowledge was very crucial for Japan as a late industrializer. On the other hand, the ability to generate new technology/knowledge also was and will remain vital to sustain competitiveness in international market place. In these contexts, Curriculum Guidelines indeed played a key role in cultivating Japanese people to meet the

Table 1 Curriculum Guidelines

Type of school	Subject category	Specific subject	Extra curriculum activity
Primary school	Subject	Japanese Language, Society, Mathematics, Science, Life, Music, Drawing, Home, Physical Education	Moral Special activities (class activities, children's association activities, club activities, school events) Comprehensive learning time
Middle school	Compulsory subject	Japanese Language, Society, mathematics, Science, Music, Art, Health and Physical Education, Technical arts/Home Economics, Foreign Language	Moral Special activities (class activities, children's association activities, club activities, school events) Comprehensive learning time
	Elective subject	Japanese Language, Society, mathematics, Science, Music, Art, Health and Physical Education, Technical arts/Home Economics, Foreign Language and other necessary subjects	
High school	Subjects related to ordinary subjects	Japanese language: national language expression I, Japanese language expression II, national language comprehensive, modern sentence, classical, classical reading	Special activities (home room activities, student council activities, school events) Comprehensive learning time
	School setting subject	Geography History: World History A, World History B, Japanese History A, Japanese History B, Geography A, Geography B Civics: Modern Society, Ethics, Politics and Economy Mathematics: Math Basic, Math I, Math II, Math III, Math A, Math B, Math C Science: Science Basic, Science A, Science B, Physics I, Physics II, Chemistry I, Chemistry II, Biology I, Biology II, Earth Science I, Earth Science II Health and Physical Education: Physical Education, Health Art: Music I, Music II, Music III, Art I, Art II, Art III, Crafts I, Crafts II, Crafts III, Calligraphy I, Calligraphy II, Calligraphy III Foreign Language: Oral Communication I, Oral Communication II, English I, English II, Reading, Writing Home Economics: Household Basics, Home Synthesis, Life Skills Information: Information A, Information B, Information C	
	Specialized education subjects	Agriculture, Industry, Commerce, Fisheries, Home Economics, Nursing, Information, Welfare, Science, Physical Education, Music, Art, English	

Source: [http://www.mext.go.jp/a\\_menu/shotou/new-cs/1384662.htm](http://www.mext.go.jp/a_menu/shotou/new-cs/1384662.htm) (in Japanese). Note: This table was compiled based on 2003 Curriculum Guidelines.

challenges in domestic and international fronts. The never-ending challenge thus requires continuous improvement of education contents over time. Hence, as mentioned earlier, teaching, learning and memorization in education always progress in *shinkansen* speed. It is also worthy to note that in revising Curriculum Guidelines, Japanese Government, led by MEXT, always adopt the use of council style consensus building by a group comprises representatives of academia and public intellectual circles. These representatives are valuable because they understand historical, present and future changes in political, economic, social and cultural dimensions in depth and breadth. In this respect, can China and Malaysia do the same? Or, if they have already initiated similar attempt, the question to ask is can these two countries do better in coming years. If not, what can they learn from Japan in surfing the wave of globalization.

Many prominent features characterize the responsibility of teachers in Japan. Besides teaching in classrooms in primary, middle and high school levels, teachers in Japan also have to engage in students' extra curriculum activities every day. Benesse—a private company that provides education services such as cram school, “admission imitation test” and

others—reported about 40% of teachers in middle schools have high awareness of their engagement in students extra curriculum activities in order to deepen the understanding of students outside classrooms (Benesse, <https://berd.benesse.jp/>). Moreover, teachers also pay exceptional attention on students', among other things, moral, ethics, manner and behaviors as a group outside classrooms. Of course they also teach these types of Japanese cultural traits in classrooms. Their efforts indeed complement parenting by parents and guardians at home. At the same time, Benesse's survey shows:

“School hours for elementary school teachers are 11 hours 54 minutes, an increase of 25 minutes over 10 years, junior high school teachers increase 27 minutes at 12 hours 30 minutes, and high school teachers increase 17 minutes at 11 hours 33 minutes. Working hours for all elementary, middle and high school teachers are increasing. By age group, young teachers spend more than an hour at school compared to veteran teachers. Furthermore, when comparing the same age categories over time, it can be said that the shift in work time is

earlier and the work leave time is delayed in all ages, so not only younger age but also busyness is intensifying” (Benesse, op. cit.).

Economic structures in Japan were transformed rapidly since early 1950s. Structural change in the ratio of GDP in production side and employment changed significantly along with rapid economic growth from 1950s to early 1970s. For these reasons, the employability of Japanese people was enhanced by the contents of education in schools, colleges and universities. Academic ability played and will continue to play a crucial role in strengthening the absorptive capacity of Japanese people in particular and the society in general. From this perspective, it is not an exaggeration to underline the crucial role of Curriculum Guidelines. In fact, they not only serve as the benchmark for gauging the goal and direction but they are good “base line references” for measuring the performance outcome in education. Equally crucial, employers in fact can use Curriculum Guidelines as an important signal pertains to students’ capability with respect to their education attainments. Moreover, education attainment as a signal of labor productivity in labor market propounded by Spencer can explain a job search-hire relationship between education and job market (Spencer, 1974).

## 5. Education, labor productivity and global scale transformation

### (a) Education and economic development

The preceding section illustrates the essence of education in Japan. From 1960s to 1980s, education in Japan expanded by leaps and bounds. In those days, education—in *shikansen* speed—in Japan had tasked to cultivate young Japanese people to adapt to the persistent high growth process. A large majority of Japanese people acquired their knowledge by the method of “*inari-zushi*” (sushi rice stuffed in fried bean curd). As a result, they contributed enormously to the impressive rise of economic capacity of Japan internationally. Notably, Japan overcame several crises in those days. For example, intermediary problem in banking sector in Japan in mid-1960s, two oil shocks in 1970s, pollution problems in Japan in 1960s and in 70s, crisis in primary commodity compounded by Latin America debt crisis in early 1980s.

Notwithstanding the rough tides, since early 1980s, the continuous focus on supporting the accumulation of human capital in schools, young Japanese people have pushed the climb in the technological ladder with respect to higher value adds in construction, manufacturing and service sectors. For example, safe seismic construction—building, rail, bridge, underground and sea tunnel—technology (whether above ground or underground and in mountainous area), complete and simplified refineries of oil, higher resolutions in television, projector, semi-conductor, precision instrument, small but

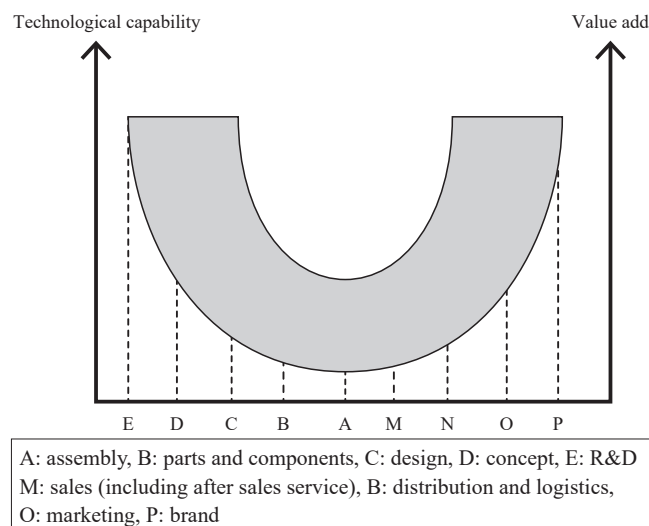
more powerful electrical and electronics part/component, pharmaceutical and medical equipment/product, higher fuel efficient cars, medical and health, financial services (insurance, banking and security businesses), computer game and animation, logistics and distribution, fast-moving consumer goods, and other spectrum of product/service. Many observers are still skeptical of Japanese future but their status is immovable because Japanese products and services indeed carry high value that is equaled to their quality.

On the other hand, in the same period, while China gave special focus on the open door and reform in 1980s, Malaysia had strived to push development based on primary commodities such as rubber and tin along with the insertion of import substitution industrialization. But unfortunately Malaysia was not rewarded with a higher growth rate. Malaysia was inevitably transformed to export promotion in 1970s. Consequently, it laid solid foundations for embarking to liberalization and to export-oriented industrialization in 1980s. Those days, education in Malaysia emphasized on manpower planning instead of HRD/HRM. At macro level, the former was systematically instilled in education so that young Malaysia acquired knowledge for the promotion of industrialization in Malaysia. At the same time, Ministry of Education worked in tandem with other governmental agencies (including state-level authorities), private business entities, professional associations and related outfits to plan and to determine how many laborers were needed for what kind of specific industrial sectors/sub-sectors. This method was rewarded because 6-3 compulsory education produced reliable and efficient workers for assembly jobs provided by local industrialists and foreign investors. At the firm level, most companies give emphasis to assign how many workers were needed for what kind of specific tasks on the one hand, and then they extended manpower planning in order to prepare practically for future placement of workers—general staff and plant operators—on the other hand.

China’s economic system was largely centrally planned in 1980s and 1990s, but Malaysia has functioned in a market-based system since independent. Manpower planning approach was practical until mid-1980s when Malaysia embarked seriously on intensifying outward-looking industrial strategy in tandem with heavy and chemical industry drive being launched in the first half of 1980s. Until then, education in manpower planning supported the first half of industrialization in Malaysia. In our view, the First Industrial Master Plan (IMP1), initiated in 1986, triggered the transformation of manpower planning to HRD/HRM. Zamri Mohamed, etc. (2018) summarize the objective of IMP1 as “to increase manufacturing linkages and competitive; resource industries and encouragement for exports” (Zambri Mohamed, etc., 2018, p. 13). For economic development, HRD is the early process for learning basic knowledge in which it effectively facilitates educated people

in acquiring necessary expertise, technical and management skills in production side of the economy. School education directly influences the capacity of HRD in a country. In Japan, HRD is more extensive outside schools. Especially technical ability in workshop/factory, management knowhow, skills for quality control, scientific knowledge in research and development require a practical but strong strategy and continuous determinations of HRM at the firm level. Hence, a strong management strategy in any firm is the unrelenting pursuit of expanding the quality of human capital asset. At the same time, it is imperative for companies to keep up with constant dynamic changes in market places too.

Did HRD/HRM in Malaysia perform well in the past quarter-century? The assessment is not an easy task. However, Malaysia will not achieve the target of USD16,000 in 2020 in spite of her intent. Malaysians have plenty of work to do



Source: refined by author from Sakshi Aggarwal (2017).

Figure 1 Smile curve of technological capability and value add

Table 2 China, Malaysia and Japan in GDP, GDP per capita and population (current price, 2018)

China	Malaysia	Japan
USD14.14 trillion	USD0.365 trillion	USD5.15 trillion
USD10,100	USD11,140	USD40,850
1,395.4 million	32.8 million	126.2 million

Source: International Monetary Fund

in, at least, next five years. In this regard, school education including vocational or technical colleges ought to play a key role in HRD. This is doable if reference to Japan was made. Equally important, the smile curve illustrates in Figure 1 is a good reference for both China and Malaysia but how school education supports the climb of technological ladder is certainly vital.

(b) Labor productivity: compare and contrast

Table 2 illustrates GDP, GDP per capita and population China, Malaysia and Japan in 2018. Population size is considered as the key factor of a huge different in GDP among them. Economic power of China and Malaysia is still far below Japan, but China produces 2.7 times more of total values added than Japan. Regarding labor productivity, Table 3 shows China and Malaysia was, respectively, lower than Japan between 2000 and 2007 but both countries improved from 2010 to 2017 (see also Figures 2 (a), (b), and (c)). Japan's labor productivity declined substantially between 2009 and 2013 because of Lehman Shock and Great Eastern Japan Earthquake on March 11, 2011. However, labor productivity in China and Malaysia will unlikely to perform better, *ceteris paribus*, because the

Table 3 Labor productivity standardized values

	CHN	MYS	JPN
2000	-1.20	-1.47	0.28
2001	-1.10	-1.51	0.20
2002	-1.10	-1.37	0.17
2003	-1.00	-1.24	0.22
2004	-0.90	-0.95	0.61
2005	-0.80	-0.58	0.69
2006	-0.70	-0.35	0.69
2007	-0.50	-0.06	0.83
2008	-0.30	0.46	0.02
2009	-0.10	0.07	-2.02
2010	0.10	0.28	-0.97
2011	0.50	0.55	-1.71
2012	0.70	0.66	-1.31
2013	0.90	0.63	-0.91
2014	1.10	0.89	-0.30
2015	1.30	1.03	1.04
2016	1.50	1.29	1.15
2017	1.80	1.68	1.34

Source: calculated from ADB, *Key Indicators for Asia and the Pacific*, various issues

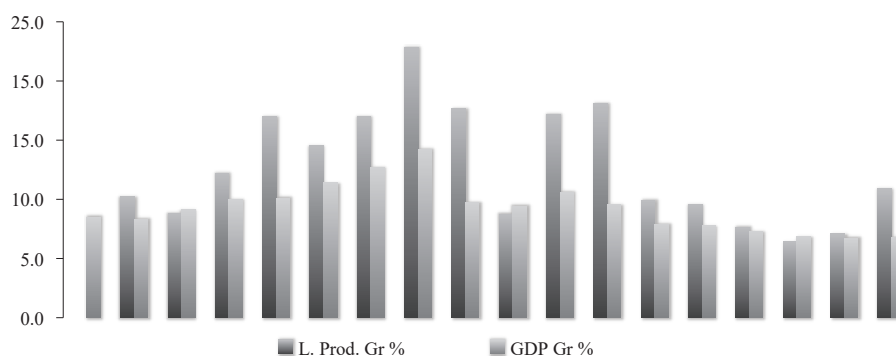
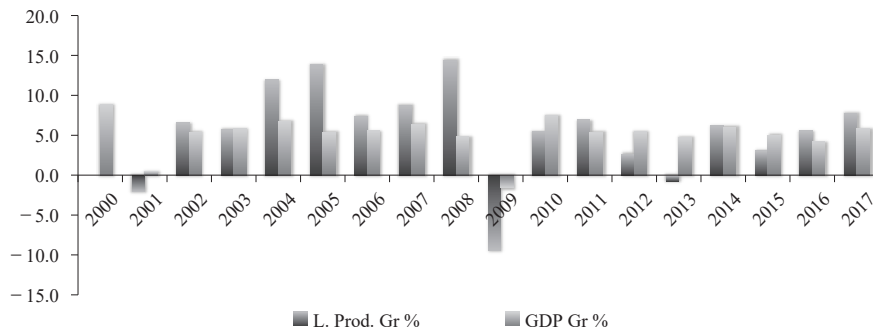
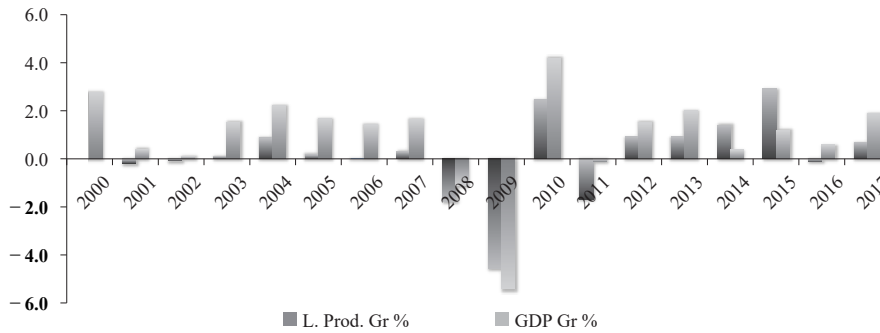


Figure 2 (a) Labor productivity and GDP growth in China (2000-2017)



Source: calculated from ADB, *Key Indicators for Asia and the Pacific 2018*

Figure 2 (b) Labor productivity and GDP growth in Malaysia (2000-2017)



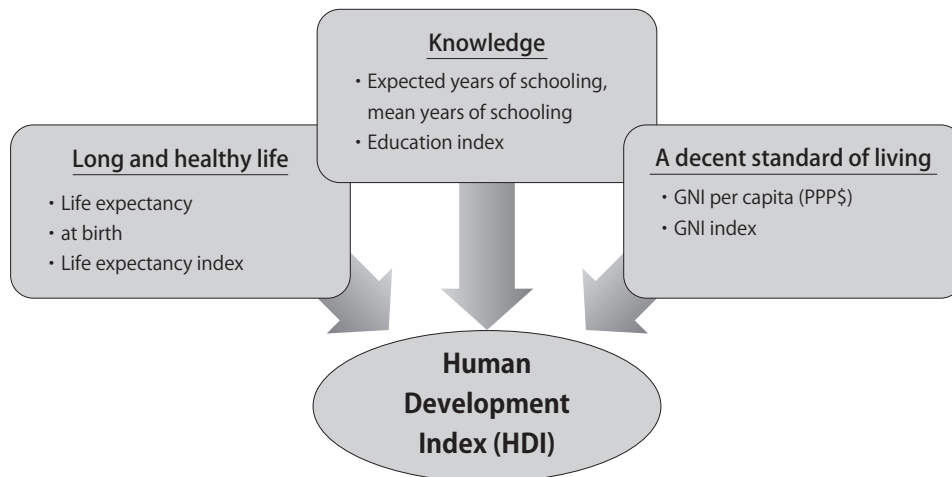
Source: calculated from ADB, *Key Indicators for Asia and the Pacific 2018*

Figure 2 (c) Labor productivity and GDP growth in Japan (2000-2017)

Table 4 Human Development Index

	1990	2000	2010	2015	2016	2017
1 Norway	0.850	0.917	0.942	0.948	0.951	0.953
19 Japan	0.816	0.855	0.885	0.905	0.907	0.909
57 Malaysia	0.643	0.725	0.772	0.795	0.799	0.802
86 China	0.502	0.594	0.706	0.743	0.748	0.752

Source: UNDP, *Human Development Report*, various issues.



Source: reproduced by authors based on <http://hdr.undp.org/en/content/hdi-diagram>

Figure 3 Conceptual diagram of HDI

human capital capacity is still lower than Japan. This statement is qualified by the rank of Japan vis-à-vis China and Malaysia in Human Development Index between 1990 and 2017 (Table 4). China and Malaysia was ranked 86<sup>th</sup>, 57<sup>th</sup>, respectively, whereas Japan was ranked 19<sup>th</sup> in 2017, out of 189 countries.

HDI a “statistical metric being used for measuring a country’s overall achievement in its social and economic dimensions (UNDP, 1990, p. 109). Furthermore, “this index is a composite of three crucial indicators, viz., life expectancy at birth (i.e., life expectancy index), knowledge accumulated



Table 5 Expenditure of education, health and social welfare (GDP share, %) of Japan, China, and Malaysia

	Japan			China			Malaysia		
	Education	Health	Social welfare	Education	Health	Social welfare	Education	Health	Social welfare
2009	2.75	6.46	14.47	2.99	1.15	2.18	7.04	2.07	1.13
2010	2.81	6.84	15.21	3.05	1.17	2.22	6.07	2.01	1.19
2011	3.00	7.51	16.47	3.38	1.32	2.28	5.43	1.88	0.91
2012	2.94	7.51	16.32	3.94	1.35	2.34	5.62	1.92	0.96
2013	2.94	7.79	16.77	3.71	1.40	2.44	5.34	1.91	0.85
2014	2.98	7.89	16.79	3.59	1.59	2.49	5.12	2.00	1.08
2015	2.92	8.01	16.81	3.83	1.74	2.77	4.91	2.02	1.01
2016	2.83	7.84	16.75	3.79	1.78	2.92	4.52	1.88	0.87
2017	–	–	–	3.67	1.76	3.00	4.48	1.89	0.91
Mean value	2.90	7.48	16.20	3.54	1.43	2.45	5.39	1.95	0.99

Source: calculated from ADB, *Key Indicators for Asia and the Pacific*, various issues

over expected years of schooling and means year of schooling (i.e., education index), and a decent standard of living (i.e., GNI—gross national income—per capita in US Dollar purchasing power parity—PPP)” (UNDP, op. cit., p.109). Figure 3 illustrates the conceptual relations of the three elements in computing HDI. Between 2009 and 2017, although China and Malaysia spent quite a higher GDP share in education than Japan but their respective shares in health and social welfare were quite low when compared with Japan. The mean value of each category in Table 5 clearly shows Japan spent more in health and social welfare than Malaysia in GDP ratio (about 4 and 15 times more, respectively). This data set confirms the reason behind a lower ranking in HDI for China and Malaysia. Hence, referring to Japanese experience, navigation in education landscape by teachers is a must but it is not sufficient because the sail in economy crucially requires relentless efforts in overcoming high tides of health and social welfare in China and Malaysia. Without any doubt, this is an important policy issue. By and large, a higher per capita income motivates people to receive better education, which in turn induces stronger health and higher longevity.

### (c) Global scale transformation

The world has changed rapidly in last-quarter century. Lau (2017) cited “Friedman (2016) emphasizes every inhabitant on this planet faces enormous challenges from three strong forces, viz., technology, globalization, and climate change” (Lau, 2017, p. 58, Friedman, 2016, p. 3). This trinity is one way or another intertwined in one’s life. Technological change has driven and will continue to accelerate globalization, in which the intensity of cross border exchanges of goods, services and capital has risen amazingly in the last quarter of century. In addition, movement of people across national boundaries has increased rapidly. These two forces have indeed flattened our planet. Equally serious, while the quest for a higher level of living standards has lifted our income but it has also triggered the change in global climate because of intensified mass production and consumption spanning the globe.

The same study also underlined technological change, especially in information communication technology (ICT),

enhances efficiency and capability. At organizational level, office, factory, business and related activities have already begun to categorize works to take advantage of the jump in ICT. First, primary activities ought to be executed by a division/department. Priority is given to these activities in terms of improving business processes and related technology. Second, common activities ought to be shared with other departments. Third, automation that relates to activities that could be substituted by available ICT, or automation of the user-friendly interface. Last but not least, activities that could be outsourced certainly contribute to minimizing internal workload. Thus taking advantage of outsourcing encourages employees to explore new opportunities. In categorization of activities, the following three dimensions are vital for deriving the effectiveness in organizational management. Firstly, assessment of activities value in terms of process capability from the perspective of quality, cost and benefit, customer satisfaction, etc.. Next, the evaluation of current performance is being conducted thoroughly not only by examining the needs and process capability but also the comparative advantage vis-à-vis other departments. Thirdly, predictability in terms of quality, cost, time, and other related interface has become more crucial. If predictability was weak, those activities concerned are certainly not appropriate for automation (Lau, 2017, op. cit., p. 56).

The end of ideological cold war had propelled the advancement of ICT rapidly since early 1990s. Cross-border movement of goods, services, people in rapid speed and also in quite a high intensity, whereas every flow of money and information is created simply by a one-click. Competition caused by globalization of economy, finance and information has made it more difficult to balance efficiency and fairness. To overcome this challenge, it is imperative to focus on issues related to market-based economy and distribution, in order to correct or to prevent disparity—from within and between countries—caused by the increasingly intense competition. This problem (and also others) is contained in the market-based system.

There are several trivial premises in contemporary globalization. The concepts such as nation-state, market

economy, humanitarian requisites such as fundamental human rights, civil society, fairness of distribution, social justice have increasingly become blur. It has become doubtful whether everyone understands in the same meaning—even those related to the inside. This question is not only necessarily caused by differences in civilization, culture and values, but also on the meaning of the word "sustainable society"—for example, development economics, environmental problems, corporate social responsibility (CSR). There are people who are involved in activities related to those issues still give diversified opinions to the extent of disagreement instead of "agreed to disagree." This is truly unproductive and sometimes it creates unfruitful arguments and unwanted conflicts. Even when the conflicting parties have agreed to resolve the difference but still they often have left unclear with what kind of priority is to be undertaken among them because of diversified values. From the dialogue and the discussion, if there was no agreement on the type of mechanism for enabling who and how to realize the understanding obtained, one still could not overlook the fact that, quite often, it did not resolve efficiently because in fact that is by itself vulnerable.

The Stern Review (2007) categorically underlined "the scientific evidence is now overwhelming: climate change is a [serious global threat], and it demands an urgent global response" (The Stern Review, 2007, p. vi). But it also underlines "action on climate change is required across all countries, and it need not cap the aspirations for growth of rich or poor countries" (The Stern Review, op. cit., p. vii). Population has grown exponentially in last century; it will continue to expand along with the continuous improvement of medical and pharmaceutical knowledge, enhanced public health, well-balanced diet and others on our planet. Population size, mass production, consumerism—in advanced and the developing world—have caused environmental problems in localities, in nations and in global scale. This kind of existential threat of negative externality needs a greater intensity of uninterrupted concerted effort by individual on the one hand, and cooperation among all community, firm and country on the other hand. The commitment to sustainable development is an illusion if climate change was not mitigated. The alleviation is certainly a herculean task but every effort by every individual in his/her own capacity in adapting with, changing to and shifting to environmental friendly technology and lifestyles is extremely important. That is easier said than done but the persistent determination by mankind is the key for alleviating climate change and other environmental problems.

## **6 . Can we learn from Japan?**

This is a difficult question. Thus answers are yes and no because adapting homogeneous cultural elements to the pluralist society, respectively, in China and Malaysia can be

problematical in the long horizon.

Japanese people and their society put utmost importance in maintaining harmony. This cultural attribute has its root from her agrarian history. The productivity of each farmer was different because of different quantity of inputs (such as size of land, availability of fertilizers, knowledge/experience, degree of dedication to farming, etc.), but every farmer was concerned of one another's output, not in the sense of competition, but in the context of shared results. In order to have a shared result for coexistence, every member in a village, even in today, is very positive with the spirit of mutual assistance. As a result, it has become the foundation for building harmony for coexistence. Nitobe (2008) explained this kind of behavior in the form of politeness—"Politeness is a poor virtue, if it is actuated only by a fear of offending good taste, whereas it should be the outward manifestation of a sympathetic regard for the feelings of others. It also implies a due regard for the fitness of things, therefore due respect to social positions" (Nitobe, 2008, p. 27).

Anglo-Saxon civilization emphasizes on conflict and resolution. Effort to mediate in order to bring about a resolution is of a priority in their society. Hence, the resolution is the result in the form of "the survival of the fittest." This is the outcome of a competition. On the contrary, Japanese culture is characterized by the method of conflict and reconciliation. Therefore, it enables the conflicting parties to reconcile with one another in order to "survive in harmony." As such, Japanese cultural attributes had played and will continue to play an important role in enhancing the highest efficiency at firm and social levels. By implication, this has produced the success story of Japan in international economy at macro level, and the competitiveness of Japanese companies in international market place at micro level.

Education system in Japan plays a crucial role in cultivating young Japanese to be harmonious in the society as well as in a group or organization (i.e., a company). In fact school education is the initial stage—outside of parenting—for producing human capital in Japan. In this stage, as mentioned in earlier paragraphs, teachers deliver and explain the contents of each textbook in classrooms and they also give guidance to moral, ethics, manners, team-work, discussions in consensus building, proper behaviors in public space, etc. inside and outside classrooms (i.e., extra curriculum activities).

Japanese culture rather than encourages competition it upholds the spirit of shared results for social unity. The homogeneity of Japanese society emphasizes the sense of "togetherness." Consequently, lifetime employment is one of the key pillars for supporting social and economic stability. Education system contributed enormously in building this important dimension of Japanese cultural landscape. Board of Education and Curriculum Guidelines certainly have navigated in the cultural terrain. But it is important to note that Japanese teachers, because of their own cultural attributes, have their

own personal experiences in giving good teaching methods to and hands-on interactions with students in schools.

Because Japanese culture inhibits an individual to lead, therefore, individual leadership is not explicitly observable. Instead, the collective effort of a group, or a united force in an organization that takes up leadership role for defining the vision, and the group or the organization makes sure everyone is a follower in achieving targets set by that vision. In other words, participatory approach makes every member of a group or in an organization as the leader and as a follower—both sides of the same coin. For this reason, leadership is not cultivated in schools nor inherited from parents in Japan. Therefore, leadership in Japan is not a science but an art. The spirit of harmony, non-competition, small gap of disparity and other social cultural elements have created an economic system based on fair and equitable income. Consequently, Japan is an advanced country where she is inhabited by equal level of middle-class people. This egalitarianism, in a blunt way, was well articulated by Dore (1996). He underlined Japan is “the most socialist society in the world.” He also emphasized that “The secret ingredient is the common source of egalitarianism and efficiency is ‘[togetherness]’” (Dore, 1996, p. 390). School education in Japan provides the foundation for people who excel in maintaining a harmonious environment, which then is the natural extension to the formation of socio-cultural wellbeing in the society where the relationship between an employer and employees and among employees have brought about the strong commitment, motivation and loyalty of Japanese people. This is the basic engine to drive high economic performance in the past and present time.

The possibility of learning from Japan is uncertain. But, in order to paint a positive outlook for the role of school education in every emerging economy, concerted effort by all people is the ultimate key. It is reasonable to assert every developing country in general and in each emerging economy in particular requires, from now, a time frame of 30 years for the next generation to learn applicable experiences. This does not mean the “indiscriminate” adaptation but the attempt has to be at least realistically practical in every developing country. A generation is not quite a long time frame because 2,500 years ago Confucius said: “If your plan is for one year plant rice. If your plan is for ten years plant trees. If your plan is for one hundred years educate children.” This statement in fact can light up renewed hope to people in every country but teachers in all levels ought to take the responsibility and also have to shoulder the burden to kick off the quest.

We are cautious of the limitation of Japan’s education model. Especially, the conventional approach in emphasizing consensus building and harmonious “togetherness” in cultivating children and youth in formal schools has caused the abuse of children’s individuality and the imposition of system-adaptive ideas. These negative results have caused

substantial trauma to post-war generations (Japanese who were born around 1945 to 1960). As a result, this shadow created fatal flaw in the development of postmodernism that is being influenced by poverty of ideas. Consequently, in today’s postmodern society, this method of education has caused negative effect on corporate management and economic development. Hence, emerging economies like China and Malaysia must avoid learning that kind of negative elements of Japanese experience in education.

In addition, late industrializers must not adopt Japanese style in industry-government-academia collaboration. Japanese business community still asserts the relevancy of the triangular cooperative relations without undertaking serious review of the reality where many new product concepts (especially in digital and high tech products and services) are required to take in new thinking for enhancing competitiveness and differentiation. Engineers and non-technical personnel have become the center of product/service development. This situation is to a large extent caused by limitation of education policy that is still being put into practice in formal schools where uniformity is of highest priority. Developing countries, in their quest of learning from Japan, must avoid applying such type of Japanese experience. A postmodern society, both in advanced countries and the developing world, requires to strengthen the nexus of democracy and technology development because postmodern itself is the result of democracy and the development of science and technology.

## 7. The role of education in Industry 4.0

Industry 4.0 steps up dramatically from 3.0 because of persistent transformation brought about by the digital technology (IT). Today our life is shaped and formed by IT, which has produced amazing but convincing transformation from automation to cyber-physical systems (CPS). Positive influences or impacts are relatively well documented but it is still not necessarily clear about their shadows. There is a spectrum of critics with regard to how Internet of Things (IoT) or/and digitalized manufacturing activities and service deliveries will influence labor employment (replacement of human labor by automated machines or/and digitalized procedures) in general. Many skeptics are doubtful. They are asking whether the substitution of human labor will generate severe unemployment problems in the age of Industry 4.0. On the one hand, the latter certainly raises serious consequences on the terrain of social welfare (unemployment supports). On the other hand, it creates policy questions towards the anticipated rise in inequality between the employed and unemployed or labor market dropouts.

Quite obviously not all economic activities are replaceable by the CPS. Traditional manufacturing, construction, service deliveries (e.g., medical and healthcare deliveries, public administration, organization management) are notable areas.

In fact, if these economic activities were reviewed from the viewpoint of the impact of digital technological change on supply chain and value chain management, enterprises and organizations will certainly encounter significant challenges in Industry 4.0. Moreover, a substantial number of small businesses will also likely to face such kind of critical challenges especially with respect to the shift of labor demand to a higher level of technically skilled human resources.

The advancement of computing or digital processing power has brought artificial intelligence to the forefront of Industry 4.0. Statistical Analysis System (SAS) explains:

“Artificial intelligence (AI) makes it possible for machines to learn from experience, adjust to new inputs and perform human-like tasks. Most AI examples that you hear about today – from chess-playing computers to self-driving cars – rely heavily on deep learning and natural language processing. Using these technologies, computers can be trained to accomplish specific tasks by processing large amounts of data and recognizing patterns in the data.” ([https://www.sas.com/en\\_us/insights/analytics/what-is-artificial-intelligence.html](https://www.sas.com/en_us/insights/analytics/what-is-artificial-intelligence.html))

AI is also referred to as analytics. But this is not entirely correct because advanced analytics has bigger coverage. Both analytics and AI have expanded to machine learning (ML) and deep learning (DL). The usage is augmentation and automation. ML is the learning process where a machine makes decisions based on a huge set of programs that are not explicitly put in place by professionals. The learning begins from interactions of easy sets of data to huge and complex data sets. These interactions enable a machine to establish a pattern of decision-making that might not easily and effectively identifiable or discernable by human brains. While learning, it is necessary to have human interventions for making better programs (or commands) to either correct or to enhance the learning path. On the other hand, DL incorporates algorithms that enable the correction of trajectory appropriately for learning procedures. This learning resembles neural networks—that can respond to changes in the external environment—to make proper adjustments in decision-makings. If the learning process was monitored effectively then wrong decision-making is minimized, if not eliminated. AI, ML and DL are already put in use quite broadly in business and lifestyle such as manufacturing, office management, banking and finance, health care, retail, distribution, marketing and logistics. The usage is anticipated to be deepened and broaden in coming years. GAFAs are digital giants in utilizing big data analyses. But there is a spectrum of possibilities in the long tail especially for small and medium-sized enterprises.

Digital revolution created by AI, ML and DL is changing the way mankind in balancing work and life efficiency and meaningfully. Most people—even they do not understand digital revolution or Industry 4.0—will react to “herd effect” or “herding” in their work activities and lifestyle. This phenomenon is a simple rule that does not need a scientific reason. Similar to the bandwagon effect, i.e., “if you can’t beat them join them.” The transcend epoch in coming years will certainly require the transformation in education. Here is a set of thoughts for navigating education in immediate horizon. Education in Japan and other advanced countries in general have already adapted interactive e-learning, deductive reasoning, collective genius approach, decentralizing education, singularity, and block chain. The scale is still small but it will expand with breadth and depth in coming years.

There are already some primary and middle schools that obliged students to “bring your own device” for enhancing e-learning. For example, using applications for writing short essays, learning spellings, drawings, search of learning resources and others. In some high schools and colleges/universities, students are encouraged but not mandatory to use digital tablets and personal computers in classroom learning. Students can also use their digital devices to retrieve resources in cyber space for group discussions and report writings. There are many individuals in college/universities who also enroll in public e-learning lectures being offered by other universities. Quite a number of students popularly use Podcast, YouTube, G Suite and other popular applications in knowledge learning and sharing. By using these interactive devices and methods, learning process put emphasize on deductive reasoning rather the traditional type of inductive reasoning. This mode is further enhanced by the concept of collective genius approach in which a diversified group of students with different background can share their difference in formulating new and/or innovative ideas not only for problem solving but enhancing creativity. It is also a good method for cultivating the capacity of consensus building.

The new methods of learning in classroom—regardless students who are either in primary or in secondary and in tertiary levels—are giving new pointers for navigating in education landscape in present days and in coming years too. It is worthy to note these new modes of learning in effect will strengthen learning process because the digital approach in decentralizing the delivering and receiving of education contents interactively is imperative. Presently, literature in exploring how to converge education contents among countries by digital technology has increased although its volume is still thin. But the concept of digital singularity in education has become quite popular among the proponents of AI, ML and DL. The threat of cyber security has increased but the advocates are asserting block chain technology is adaptable in education topography too.

From the observed reality and the reasoning outline above, the imperative question to education in the developing world in general and in emerging economies like China and Malaysia in particular is how, when and to what extent can we learn from Japan.

## 8. Conclusion

The era when everyone unconditionally praises the development of science and technology has come to the end by the threat of weapons of mass destruction and climate change. However, the fundamental theme of whether we can regulate the negative aspects of advances in science and technology with ethics and values is to develop progress in environmental-friendly life science and information technology, even with the lack of a shared understanding of what science and technology is about has become the problem. This continues to exist as an even more unsolvable problem. Based on this basic recognition, humanity has to note the identification of the issue to be the first priority in seeking an answer quickly. This concern exemplifies the following three basic problem groups.

Firstly, conflicting rights of beneficiaries over the use of science and technology and ethics. In particular, this problem is manifested in the field of bioethics. Under the idea of "freedom from traditional values," modern science and technology has advanced rapidly. The progress of science and technology itself has made it impossible in the past, but as a result, the irony that the rights of beneficiaries typically seen in gene therapy, reproductive supplementary medical care, organ transplantation. These issues raise the problem of conflicting ethics. Hence, the question to ask is how can education instill a comprehensive teaching methods in cultivating moral and ethics to young children who will in future bring huge positive externality to the society at large.

The second is the relationship between science and technology and the market. Since science and technology has a nature that social benefits are large in the first place, public support for the government is justified, but it is now asked about how to balance the benefit with the market mechanism. Currently, there are calls from the leaders of major countries and intergovernmental organizations for a revamp of the global financial landscape and rethinking of the conventional wisdom behind the free market dogma in economic management.

Policies, rules and regulations promulgated to regulate and supervise the conduct of affairs in the market are geared towards according transparency for risk assessment and ensuring fair play amongst all participants. However, often, such policies, rules and regulations are devised with an agenda to serve the interest and expediency of a small group of people. At the same time, there are many limitations in ensuring the functioning of an efficient market such as: natural distortion due to level of development; equal distribution of

public goods; monopoly rent attaches to intellectual property rights, particularly, for goods that are vital for the poor. While government could intervene in the market to rectify market failures, but government interventions also have limitations especially in the world that has become more and more globalized. In this connection, there are many opportunities for cultivating human capital so that more and more people are capable to complement market and the role of the government. The vigor and rigor of market forces must be allowed to apply in market place, but governments should encourage and facilitate education sector to contribute in the accumulation of human capital to be the agent for improving fair and equitable economic welfare for the society.

The third is the roles of citizens. In particular, in policy making process on bioethics, how to position traditional values and civil society of modern times, how to position the role of citizens, and whether the dialogue is established between citizens and experts in the first place. The problem of consciousness connects to the question pertain to what is an education method that can make it possible.

One last note here. Let's take intellectual property rights system as an example illustrating a serious issue. The intellectual property right system legally grants monopolistic ownership rights to inventors, but there is a premise that it will enrich society as a whole as a result of many inventions. There lays an essential problem loitering in the institutional design itself. More specifically, the validity of the premise for shared benefits in reality also creates the unfairness of distribution caused by the operation of the system (for example, the confrontation between developed countries and developing countries, such as the World Trade Organization [WTO], the World Intellectual Property Organization [WIPO], involvement of civil society, and others). Of course not only institutional issues concerning governance of international society but also discussion of fairness itself has to be included. Hence, it is necessary to do a certain argument from the viewpoint that excessive expectation for commercial companies is impossible from the principle of profit making. But equally critical, all stakeholders need to pay more attention to "irresponsible corporations" in the market place.

How can education in China and Malaysia cultivate future generation of good quality of human capital in taking up this challenge of enormous scale of socially moral, ethics and responsibility? Can people in both China and Malaysia learn from Japan is the question we need to seek for the answer. The answer also ought to point to the achievement of pluralism of peace, stability and sustainable development. This endeavor is still valid for our generation and for future generations too.

Ben Bradlee said "Today is good, tomorrow is better." This inspires us to make the following statement. "Emerging economies are good today, tomorrow it is the better countries." Last, but not least, the attention of the need to link moral

sentiments to many challenges we intend to engage in education in the coming period is enormous. The influence of moral sentiments on economics and business principles were raised at least more than 250 years ago.

This paper ends with: “The care of the health, of the fortune, of the rank and reputation of the individual, the objects upon which his comfort and happiness in this life are supposed principally to depend, is considered as the proper business of that virtue which is commonly called Prudence.....The prudent man always studies seriously and

earnestly to understand whatever he professes to understand, and not merely to persuade other people that he understands it; and though his talents may not always be very brilliant, they are always perfectly genuine” (Adam Smith, 1759, p. 192). The powerful Adam Smith’s articulations in *The Theory of Moral Sentiments* certainly are still significantly relevant today and in future too.

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### Abstract

Cross-border movement of people and goods started more than two millennia ago. The mobility of goods, services, money, technology, information and people has intensified by leaps and bounds along with the technological advancement of information and communications technology (ICT) in tandem with the enhancement of transportation capability since 1989. Thomas Friedman (2016) emphasizes every inhabitant on this planet faces enormous challenges from three strong forces, viz., technology, globalization, and climate change (3). Industry 4.0 steps up dramatically from 3.0 because of persistent transformation brought about by the digital technology, which drives amazing but convincing transformation from automation to cyber-physical systems (CPS) in our lives. Positive influences/impacts generated by globalization are relatively well documented but it is still not necessarily clear about its shadows. Globalization offers significant potential for inducing many challenges and prospects on the one hand, and at the same time it also create threats on the other hand.

Without any doubt, these formidable concerns are crucial for emerging economies such as China and Malaysia. In these contexts, the enrichment of human development capacity in riding the wave of globalization is of utmost important for developing countries. The Human Development Index (HDI) is a metric established by United Nations Development Programmes (UNDP) for measuring human development capacity. This index is a composite of three crucial indicators, viz., life expectancy at birth (i.e., life expectancy index), knowledge accumulated over expected years of schooling and means year of schooling (i.e., education index), and a decent standard of living (i.e., GNI—gross national income—per capita in US Dollar purchasing power parity—PPP). As of 2017, China and Malaysia’s is ranked, respectively, at 86<sup>th</sup> and 57<sup>th</sup> in HDI compared across more than 180 countries. This result truly is not impressive because both countries can do better. At this critical juncture, the question poses to us is how.

The pointer is directed at Japan for seeking the practical solution. Learning from Japan is of tremendous relevancy. Hence this study aims to highlight the characteristics of the education system in Japan. More specifically, the paper focuses on how Japan has and still is putting enormous emphasis on the enhancement of human capital in riding the wave of globalization by the nexus of education and human resources development.

Keywords: Globalization, Education, Sustainable Development, Human Development Index

JEL: F63, I25, I28

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