

Is Lifelong Learning an Essence to Economic Growth?

Chiam Chooi Chea,
Open University Malaysia,
chooi_chea@oum.edu.my

Norbaini Abdul Halim,
Open University Malaysia,
norbaini@oum.edu.my

Nur Azlin Omar,
Open University Malaysia,
alin@oum.edu.my

Abstract

Lifelong learning is continuous learning throughout the life of an individual. It can occur through formal and informal means. Formal means are trainings, counselling, tutoring, mentoring, apprenticeship, higher education etc. While for informal, it refers to experiences gained etc. Malaysia view education as a vital agenda and priority platform to optimise the potential of every citizen and put within reach the promise of the Wawasan 2020 objective, to achieve zero illiterate rate by the year 2020 in Malaysia. This national endeavour will be in nought if the education system fails to produce human capital that can thrive in meeting the challenges of the 21st century innovation economy. It is believed that through proper and sufficient training and education level, one would be able to perform well in his or her works. According to Sachs (1995), learning new skills and acquiring new knowledge cannot be restricted to formal educational settings. Effective learning needs to be integrated into the work process. Training is often considered as a variable plugged into an economic model. This paper aims to discuss the significance of lifelong learning to an economy using economic growth theory of human capital and learning by doing.

Keywords: *Lifelong learning, growth model, human capital, learning by doing*

Introduction

Education is seen as the engine of economic advancement and social mobility. Education is also one of the most critical drivers for Malaysia's transformation to a developed and high-income nation due its impact on productivity and human capital development. The sector contributes approximately RM27 billion or 4 percent of Gross National Income in 2009 (Economic Transformation Programme, 2010). There are several important opportunities for improvement as the current education sector has limited international focus and lacks harmonised regulations.

In the Ninth Malaysia Plan Malaysia (2006-2010), Malaysia government has been encouraging lifelong learning in order to achieve the five national thrusts; To raise the capacity for knowledge and innovation and nurture 'first class mentality'; To address persistent socio-economic inequalities constructively and productively; To improve the standard and sustainability of quality of life; To strengthen the institutional and implementation capacity.

According to Knapper and Copley (2000), lifelong education defines a set of organisational, administrative, methodological and procedural measures which accept the importance of promoting lifelong learning. Education is seen as the engine of economic advancement and social mobility. The never ending quest to gain a competitive advantage has led many countries to focus on education as the panacea for strengthening competitiveness, employment and social cohesion. Indeed this is an inevitable consequence of increasing complexity of the global economy and rapid technological advancement.

Alfred Marshall once noted that "The most valuable of all capital is that invested in human beings" and according to Benjamin Franklin "Investment in education pays the best interest".

Growth models did not consider education as an input to production in early neoclassical. Only in the 1960s, education began to be seen as one of the variables that account for unexplained generators in growth exercises. Toward the middle of the 1960s, microeconomic studies based on the concept of human capital investment began to measure education's rates of return. According to the modern growth theory, the accumulation of human capital is an important contributor to economic growth. The general finding on the attainment of education can contribute significantly to the economic growth is that more educated individuals tend to have higher employment rate and earnings and produce more output relative to those who are less educated. Therefore, it provides a strong rationale for governments and private households to invest substantial portions of their resources in education with the expectation that higher benefits would accrue over time. In this context, education is deemed as an investment that enables individuals to be equipped with knowledge and skills that improve their employability and productive capacities that would lead to higher earnings in the future.

In economic perspective, the growth of most of the economy is determined by various factors and is inter-related in some ways. These various factors may include contributions from human capital, learning by doing, infrastructure, innovation, trade between countries and etc. Most of the factors listed above definitely affect an economy of a country, be it directly or indirectly. However, in this paper, the aspect of human capital and learning-by-doing are highlighted.

Human Capital

Human capital is the sum of the abilities and knowledge of individuals. It measures the quality of the labour supply and can be accumulated through education, further education and experience. Research and development complements human capital. There was a conscious shift towards a knowledge-based economy because the country had to be competitive and sustainable in line with the global trend of open trade and economy practiced by many other countries. If Malaysia is to achieve economic growth, it has little choice but to leverage on a workforce that is educated and skilled. In order to have a knowledgeable population, the infrastructure and right facilities need to be in place inclusive of adequate changes to the education structure and policies.

The benefits of investment in human capital includes increase in the ability and capability to perform a task well, advantages of quick problem solving in the interest of the firm, highly capable to respond and to attend to the problem efficiently, well trained in the particular field, increased in the performance in work, awareness of the importance of team work and quality in production.

Human capital does play a significant role in economic growth. In short, with an increase in the quality and productivity of goods produced, this will also increase the demand of the goods in the market. Thus as a whole, economic growth will be boosted through an increase in the economy cycle with consumption and export. Hence, it is confirmed that human capital plays a significant role in boosting economic growth.

The quality of the nation's human capital will be the most critical element in the achievement of Malaysia National Mission, and this human capital development has been a key trust in the Ninth Malaysian Plan. Human capital development will encompass the acquisition of knowledge and skills or intellectual capital. Capacity building will be strengthened to develop knowledgeable, skilled and innovative human capital to drive a knowledge-based economy. The implementation of life-long learning will be accelerated to encourage skills upgrading among all segments of the society. John. F. Kennedy once said, " Let us think of education as the means of developing our greatest abilities, because in each of us there is a private hope and dream which, fulfilled, can be translated into benefit for everyone and greater strength for our nation.

The role of education in human capital accumulation is a transformational tool in moulding and determining the destiny of nations in the annals' of history. The path towards excellence in higher education in Malaysia coincided with the reforms undertaken by the civil service which was "re-inventing" itself during the early 1990s.

For instance, workers of firm A are highly educated and knowledgeable, while workers of firm B are less educated. Through observation, one would find that firm A is able to produce far more products and is highly productive than firm B. If all firms in the economy system function as firm A does, human capital would definitely increase economic growth of a country. This is because production of goods becomes easier with increased knowledge and experiences among workers. Workers are well trained and are able to perform their tasks faster and the goods produced are of high quality. Highly educated workers have higher awareness of the importance of quality and productivity. They are aware that quality determines the demand of the goods in the market. More often than not, they choose to purchase goods with good quality even though the price of the goods might differ and is much costly from goods with low quality. Besides that, workers are also aware that working as a team in completing the task is much easier than working alone. This is because, by working as a team, worker is assigned with different tasks according to his specialty. Worker is able to perform well as the task is now simpler. Teamwork spirit will enhance the relationship among members (workers) and members are united in solving the task given even in the short time period.

There were numerous studies on the effect of human capital and learning-by-doing to economic growth in the perspective of economics. According to Romer (1990) and Nelson & Phelps (1966), human capital is the key input in research sector which generates new ideas or products that underlie technological progress and a larger stock of human capital facilitates the transfer, acceptance and assimilation of new technology.

The Human Capital Augmented Solow Model

$$Y_t = k_t^\theta (H_t \mu L_t)^{1-\theta}, \theta \in (0,1)$$

denotes Y = The level of income, H_t = The level of human capital, μ = The fraction of workforce used in production, L = Labour.

Assume balanced growth path where γ_t^n is constant,

$$\gamma_{t+1}^n - \gamma_t^n = \left[(1+n)^\alpha (1+\gamma_t^n)^{n-1} - 1 \right] \beta [(1-\mu)L_t]^\alpha H_t^{n-1}$$

denotes γ^n = growth rate, a proxy for human capital, $(1-\mu)$ = human capital accumulation.

The human capital will be able to increase economic growth based on the value of $(1+n)^\alpha$ and with the assumption by a balanced growth path. In the balanced-growth equilibrium, the capital intensity of the economy, its capital stock divided by its total output is constant. However, other variables like the capital stock, real GDP, and output per worker are growing. Lucas (1993) claimed to the effect that the key to high growth performance is the ability to move skilled workers quickly between sectors.

It is believed that through proper and sufficient training and education level, one would be able to perform well in his or her works. This is one of the reasons firms prefer in hiring workers or labors with high education background and experiences. Workers with proper education level would be able to handle and solves problems at work efficiently in the interest of the firm. They are quick to analyse related issues and come out with the best solution in a very short period. This is because they are exposed to lots of information and are able to channel any problems at work. This would thus increase the productivity and growth of a firm.

Learning by Doing

Lifelong learning regardless formal or informal, learning by doing is one form of lifelong learning. Growth models did not consider education as an input to production in early neoclassical. Only in the 1960s, education began to be seen as one of the variables that account for unexplained generators in growth exercises. Toward the middle of the 1960s, studies based on the concept of human capital investment began to measure education's rates of return. According to the modern growth theory, the accumulation of human capital is an important contributor to economic growth. In this regard, there have been numerous cross-country studies, which have extensively explored whether the attainment of education can contribute significantly to the economic growth. In this context, education is deemed as an investment that enables individuals to be equipped with knowledge and skills that improve their employability and productive capacities that would lead to higher earnings in the future.

Learning-by-doing allows exploration, experimentation, and experiencing novel ways of looking at the human experience, in a low risk setting. Learning-by-doing can be in terms of modeling, simulation and prototyping in testing an experiment with solutions. Learning-by-doing trained agents to believe that the null hypothesis advances knowledge as much as the proof. The important thing is that learning-by-doing is a learning process from failure and experimentation. The innovation model, which is a learning-by-doing model, aimed at the development of new technologies which enables a platform for national innovation. Yang and Borland (1991) have shown learning-by-doing playing a role in the evolution of countries to a greater specialization in production. In both of these cases, learning-by-doing and increasing returns provide an engine for long run growth.

Learning-by-doing can be achieved through practice, self perfection and minor innovations. This is to say, worker is able to increase his or her productivity through specialisation. By repeating the same task, one is proficient to gain better understanding on how to improve the process of production. When one is so good at doing a particular job, he or she would be able to minimise the time needed to produce a good, and is also able to minimise mistakes or error in the work. He or she would also be able to correct the mistake or error in no time should it occurs. This particular worker knows the job or task like the back of his or her hand. Nothing about the job could have turned him or her down as he or she knows the sequences or outcomes of the work so well. He or she would be able to adapt to the changes faster should it occurs in his or her specialty. High performance can be expected from this particular worker in which, productivity and quality of work is guaranteed. This could increase the productivity and thus increases the growth of an economy. With an excellent performance of a worker through learning by doing, it contributes positively to the economic growth.

Learning-by-doing effects are not just a once-and-for-all source of growth but are a potential link in a process of unbounded growth. This process of cumulative causation sustains a virtuous circle, i.e. a self-expanding process which increase output, induces increase in productivity and thus further output increase. Learning-by-doing and cumulative causation support the formulation of a dominant strategy. In view of the high reliance of technology on intellectual capital and knowledge-intensive applications, measures will be intensified to enhance human capital development by learning-by-doing.

According to Arrow (1962) introduced the theory of learning by doing. Learning by doing is an important of workers in an economy. Learning by doing is a good index for the stock of knowledge is cumulated investment. Learning by doing is based on the assumption that the potential productivity gains from learning are essentially unbounded.

Learning-by-doing will be able to contribute to economic growth if $n < 1$, because $\gamma_t^n < \gamma_{t+1}^n$,

$$\left(\frac{1 + \gamma_t^n}{1 + n} \right)^{(1-\theta)(n-1)} > 1. \text{ This later will bring to } \gamma_{t+1}^n - \gamma_t^n > 0, \text{ showing an increase in economic growth}$$

rate where $\gamma^n =$ growth rate. Yang and Borland (1991) have shown learning-by-doing plays a role in the evolution of countries to greater specialisation in the production. In both these cases, learning-by-doing and increasing returns provide an engine for long run growth.

Conclusion

According to endogenous growth model, human capital and learning by doing play significant role in economic growth, people do learn within the context of their work on real world problems by integrating working and learning. Learning does not take place in a separate phase and in a separate place, but is integrated into the work process. The economic growth theories on human capital and learning do increase economic growth with certain assumptions in place. Higher education trend whether in Malaysia or elsewhere will be a continuous process of growth and development. Certainly, restructuring and reforms will be undertaken bearing in mind the challenges that will always be present due to changes caused by effects of technology, politics, economy, demography and market opportunities. The ability to circumvent some of the problems that these challenges pose will depend upon the innovativeness and vision of the institution concerned.

Education is paramountly about surpassing expectation and optimizing potentials. The role of education in human capital accumulation and learning-by-doing is a transformational tool in moulding and determining the destiny of nations can be found etched in the annals' of history. It goes without saying that the fate and future of nations depends upon how well in going about in tackling this most important of tasks. It is the Malaysian Governments' underlying commitment to provide equal access to quality educational opportunities for all Malaysians notwithstanding their geographical locations or income levels. This national endeavour will be in nought if the education system fails to produce human capital that can thrive in meeting the challenges of the 21st century innovation economy.

No doubt, in this new economy, human capital and learning-by-doing are powerful catalyst that promotes economic growth. The benefits to society from infrastructure projects as a public good are enormous, extending well beyond the benefits of each project on a private basis. The returns from infrastructure development are likely to generate a value to society over the long term that far exceeds the cost of an individual project such as better living conditions, increases in property usage and values and increasing the proportion of population engaged in commerce represents tangible benefits that accrue over the long term to society.

If Malaysia is to achieve economic growth it has little choice but to leverage on a workforce that is educated and skilled. In order to have a knowledgeable population, the infrastructure and right facilities need to be in place inclusive of adequate changes to the education structure and policies. Malaysia view education as a very important agenda and priority a platform to optimise the potential of every citizen and put within reach the promise of the Malaysian dream. Towards this end more than a fifth of our budget annually is geared towards education and the development of human capital.

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