Building a Knowledge Economy by Promoting and Strengthening Tertiary Education Opportunities in Sri Lanka

Vidya Jyothi
Prof.Dayantha S.Wijeyesekera

Chairman,
Tertiary and Vocational Education Commission.

Introduction

The total population of the island of Sri Lanka stood at 20,238,000 as of 2009. The island has the credit of being the most literate nation amongst developing countries with over 90% literacy rate.

This era can be considered as unprecedented and of dynamic global change, with the world economy effectively amid significant re-balancing between east and west, knowledge, together with creativity, imagination, innovation relevance and entrepreneurship are of premium importance to all nations, governments, organisations, communities and people everywhere.

Human Capital

Human Capital is often referred to as knowledge and education. Human capital has been conceived to be as a business product, as educational and innovative intellectual products and services can be exported for a high value return and as a productive asset. The concept also supports creation of knowledge by organisational employees and helps and encourages them to transfer and better utilise their knowledge that is in line with their/organisation goals.

Knowledge Economy

It has been reported that the initial foundation for the Knowledge Economy was first introduced in 1966 in the book *The Effective Executive* by Peter Drucker. Drucker describes the difference between the manual worker and the knowledge worker. The manual worker, according to him, works with his hands and produces goods or services. In contrast, a knowledge worker works with his or her head not hands, and produces ideas, knowledge and information.

The knowledge economy has manifold forms in which it may appear but there are predictions that the new economy will extend radically, creating a pattern in which even ideas will be recognised and identified as a commodity. This certainly is not the best time to make any hasty judgment on this contention, but considering the very nature of 'knowledge' itself, added to the fact that it is the thrust of this new form of economy, there certainly is a clear way forward for this notion, though the particulars (i.e. the quantum of the revolutionary approach and its applicability and commercial value), remain in the speculative realm, as of now.

The essential difference is that in a *knowledge economy*, knowledge is a product, in *knowledge-based economy*, knowledge is a tool. While this difference is not yet well distinguished they both are strongly interdisciplinary, involving economists, computer scientists, engineers, mathematicians, chemists, physicists, as well as cognitivists, psychologists and sociologists.

Learning Economy

Learning economies are characterised in modern economies in which knowledge is the crucial resource and learning is the most important process. Therefore, different kinds of learning and economically relevant types of knowledge could be identified. Hence, 'learning economy' is a mixed economy in a fundamental sense since pure market economies, if such existed, would have severe problems in terms of learning and innovation.

For this reason perhaps, it is emphasised that 'knowledge-based economy' in characterising the current phase of socio-economic development (Foray and Lundvall, 1996; Lundvall and Johnson 1994) is presented as the crucial factor in the development of both society and the economy in many publications from the European Commission and Organisation for Economic Co-operation and Development (OECD).

However, a key problem in the formalisation and modeling of knowledge economy, is due to the vague definition of *knowledge*, which in this era of the advent of Information of Communication Technology, is a rather relative concept with the possibilities to consider *information society* as interchangeable with *knowledge society*. *Information* is usually not equivalent to *knowledge*, as their use, as well, depends on individual and group preferences (Flew, 2008)

The Importance of Information and Communication Technology (ICT)

The creative potential and knowledge of people are released through ICT. It is regarded as the facilitators of knowledge creation in innovative societies (OECD, 1996) and thus considered as enablers of change. While ICT does not by themselves create transformations in society, the new economics looks at ICT not as drivers of change but as tools for releasing the creative potential and knowledge embodied in people.

In the current era, the key resources have become information and knowledge. Today's most technologically-advanced economies are truly knowledge-based. It was estimated by the OECD, by 1996, that over 50 percent of GDP (Gross Domestic Product) in the major OECD economies had become knowledge-based. And as much as 70 to 80 percent of economic growth is now said to be due to new and better knowledge.

Internet Economy

Internet economy differs from a traditional economy in a number of ways, including—communication, market segmentation, distribution costs, and price as it is conducting business through markets whose infrastructure is based on the Internet and World-Wide Web. Ghosh, (1998) states that businesses cannot avoid the Internet economy and they must recognise and understand that there are both global opportunities available as well as risks of not participating. They note that through the Internet, any participant in a value chain, can usurp the role of any other participant.

Due to the enormous quantity of connected users, the incredible speed that information travels, and the irrelevance of distance, firms can offer goods and services not locally, but to potential customers across the entire globe. As stated by Gregory Mankiw (2003) *Advances in information technology, such as the Internet, have been profound and have influenced many parts of the economy.*

As an example of a business segment which can dramatically benefit from this new Internet economy is a university. Besides being able to provide education to on-campus students, it is possible now to provide online classes across the world, using streaming media technology to deliver the very same class to anyone plugged to the Internet, with lower costs.

While knowledge economy is a term that refers either to an economy of knowledge focused on the production and management of knowledge in the frame of economic constraints, or to a knowledge-based economy, another meaning, more frequently used, it refers to the use of knowledge technologies (such as knowledge engineering and knowledge management) to produce economic benefits as well as job creation. The phrase was popularised if not invented by Peter Drucker as the title of Chapter 12 in his book *The Age of Discontinuity* (Drucker, 1969).

Knowledge Engineering (KE)

Knowledge Engineering was defined in 1983 by Edward Feigenbaum, and Pamela McCorduck as an engineering discipline that involves integrating knowledge into computer systems in order to solve complex problems normally requiring a high level of human expertise. (Feigenbaum and McCorduck, 1983) At present, it refers to the building, maintaining and development of knowledge-based systems. (Kendal and Creen, 2007) It has a great deal in common with software engineering, and is used in many computer science domains such as artificial intelligence (Negnevitsky,2005; Russell, et al, 2003), including databases, data mining, expert systems, decision support systems and geographic information systems. Knowledge engineering is also related to mathematical logic, and strongly involved in cognitive science and socio-cognitive engineering where the knowledge is produced by socio-cognitive aggregates (mainly humans) and is structured according to our understanding of how human reasoning and logic works.

Knowledge Management (KM)

Knowledge Management comprises a range of strategies and practices used in an organisation to identify, create, represent, distribute, and enable adoption of insights and experiences. Such insights and experiences comprise knowledge, either embodied in individuals or embedded in organisational processes or practice.

An established discipline since 1991 (Nonaka, 1991), KM includes courses taught in the fields of business administration, information systems, management, and library and information sciences (Maryam Alavi and Leidner, 1999). More recently, other fields have started contributing to KM research; these include information and media, computer science, public health, and public policy.

Knowledge Management efforts typically focus on organisational objectives, such as, improved performance, competitive advantage, innovation, the sharing of lessons learned, integration and continuous improvement of the organisation. KM efforts overlap with organisational learning, and may be distinguished from that by a greater focus on the management of knowledge as a strategic asset and a focus on encouraging the sharing of knowledge. KM efforts can help individuals and groups to

share valuable organisational insights, to reduce redundant work, to avoid reinventing the wheel per se, to reduce training time for new employees, to retain intellectual capital as employees turnover in an organisation, and to adapt to changing environments and markets (McAdam, et al,2000; Thompson, Mark, et al., 2004).

Knowledge Society

In proposing a Knowledge Commission for Sri Lanka, Rupasinghe Kumar, states that a knowledge society is one which places an explicit and principal value on knowledge as the means to achieve economic and social well-being. In a knowledge society both the raw material and the major product is knowledge. A knowledge society is believed to have the following characteristics: its members have attained a higher average standard of education in comparison to other societies and a growing proportion of its labour force are employed as knowledge workers; its industry produces products with integrated artificial intelligence; its organisations - private, government and civil society- are transformed into intelligent organisations. There is increased organised knowledge in the form of digitalised expertise, stored in data banks, expert systems, organisational plans and other media; there are multiple centres of expertise and a poly-centric production of knowledge and there is a distinct epistemic culture of knowledge production and knowledge utilisation. A Knowledge society creates, shares and uses knowledge for the prosperity and well-being of its people. Knowledge creation, knowledge preservation, knowledge dissemination and knowledge utilisation are the four important pillars in a knowledge society.

The countries in Asia are at different stages in the path towards becoming knowledge societies. Singapore and South-Korea are rated high in the knowledge economy index. The World Bank estimated that a large proportion of the economic growth of Korea was due to an increasing input of knowledge throughout the 1970s and 1980s. Countries such as Vietnam, Thailand, and Malaysia are rapidly climbing up the knowledge economy ladder. The Vietnamese IT production sector is in a current state of flux as the Vietnamese Government is rushing to take advantage of international offshore IT production demand. By 2003, the entire Vietnamese IT market reached $690 million USD with a greater emphasis on software production. South Asian countries, such as, India and Bangladesh, have taken steps to move towards a knowledge society with India already established a knowledge commission and Bangladesh is preparing the background study to establish a knowledge commission. (Rupesinghe, 2010).

Nation Building through Tertiary Education

A nation's ability to make the best use of its brainpower will shape its place in the present century. Global approaches in creating more knowledge-based societies must surely be a crucial part of our plans and actions. At the moment, science and technology is the best road for economic development. All activities depend on knowledge and the application of that knowledge. Tertiary Education is Post Secondary School Education thus covering Higher Education which comprises University Education, Professional Education, Technical Education, Vocational Education and Training.

The National Education system in Sri Lanka is governed mainly by the following three main Commissions:

(i) The National Education Commission

(ii) University Grants Commission

(iii) Tertiary and Vocational Education Commission

The National Education Commission

The National Education Commission which was established by Act No. 19 of 1991 has the following aim:

The main aim of the Commission is to structure the National Education System, from pre-school education right upto Post - Graduate education. In doing so it includes all levels of education, such as primary, secondary, tertiary including higher, vocational and technical also professional education.

The Commission is also empowered to formulate National Policy on Education and recommend to H.E.the President

University Grants Commission

The University Grants Commission which was established by the University Act No. 16 of 1978, as amended has the following general objects:

(i) the planning and co-ordination of university education so as to conform to national policy;

(ii) the appointment to Higher Educational Institutions, of the funds voted by Parliament in respect of university education, and the control of expenditure by each much Higher Educational Institution;

(iii) the maintenance of academic standards in Higher Educational Institutions;

(iv) the regulation of the administration of Higher Educational Institutions;

(v) the regulation of the admission of students to each higher Educational Institution; and

(vi) the exercise, performance and discharge of such powers, duties and functions as are conferred, or imposed on, or assigned to, the Commission by or under this Act.

There are 15 Universities, 9 Institutes and 5 Degree awarding institutes, established under the provisions of the Act.

Universities and Institutes Established Under Different Acts of Parliament

In addition to the Universities and Institutes established under University Act No 16 of 1978 as amended, there are other Universities and Institutes established under different Acts of Parliament under different Ministries.

Tertiary and Vocational Education Commission (TVEC)

The Tertiary and Vocational Education Commission which was established by the Act No. 20 of 1990, has the following objects:

i. the planning, co-ordination and development of tertiary education and vocational education at all levels in keeping with human resource needs of the economy ;

ii. the development of a nationally recognised system for granting of tertiary education awards and vocational education awards including certificates, and other academic distinctions; and

iii. the maintenance of academic and training standards in institutes, agencies and all other establishments providing tertiary education and vocational education.

The TVEC has established a National Vocational Qualification framework from levels 1-7, with levels 1-4 being at Craft level, levels 5-6 at Diploma level for mid-level Technologists and the level 7 being at the Degree level.

A regular publication of the TVEC titled TVEC GUIDE provides details of all Tertiary and Vocational Education Institutes registered under the provisions of the Act and the courses of study accredited by the TVEC. Details and how to use this Guide has been illustrated in the website *www.tvec.gov.lk*.

Professional Education

Professional Education has an umbrella organisation of Professional Associations, namely, the Organisation of Professional Associations (OPA) in which some Professional Associations conduct programmes of study in Tertiary Education. University-level degree education is supplemented by degree equivalent level education through 17 Professional Associations which are members of the OPA.

Tertiary Education Provided Under different Ministries

There are several Government Ministries conducting courses of study for their employees. This would be a part of the staff development efforts for the employees, and success at these courses would make them eligible for promotions, etc.

Accredited Private Training Institutes

There is an Association of Private Training providers accredited by the TVEC conducting courses of study. The accreditation is granted by the TVEC based on the quality assured at the appropriate National Vocational Qualifications. The Association provides the lists and institutes accredited through its website *www.atpasl.com*

Private Higher Education Institutes

The University Grants Commission in collaboration with the Quality Assurance and Accreditation Council have listed 123 Private Higher Education Institutes offering courses of study leading to foreign or local qualifications. These fee-levying courses of study could be pursued partly or fully in Sri Lanka. The lists are available on the website *www.qaacouncil.lk*

Building of Knowledge Economy through a Knowledge Commission

In view of the opportunities available in Sri Lanka for Tertiary Education as indicated in the preceding sections, the need for the establishment of a Knowledge Commission has been mooted.

Citing the National Knowledge Commission of India as a good example, Rupasinghe Kumar in his article proposing a Knowledge Commission for Sri Lanka, describes the Commission in India as a high-level advisory body to the Prime Minister of India. He further emphasises the advantage of such a Commission to act as a super regulatory body and as an independent regulatory agency which will ensure a rational and predictable system, and as a result will improve the structure and governance.

He further states that the vision of such a Commission should be to build excellence in the education system to meet the knowledge challenges of the 21st Century.

Conclusion

The opportunities for Tertiary Education in Sri Lanka are manyfold. To build a Knowledge Economy, it is vital to promote and strengthen Tertiary Education opportunities in the country. For this purpose, there should be a concerted effort to broad base career guidance and counselling to all parts of the country and to all levels to create, preserve, disseminate and utilise knowledge in the consolidation of a Knowledge Society.

While this would undoubtedly attract and increase the enrolments to the Tertiary Education Sector, it is of paramount importance that quality assurance is maintained at all levels of Tertiary Education, so that the expenditure incurred whether State funding, donor assistance or private sector funding, the benefits accrued would be for the building of the Knowledge Economy through the Knowledge Society.

Contd. on page 25

Contd. from page 19

References:

Arthur, W. B. (1996). Increasing Returns and the New World of Business. *Harvard Business Review (July/August)*, 100–109.

Bell, D. (1974). *The Coming of Post-Industrial Society: A Venture in Social Forecasting.* London: Heinemann.

Drucker, P. (1993). *Post-Capitalist Society.* Oxford: Butterworth Heinemann.

Drucker, P. (1969). *The Age of Discontinuity; Guidelines to Our Changing Society.* New York: Harper and Row.

Drucker, P. (1969). *The Age of Discontinuity.*

Edward A. Feigenbaum, Pamela McCorduck (1983). *The Fifth Generation.*

Flew, T. (2008). *New media : an introduction.* South Melbourne: Oxford University Press.

Foray, D. and Lundvall B.Å. (1996). *Employment and Growth in the Knowledge-based Economy.* OECD, Paris.

Ghosh, R. A. (1998). Cooking-pot Markets: an economic model for the trade in free goods and services on the Internet. *First Monday , vol 3* (issue 3).

Kendal, S.L.and Creen, M. (2007). *An introduction to knowledge engineering.*

Knowledge Management Systems: Information and Communication Technologies for ... . (1991).

Lundvall, B.Å. and Johnson, B. (1994). The Learning Economy. *Industry Studies,* Vol. 1, No. 2, pp. 23-42.

Machlup, F. (1962). *The Production and Distribution of Knowledge in the United States.* Princeton: Princeton University Press.

Maryam Alavi and Dorothy E. Leidner (1999). Knowledge management systems: issues, challenges, and benefits. *Communications of the AIS .*

McAdam, Rodney and McCreedy Sandra (2000). A Critique Of Knowledge Management: Using A Social Constructionist Model. *Vol. 15.*

Negnevitsky, M. (2005). *Artificial Intelligence: A Guide to Intelligent Systems.*

Nonaka, I. (1991). The knowledge creating company. *Harvard Business Review.*

Parliamentary Act – *National Education Commission Act No 19 of 1991*

Parliamentary Act - *University Act No 16 of 1978 (as amended)*

Parliamentary Act - *Tertiary and Vocational Education Commission Act No 20 of 1990 (as amended)*

Romer, P. M. (1986). Increasing Returns and Long-Run Growth. *Journal of Political Economy , 94(5),* 1002–1037.

Rooney, D., Hearn, G., Mandeville, T. and Joseph, R. (2003). *Public Policy in Knowledge-based Economies: Foundations and Frameworks.* Cheltenham: Edward Elgar.

Rooney, D., Hearn, G. and Ninan, A. (2005). *Handbook on the Knowledge Economy.* Cheltenham: Edward Elgar.

Rupesinghe, K. (2010). *A Proposal for a Knowledge Commission in Sri Lanka.*

Russell, Stuart J.and Norvig, Peter. (2003). *Artificial Intelligence: A Modern Approach.*

Thompson, Mark P. A. and Walsham, Geoff. (2004). Placing Knowledge Management in Context. *Journal of Management Studies , 41,* 725–747.

Wijeyesekera, D. S. (2010). *Technical and Vocational Education Training (TVET).*

Contact Details of Author

Vidya Jyothi Emeritus Prof. Eng. Dr.Dayantha S Wijeyesekera

Tel No(s):+94 777312238
(Mobile),+94 11 2732104
(Res), +94112735596
(Fax)Email:dayantha@sltnet.lk
website:http://
www.dayanthawijeyesekera.com

Profile of the Author:

website:*www.dayanthawijeyesekera.com*

The Author is currently the Chairman, of the Tertiary and Vocational Education Commission, Member of the National Education Commission, former Vice Chancellor of the Open University and also of the University of Moratuwa, Past President, of the Institution of Engineers, Sri Lanka. ■