Extending higher educational opportunities through e-Learning: a case study from Sri Lanka *

T.R. Liyanagunawardena

University of Reading
t.r.liyanagunawardena@pgr.reading.ac.uk

A.A. Adams

Meiji University
aaa@meiji.ac.jp

N. Rassool

University of Reading
n.rassool@reading.ac.uk

S. Williams

University of Reading
shirley.williams@reading.ac.uk

The Knowledge Economy favours high skilled and adaptable workers, typically those with a degree. Information and Communication Technologies (ICTs) have the potential to extend educational opportunities through e-Learning. In Sri Lanka efforts have been made to employ ICTs in this way. The case study of Orange Valley University (pseudonymous) is presented, exploring the impact of ICT-based distance education on access to higher education. This ethnographic research employed questionnaires, qualitative interviews and documentary analysis. Online learning was found to appeal to a specific segment of the population. Flexibility and prestige were found to be important influences on programme selection. The majority possessed resources and skills for e-Learning; access and quality issues were considered.

Globalization is restructuring the ways in which we live, and in a very profound manner (Giddens 2002, p4).

Introduction

The advancement of technology, especially ICTs, and the interventions of organizations such as the World Bank, the World Trade Organization and the International Monetary Fund has greatly supported this restructuring process (Castells 2000b).

Although knowledge and information have always been a source of power in societies (Castells 2004), the unprecedented speed at which new knowledge is created, accumulated, disseminated and, more profoundly, depreciates is a phenomenon related to the global restructuring facilitated by Information and Communication Technologies (ICTs) (David & Foray 2003). "[K]nowledge has become 'the central factor of production'" (Drucker 1969, p248) in many developed economies with immense value placed on intangible capital (David & Foray 2003). This marks a change from the economies that were previously known to be driven by the physical factors of production; leading to adoption of the term "Knowledge-based Economy" or "Knowledge Economy" (KE). This change in focus from physical inputs or raw materials to intellectual capability favours a new type of labour that is individually responsible, flexible, autonomous, and multi-skilled.

Transformation of Work

Global competition together with the increasing use of ICTs has transformed work globally (Carnoy 2000). The relocation of factories and outsourcing of production have been two strategies that firms adopted to face competition (Klein 2002; Friedman 2006). However, to survive in today's dynamic global environment cost reduction in itself is not sufficient: flexibility and scalability are also important (Castells 2000b).

Many firms today rely on flexible labour because it increases a firm's ability to adapt. This has changed the traditional full-time, single career over lifetime work practice with 'fragile work' (Beck 1999) such as part-time, flexi-time, short-term and self-employment (Castells 2000b; Klein 2002).

The emergence of the KE combined with globalization has created a great division between generic workers and knowledge workers. In 1962, Machlup proposed a hypothesis that

> …new technological knowledge tends to result in shifts of demand from physical labour to 'brain workers' (Machlup 1962, p9).

This has been the development observed. The concept of 'knowledge workers' (Drucker 1970) or 'self-programmable' labour (Castells 2004) denotes the capacity of a worker to work individually towards an assigned goal, overcoming difficulties by taking independent decisions based on available knowledge. There is a critical difference between knowledge work and generic work.

> The critical quality in differentiating these two kinds of labour is education, and the capacity of accessing higher levels of education (Castells 2000a, p372).

Skills obtained in performing a job can become outdated, but the ability to learn acquired through (higher) education increases the educated worker's adaptability. Education is therefore the key to the type of labour required in this new economy (Castells 2000a; Dahlman & Utz 2005). As the economy moves towards knowledge intensive production, the competitiveness of corporations depends on the knowledge and skills of their workforce (Brown, Green et al. 2001). These changes in work practices demand 'willingness to learn new skills' from employees (Rassool 1999) and great emphasis is placed on lifelong learning.

Higher Education

Globalization, economics and politics in the KE have created an explosion of demand for education (Irvine 2003; Carnoy 2005). To remain economically competitive in the global KE, educational opportunities for the masses, including higher education (HE), are necessary (Haddad & Jurich 2002). While developed countries have attempted to both expand HE and broaden its reach to previously excluded groups (Brown, Green et al. 2001) developing countries still struggle to offer higher educational opportunities to significant numbers.

Internet technologies that intensified globalization were expected to create a revolution in HE (Pittinsky 2003; Manicas 2007) by providing access across the globe to many who were excluded from the traditional system. Educational technologies today do

allow students to enrol and participate in programmes offered in other countries or use materials from elsewhere for individual learning. However, there are also concerns about further marginalization of the deprived due to the use of new technologies for educational delivery (Carr-Chellman 2005).

Sri Lanka

Sri Lanka is categorized as a country with medium human development (UNDP 2010) with a healthy adult literacy rate of 91.1% (Department of Census and Statistics Sri Lanka 2001). This is due to the free education and health care policies adopted and maintained by successive governments after independence from Britain in 1948.

Poverty is a major issue in Sri Lanka, where 15.2% of the population lives below the "Official Poverty Line for Sri Lanka", which is Rs.2233/= (about US$ 22) per person per month (Department of Census and Statistics Sri Lanka 2008). Many Sri Lankans aspire to a HE as the gateway to opportunities for escaping from poverty. However, the number of available places in the state university system for HE is very limited: in 2008, 61.7% of students who took General Certificate of Education Advanced Level (GCE A/L) examination (equivalent to the UK's A-levels) were eligible for university admissions, while only 16.01% of those (only 3% of the age cohort) were admitted to the state university system (University Grants Commission Sri Lanka 2010). In this context, the Sri Lankan government is exploring avenues to increase opportunities for university education.

State University Education

Entrance to state university "internal" education (except the Open University of Sri Lanka) is restricted to students gaining minimum entry qualification and the University Grants Commission's stipulated "Z-score" at the GCE A/L examination. These programmes are fully state funded and the number of available places is limited. Therefore there is high competition to gain access to these limited places. On the other hand, "external" education (distance education − DE) offered by some state universities are self-funded and recruit much larger numbers.

Distance Education

The Distance Education Modernization Project (DEMP) marked the dawn of modern technology use in DE in Sri Lanka. This Project, aided by the Asian Development Bank commenced in 2003. Through the development and deployment of DE technologies, the DEMP aims to significantly increase access to post-secondary education while improving quality and relevance of learning.

Institutions can offer their online programmes through the National Online Distance Education Service (NODES) developed under the DEMP and access to these courses are facilitated by NACs (NODES Access Centres). However, only 11.4% of the households in Sri Lanka have computers and only 13.1% of those aged 5-69 reported using the Internet in the past 12 months in 2009; further only 20.3% of the 5-69 age group were "computer literate" (Department of Census and Statistics Sri Lanka 2009). At the time of commencing this research there was no published study observing the impact of the DEMP.

Structure of the Research

Research Question

With this backdrop it was felt that there was a need to investigate the impact ICT-based DE has had on access to HE in Sri Lanka. Research included data gathered at policy level together with case studies observing implementation level and end user levels. This paper presents the initial findings of one case, part of a multiple case study project using an ethnographic approach, and reports observations on the research questions:

1. Why have learners selected this option of HE?

2. Do students possess the skills and resources to engage in an e-learning programme?

3. What are the main issues they face in an e-learning programme?

4. Who has gained access to HE through this e-Learning opportunity?

Methodology

Questionnaires, qualitative interviews, and documentary evidences were employed to collect data. Cases for investigation were selected based on their different characteristics with respect to: DE practices; different stages of growth in offering DE programmes; diverse phases of growth with respect to the introduction of ICTs into DE programmes; and because they served the majority of distance learners in the country.

Data Collection

The data presented here, for the pseudonymous Orange Valley University (OVU), consisted of 33 completed questionnaires, 14 individual and 1 group interview with 14 respondents (8 students, 2 tutors, 4 administrators – includes multiple interviews with some respondents), and documents from University records. Interviews with students of the OVU were conducted in-person, via telephone or via the Internet using "Skype" software; all interviews with the administration were conducted in-person. These methods of interviewing helped reaching distant students scattered around the country. Interviews were conducted in Sinhala or English.

Data Presentation and Analysis

OVU is a reputable conventional state university that has ventured into online DE through the DEMP initiative with the introduction of a bachelors degree. There is high demand for OVU internal degree holders in the labour market (the first cohort of graduates from the external degree have yet to graduate), especially in the IT discipline. This particular online degree programme is the only DE programme offered by the OVU.

Sample

67% of the questionnaire respondents were males and the median age of the sample was 23.9 years. 64% of respondents were part-time students and 52% were employed.

Geographically 66.7% of respondents were from the Western Province (Colombo – 36.4%, Kalutara – 18.2% and Gampaha – 12.1%).

In instances where student's quotes are used, the original quotation in Sinhala and its translation is juxtaposed and any identifying information is blanked out; student names are also pseudonymous.

Why join the OVU online programme?

The majority of questionnaire respondents (82%) sought a part-time programme that could accommodate their other commitments. 76% preferred an independent study programme with 67% unable or unwilling to attend classes.

As the OVU has a good ranking in the South Asian region, obtaining a degree from OVU was considered a privilege by all interview participants. Figures 1 and 2 depict quotes from two students who considered a degree from OVU to be prestigious.

University of ⬛ is considered one of the most prestigious Universities of Sri Lanka. Even in Asia, ⬛ University is considered as one with the best standards. It is a privilege for a student to obtain a Degree from a University such as this. That is why I enrolled for this course.	⬛ යුනිවර්සිටි එක කිව්වම සාමාන්‍යයෙන් ස්ටෑන්ඩර්ඩ් යුනිවර්සිටි එකක් ලංකාවේ තියන. ආසියාවෙන්ම බැලුවත් ස්ටෑන්ඩර්ඩ්ම යුනිවර්සිටි එක ⬛ ඒ වගේ යුනිවර්සිටි එකක දිග්‍රියක් ගන්න පුළුවන් වෙන එක ගොඩක් වාන්ස් එකක් ළමයෙකුට. ඒක නිසා මම මේක පටන් ගත්තා.

Figure 1. Shanil a 29 year old male from Badulla

The most important factor is that I had a dream to obtain a Degree from ⬛. I tried my best to enter ⬛, but could not get enough marks. That is the main reason for my following this course at ⬛.	මුල්ම දේ ⬛ එකෙන් දිග්‍රියක් ගන්න මගේ ලොකු තීනයක් තිබුණා. ඒක තමයි මුල්ම දේ. මම ට්‍රයි කලා ⬛ යන්න. ලකුණු ප්‍රශ්නෙ මත බැරිවුණා. ඒක තමයි මුල්ම හේතුව ⬛ යුනිවර්සිටි එකෙන් කොහොම හරි දිග්‍රියක් ගැනීම තමයි පළවෙනි දේ.

Figure 2. Himali a 28 year old female from Galle

Only 30% of questionnaire respondents reported having failed to gain access to state university education despite their best effort at the GCE A/L examination. However, all but one of the interviewees stated that they had unsuccessfully applied for entry to free in-person courses at state universities; for example, see Himali's quote in Figure 2. It would seem that students were reluctant to admit on the questionnaire to failing to gain entry, though in interview they were more forthcoming. It seems likely that a more significant proportion of the questionnaire respondents also failed to gain a place on an in-person course, and that the DE programme provides a substitute method of accessing HE.

Student Readiness for e-Learning

This programme was one of the first online degrees to be offered in Sri Lanka and students registering for the programme were not aware of how to study in an online environment. Despite the online nature of the course, many students initially expected/demanded face-to-face classes (Figure 3). Many students unable to cope with this new style of learning abandoned the course or failed subjects. For example, out of

the cohort of 98 students who registered in 2007, only 36 remained with the same cohort after 3 years.

| At first, we did not know that this was an online course. During the first semester of the first year, we demanded for classes. At that time we thought that it would be very difficult for us to manage without classes. But by the end of that semester, all of us were doing fine. I mean, we all got the hang of doing self studies. As for classes… In our 2nd year, they arranged classes for us, so that, if possible, we could get into groups and attend them. But now we wouldn't like that. I mean, we no longer need classes. | මුලදී ඉතිං ඔක ඔන්ලයින් කියලා හරියට දන්නෙ නෑ මොකක්ද කියලා. ෆස්ට් ඉයර් ෆස්ට් සෙමෙස්ටර් එකේදි අපි ක්ලාසස් ඉල්ලුවා. අපිට ඔන ඔන කියලා. නමුත් අපි දැන් දන්නවා ක්ලාසස් නැතුව හැන්ඩිල් වෙන්න. ඒ කියන්නෙ ෆස්ට් සෙමෙස්ටර් එකේදි අපි හිතුවා ක්ලාසස් නැතුව අපිට හරි අමාරුවක් වෙයි කියලා. නමුත් ෆස්ට් සෙමෙස්ටර් එක ඉවර වුණාම අපට ඔක්කොටොම් වගේ හරි ගියා. ඒ කියන්නෙ සෙල්ෆ් ස්ටඩිස් කරන්නෙ කොහොමද වගේ. මං හිතන්නෙ අපට දැන් ක්ලාසස්..... අපට සෙකන්ඩ් ඉයර් එකේදි ක්ලාසස් දුන්න පුළුවන් නම් ග්‍රෑප් එකක් හැදිලා යන්න කියලා. නමුත් දැන් අපි කැමති නෑ. ඒ කියන්නෙ අපට ඔන නෑ දැන් කොහොමටවත් ක්ලාසස්. |

Figure 3. Arjuna a 23 year old male from Colombo

The state school education system in Sri Lanka allows pupils to study in their mother tongue (Sinhala or Tamil) up to GCE A/L. Conversely, education at university for most disciplines is conducted only in English as the language of instruction. This transition from local language to English is a difficult period for students, especially for students from rural areas. The self-reported English language skills of respondents were above average. However, tutors reported that some students had difficulties with English (Figure 4).

| There are ones who are not familiar with using computers. Their English knowledge too is insufficient. […] On the other hand, there are people with a good knowledge in subject matter as well as in English. *I think what matters the most is the person's English knowledge.* [Emphasis Added] | කම්පියුටර් ඒගොල්ලන්ට සාමාන්‍යයෙන් යූස් කරන්න දන්නෙ නැති අය එහෙම ඉන්නවා. ඉංග්ලිෂ් පොඩ්ඩක් අඩුයි.[…] සමහරු ඉන්නවා හොදට නොලේජ් එකක් තියෙනවා, ඉංග්ලිෂ් නොලේජ් එකක් හොදයි. මං හිතන්නෙ ඒකට ගොඩක් වෙලාවට බලපාන්නෙ ළමයගෙ ඉංග්ලිෂ් නොලේජ් එක. |

Figure 4. A Tutor

Almost all respondents were able to handle all the tasks listed in the questionnaire to test their computer skills, depicting a very high level of computer skills among the respondents. In fact, it was not surprising because these students were already following an IT degree. But it was difficult to ascertain computer skills of students by solely considering questionnaire results, because questionnaire respondents were the students who managed to continue the programme while students with low computer skills who initially registered for the programme may have abandoned it. Thus combining both students' as well as tutors' views was important to obtain a comprehensive understanding. As Figure 4 shows tutors have observed some students having difficulties even with basic computer skills; for example, one tutor reported a student who, in an inaugural session held to introduce the online learning platform, was not aware of how to type an "@" sign.

All interview participants and 85% of questionnaire respondents owned computers while only 6% reported non-ownership (Recall, as of 2009, computer ownership in the

country as a whole is only 11.4%). All interview participants except one (who used a mobile phone to access the Internet) had broadband connections. Only 3 interview participants had connections when starting the programme; others had initially used NACs or Internet cafes but later acquired home access. 91% of the questionnaire respondents who owned computers had home Internet connections. 87% of those were broadband connections while 10% were dial-up.

Issues

Access to resources and quality of materials were the two main issues students emphasised.

As the OVU did not provide library services to DE students, registered students of this online programme had to rely on membership of other libraries. As there are only one or two premium libraries in the capital that hold up-to-date relevant materials in IT discipline, many students relied on the provided course materials or free Internet resources.

Students complained of substandard and erroneous course materials. In one instance a student found that the course note had been copied from Wikipedia (Figure 5) and this raised issues of reliability of material and oversight of institutional practices. Further, due to an administrative decision the DE section of OVU had recruited tutors to facilitate online learning. However, students complained that most of the time when students asked a question the tutors would want to consult the subject lecturer before replying to them. The communication flow of the OVU DE programme is hierarchically organized. Thus a query initiated by a student has to go through the hierarchy and come back to provide the information to them. This process in some instances took more than 2 weeks by which time students had resolved their problems by either contacting friends or writing to forums.
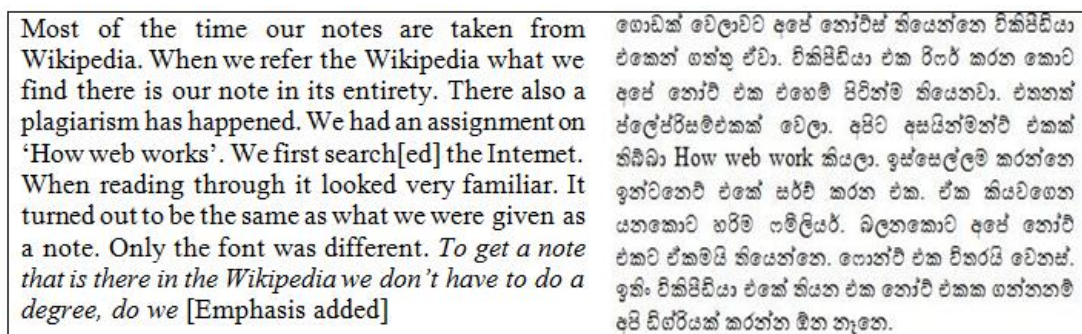
Most of the time our notes are taken from Wikipedia. When we refer the Wikipedia what we find there is our note in its entirety. There also a plagiarism has happened. We had an assignment on 'How web works'. We first search[ed] the Internet. When reading through it looked very familiar. It turned out to be the same as what we were given as a note. Only the font was different. *To get a note that is there in the Wikipedia we don't have to do a degree, do we* [Emphasis added]	ගොඩක් වෙලාවට අපේ නෝට්ස් තියෙන්නෙ විකිපීඩියා එකෙන් ගත්තු ඒවා. විකිපීඩියා එක රිෆර් කරන කොට අපේ නෝට් එක එහෙම පිටින්ම තියෙනවා. එතනත් ප්ලේජරිස්මඑකක් වෙලා. අපිට අසයින්මන්ට් එකක් තිබ්බා How web work කියලා. ඉස්සෙල්ලම කරන්නෙ ඉන්ටනෙට් එකේ සර්චි කරන එක. ඒක කියවගෙන යනකොට හරිම ෆැමිලියර්. බලනකොට අපේ නෝට් එකට එකමයි තියෙන්නෙ. ෆොන්ට් එක විතරයි වෙනස්. ඉතිං. විකිපීඩියා එකේ තියන එක නෝට් එකක ගන්නනම් අපි ඩිග්රියක් කරන්න ඕන නැහැ.

Figure 5. Shanil a 29 year old male from Badulla

Who has gained access?

Using records held by the OVU for the population of online DE students the following observations were made.

- There is a majority (61%) of male students in this online programme.

- 5% is less than 20, 58% is 20-25, 18% is 26-30, 10% 31-35 and 9% above 35 years of age.

- Exactly half the students are Western Province (the capital Colombo and surrounding area) dwellers.

As the institution held no records of the income of students, the information presented here is based on the questionnaire sample.

- 63% students are from households earning more than the median household income in Sri Lanka.

Students who initially used public access services to the Internet pointed out the difficulties that students face in accessing computers and the Internet if they did not have their own resources: the opening times of the NACs were not convenient for employed students; slow speed and high cost of Internet access at Internet cafes; time wasted on transit to visit NACs; limited time allocated for a student in a NAC; the lack of staff assistance in using NAC resources; limited available software in NACs; and inability to install other software.

Initial Findings

The flexibility of the programme and prestige of OVU influenced student decisions to engage in this programme. The majority of the students engaged in this programme possessed the digital skills and ICT resources required to engage in an e-Learning programme, while few students had difficulties.

The main target group of this programme were GCE A/L qualified/eligible to enter university education but had not received a place at the university due to the lack of availability. The majority age group suggested that this target group were reached. 20-25 year old male students from the Western Province with above median household income were the majority who gained access to HE through this programme.

Access to resources and quality of learning materials were the main concerns for students.

Discussion

52% of employed students in this online programme suggests that the need for a HE to be successful in today's work environment, as suggested by Castells (2000b; 2000a; 2004) and Dahlman & Utz (2005), is felt by Sri Lankans.

Many students engaged in this online programme were computer literate. However, the low percentage of 'computer literacy' (the ability to work on the computer on their own - Department of Census and Statistics Sri Lanka 2009) prevailing in the country (20.3% among 5-69 year age group), together with the low Internet and computer penetration could seriously affect ones chances of successfully participating in an online programme such as this. The impact of this could be intensified by the use of English as the medium of instruction.

Public access centres did provide access to the Internet, but solely depending on them was difficult. Thus many students, as soon as they could afford to, have acquired home Internet connections. Library resources at state universities are already oversubscribed,

so understandably the authorities are reluctant to extend their services any further; however, students were the victims of this resource issues. Access to e-resource through the library for distance learning students could possibly be one alternative to consider.

The DEMP's objective was to extend educational opportunities as well as to raise the quality and relevance of DE programmes. In fact, the quality assurance standards set by the DEMP have gained international acceptance (Rama & Hope 2009). But the problem of substandard and erroneous materials seen here is likely to be due to the non-adherence to it. This raises the issue of control and monitoring required in programme delivery. As the DEMP is now completed and the operation of the NODES has transferred to the Ministry of Higher Education, it is now that Ministry's responsibility to control and monitor the standards of programmes delivered through the NODES. However, it is also worth noting that OVU DE programme is a young programme and with time, constructive criticism and feedback it could mature increasing its quality.

The majority of students of this programme possessed computers and Internet access but in the country as a whole only a fraction of people have access to these resources. Exactly a half of students on the programme were from the Western Province where only 28% of Sri Lankans reside. 63% of student households earned more than the country's median household income. All these show that this online programme is used mainly by already privileged groups, validating the issues raised by Carr-Chellman (2005).

In 2010, the OVU announced the discontinuation of its online DE programme; in this instant the positives of the programme were outweighed by its drawbacks as was revealed in this study validating its findings.

Conclusion

The online DE provided by the OVU has indeed increased opportunities for HE in Sri Lanka. The programme's flexibility, the institution's prestige and previous denial of the opportunity for a HE influenced students' uptake of this programme. Limited access to resources is a major constraint in Sri Lanka, thus at current state Sri Lanka lacks infrastructural capability to support access to online learning to a sizable proportion of its population. Pedagogical issues together with the lack of professionalism and competency of educators support the conclusion that the current state of staff training and experience is not sufficient to support online learning at the OVU. IT programmes are likely to be one of the easiest to offer in this mode due to the existing computing skills of students and their desire to learn about computers. This could mean that programmes offered in other subjects would face even greater difficulties in achieving any significant broadening of access as opposed to simple expansion. It can be concluded that the online DE programme offered by the OVU was less successful than predicted mainly due to the lack of access and quality.

Acknowledgement

References

Beck, U. (1999). *World Risk Society*. Cambridge: Polity Press.

Brown, P., Green, A. et al., Eds. (2001). *High Skills: Globalization, Competitiveness and Skill Formation*. Oxford, Oxford University Press.

Carnoy, M. (2000). *Sustaining the New Economy: Work, Family, and Community in the Information Age*. New York: Harvard University Press.

Carnoy, M. (2005). Globalization, Educational Trends and the Open Society. Paper Presented at the Open Society Institute Education Conference 2005: Education and Open Society, Budapest, Hungary, June-July 2005.

Carr-Chellman, A. A. (2005). Introduction. In A. A. Carr-Chellman (Ed.), *Global Perspectives on E-Learning: Rhetoric and Reality* (pp. 1-13). Thousand Oaks: Sage.

Castells, M. (2000a). *End of Millennium*. Second edition. Oxford: Blackwell.

Castells, M. (2000b). *The Rise of Network Society*. Second edition. Oxford: Blackwell.

Castells, M. (2004). Informationalism, Networks, and the Network Society: A Theoretical Blueprint. In M. Castells (Ed.), *The Network Society: A Cross-cultural perspective* (pp. 3-48). Cheltenham: Edward Elgar.

Dahlman, C. & Utz, A. (2005). India and the Knowledge Economy: Leveraging Strength and Opportunities. World Bank: Washington DC.

David, P. A. & Foray, D. (2003). Economic Fundamentals of the Knowledge Society. *Policy Futures in Education*. 1 (1), 20-49.

Department of Census and Statistics Sri Lanka (2001). Census of Population and Housing 2001: Literacy Rates by District, Sex and Sector. Retrieved July 4, 2011, from http://www.statistics.gov.lk/PopHouSat/PDF/Population/p9p10%20Literacy%20rates%20by%20district,%20sex%20and%20sector.pdf.

Department of Census and Statistics Sri Lanka (2008). Poverty Indicators: Household Income and Expenditure Survey - 2006/07. Retrieved November 26, 2010, from http://www.statistics.gov.lk/poverty/PovertyIndicators.pdf.

Department of Census and Statistics Sri Lanka (2009). Computer Literacy Survey - 2009. Retrieved November 26, 2010, from http://www.statistics.gov.lk/CLS/BuletinComputerLiteracy_2009.pdf.

Drucker, P. F. (1969). *The Age of Discontinuity*. London: Heinemann.

Drucker, P. F. (1970). *The Effective Executive*. London: Pan Books.

Friedman, T. L. (2006). *The World is Flat: The Globalized World in the Twenty-First Century* (Revised Ed.). London: Penguin Books.

Giddens, A. (2002). *Runaway World: How Globalization is Reshaping Our Lives*. Second edition. London: Profile Books.

Haddad, W. D. & Jurich, S. (2002). ICT for Education: Potential and Potency. In Technologies for Education Series. UNESCO.

Irvine, M. (2003). The Emerging Global e-Education Industry. In M. S. Pittinsky(Ed.), *The Wired Tower: Perspectives on the Impact of the Internet on Higher Education* (pp. 65-109). Upper Saddle River: Prentice Hall.

Klein, N. (2002). *No Logo*. New York: Picador.

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

Manicas, P. (2007). Globalization and Higher Education. In G. Ritzer (Ed.), *The Blackwell Companion to Globalization* (pp. 461-477). Oxford: Blackwell Publishing.

Pittinsky, M. S., Ed. (2003). *The Wired Tower: Perspectives on the Impact of the Internet on Higher Education*. Upper Saddle River, Prentice Hall.

Rama, K. & Hope, A. Eds. (2009). *Quality Assurance Toolkit for Distance Higher Education Institutions and Programmes*. British Colombia, Canada, Commonwealth of Learning.

Rassool, N. (1999). *Literacy for Sustainable Development in the Age of Information*. Clevedon: Multilingual Matters Ltd.

UNDP. (2010). The Real Wealth of Nations: Pathways to Human Development. Human Development Report. UNDP: New York. H. Palgrave Macmillan.

University Grants Commission Sri Lanka (2010). Educational Indicators 1980-2009. Retrieved November 28, 2010, from http://www.ugc.ac.lk/en/statistics/educational-indicators.html.