Blended learning in distance education: Sri Lankan perspective

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ABSTRACT

The purpose of this paper is to explore the implementation of online learning in distance educational delivery at Yellow Fields University (pseudonymous) in Sri Lanka. The implementation of online distance education at the University included the use of blended learning. The policy initiative to introduce online components to distance education in Sri Lanka was guided by the expectation of cost reduction and the implementation was financed under the Distance Education Modernization Project.

This paper presents one case study of a larger multiple-case-study research project that employed an ethnographic research approach in investigating the impact of ICT on distance education in Sri Lanka. Documents, questionnaires and qualitative interviews were used for data collection. The lack of access to computers and the Internet, the lack of infrastructure, low levels of computer literacy, the lack of local language content, and the lack of formal student support services at the University were found to be major barriers to implementing compulsory online activities at the University.

Keywords: Distance education, Blended learning, Developing country.

INTRODUCTION

Globalization, though a contested concept, is a major force behind the contemporary social transformations. Within an increasingly competitive global economy driven by technological innovation, contemporary economies rely heavily on knowledge-based production; today, "knowledge has become 'the central factor of production'" (Drucker, 1969, p. 248) in many developed economies with an increasing reliance on intangible capital (David & Foray, 2003). Due to the rapid rate of knowledge production in the contemporary knowledge-based economies, the rate of knowledge depreciation is also high (David & Foray, 2003; Davis & Botkin, 1994). This has placed a great importance on lifelong learning. Furthermore, the global economy demands new skills from workers; thus, whether literacy rate — the traditional indicator of education and the standard of living in a country — is an adequate measure of educational level is questionable. In fact, Dordick and Wang (1993) argue that

> *In the information age, literacy is not sufficient to ensure a high-quality work force; higher education is needed. A useful measure is the percentage of students attending tertiary school in their age groups.* (p.111)

In wealthy countries, tertiary education enrolment rates rose from 2.2% in the 1960s to 59% in 2002, catering to the new skills demanded by the global economy. However, developing countries

have only had a microscopic increase in tertiary education enrolments — from 1.3% to 4% (UNESCO, 2005). Apart from this, the deteriorating conditions in the global economy for generic workers engaged in routine and/or low skills jobs (Klein, 2002) and the privileged position of educated and skilled 'knowledge workers' in the contemporary global knowledge economy (Beck, 2000; Castells, 2000) also increases aspirations of higher education.

Dordick and Wang's position is important in reviewing the case of Sri Lanka, where the literacy rate (currently over 91%) is higher than the South Asian average, but higher education enrolment rates are low. Data from household surveys show that there is a disproportionately low access to higher education in Sri Lanka. For example, in 2000, when 53% of Indians were illiterate, there were 5.7% with above secondary level education; on the other hand, in Sri Lanka, where only 14% were illiterate, just 3% had attained above secondary level education (Riboud, Savchenko, & Tan, 2007).

HIGHER EDUCATION IN SRI LANKA

Sri Lanka is often cited as a statistical outlier in the South Asian region for its remarkable record on literacy rates and the achievement of universal primary education (Jayaweera & Gunawardena, 2007; Riboud, Savchenko, & Tan, 2007). The 'Free Education Policy' of Sri Lanka allows every child to access primary and secondary education in state schools free of charge. Not only are there no enrolment fees or tuition fees, but also the text-books and uniforms are provided free of charge. However, at the tertiary level, there are very few places (around 22,000 entrants a year – catering for just 3% of the school leaving-age cohort) for higher education in state universities with no tuition or enrolment fees. The General Certificate of Advanced Level examination (equivalent to the UK's A-levels or the final-year exams of high schools in the US) is used for university entrance evaluations and there is heavy competition to access these limited places in the state university system.
The government has acknowledged that:
> *Successfully meeting Sri Lanka's economic challenges will require an educational system that better meets the needs of the country. The present system leaves far too great a share of our human resources under-developed* (Government of Sri Lanka, 2002, p. 11).

Increasing capacity in the traditional higher education system has been frequently attempted since the 1980s, but has failed miserably. Although many private institutions provide good quality programs — some even offering UK, Australian and US university degrees — the high fees charged in these programs have hindered the participation of many potential students. A large scale survey (of academically qualified students for university entry) (Nanayakkara & Wijesuriya, 2007) about options for higher education provision in Sri Lanka revealed that the majority of students who failed to secure a place in the state university system chose distance education provided by state universities to pursue higher education. This survey also revealed that 80% of qualified students (without a place in the state university system) did not pursue higher education due to financial difficulties. Therefore, providing affordable higher education opportunities for all is an important policy initiative for Sri Lanka.

Distance Higher Education

The Open University of Sri Lanka and external degree (distance education) programmes offered by some of the state universities are the forms of distance education offered by the state university system and, unlike the conventional state university undergraduate programmes, these levy a fee on students. Assuming distance education to have a per capita student cost significantly less than that of campus-based studies (as many do), the Sri Lankan government,

too, have turned to the option of distance education to attempt to expand higher education in Sri Lanka. By analysing the unit cost (considering both direct and indirect costs) of various degree programmes offered by 44 faculties in Sri Lankan state universities and comparing them across universities, Chandrasiri (2003) concluded that the Open University of Sri Lanka produced both arts and science graduates at the lowest cost. Further, Loxley, Ho et al. (2003) state that, on average, the unit cost of the Open University of Sri Lanka is only 20% of the conventional university system. Therefore, one might be able to justify the Sri Lankan government's decision to expand the higher education system using distance education.

However, distance education programmes conducted by state universities (except the Open University) are heavily criticized for their quality (Kaye, 2002). Some universities are accused of merely providing the outline syllabus plus summative assessment for students registered for external degree programmes (Kaye, 2002). In his report on external degrees in Sri Lanka, Kaye (2002) showed that the authorities believed that 'new technologies' (CD-ROMs, the Web) could be used to deliver course materials to students, rectifying this issue.

BLENDED LEARNING IN HIGHER EDUCATION

Many (including Sri Lankan education officials) believe blended learning "combines the best of both worlds" (Graham, 2006, p. 8). There are many conceptions of blended learning that complicate the understanding of what blended learning comprises. Some scholars such as Masie (2006) define blended learning so broadly that "[a]ll learning is blended learning!" (p. 22). Graham's (2006) definition: "[b]lended learning systems combine face-to-face instruction with computer-mediated instruction" (p. 5), which presents blended learning as a mixture of traditional face-to-face learning and distributed learning systems placing emphasis on the use of computer technologies, is adopted as the working definition for this article.

Graham, Allen and Ure (2005) identified three main reasons for introducing blended learning: improved pedagogy, increased access and flexibility, and increased cost-effectiveness. They argued that blended learning is able to increase active learning strategies, shift the style of learning to be more student-centred, and facilitate peer learning. This improved pedagogy of blended learning can be applied to both on-campus as well as off-campus or distance programmes. Jagannathan (2006) shows that, in developing countries, some blended learning courses have improved quality of learning experience for learners. Blended learning programmes allow students to undertake part of their learning activities online, reducing the time they are required to attend face-to-face lectures. This can help learners in rural areas, with mobility problems, with family commitments and/or who are employed, thus increasing accessibility of the programme. The flexibility offered by blended learning is very attractive for employed learners who desire to upgrade their knowledge. In a recent study, Raturi, Hogan and Thaman (2011) showed that mid-career educational professionals who were keen on professional development preferred courses offered through eLearning because they did not impinge upon their work times. However, in order to make the best use of the accessibility and flexibility offered by blended learning, the learner needs to possess Internet connectivity and digital skills, which in some instances are taken for granted by learners, teachers and policy-makers. The main reasons that Graham, Allen and Ure (2005) presented for introducing blended learning are indeed the reasons why the Sri Lankan educational authorities have introduced it to the Sri Lankan distance higher education: to maintain or even improve quality in a cost-effective manner while providing greater access.

Blended Learning in Sri Lankan Distance Higher Education

Blended learning is used in both on-campus and distance education in Sri Lanka. The Distance Education Modernization Project (DEMP), aided by the Asian Development Bank — which commenced in 2003 — significantly increased the resources for modern technology use, especially online education, in distance education in Sri Lanka. Through the development of distance education technologies, especially online education, the project aimed to increase access to post-secondary education in Sri Lanka while improving the quality and relevance of learning by introducing both blended learning programmes and fully-online programmes.

Before DEMP introduced online technologies, distance education was traditionally a print-based system with very few face-to-face seminars or tutorials. Online components were introduced to distance education in Sri Lanka either as fully-online or blended-online programs and the learners were able to access these courses through an island-wide network of 26 access centre facilities, which were also established under the project. There are other access centre facilities in Sri Lanka, such as "Nanasala" centres (www.nanasala.lk), established under the e-Sri Lanka government initiative, and access centres established by non-governmental organizations such as Sarvodaya (www.sarvodaya.org). These centres play a vital role in providing access to the online components of programmes to distance learners because computer and Internet penetration rates in the country are low. For example, only 11.4% of households owned computers in 2009 (Department of Census and Statistics Sri Lanka, 2009). Learners can also use Internet-cafes to access these programmes, if they lack access to computers and the Internet. Considering the low levels of access to physical resources, such as computers and the Internet, along with the low computer literacy — only 20.3% among 5-69 year olds (Department of Census and Statistics Sri Lanka, 2009) — prevailing in the country in 2009, the serious concern is whether the online component of distance education is sufficiently accessible to a broad range of the target learners.

The discussion so far showed the need for higher education in order to be competitive in the global knowledge economy. Thus far, Sri Lanka has not been able to expand its higher education system using traditional approaches. The government has invested in information and communications technologies (ICTs), hoping to increase higher educational access through distance education. At the time of conducting this research (at the end of DEMP), there was no research undertaken to understand the impact of introducing online learning to distance education in the Yellow Fields University.

RESEARCH DESIGN

This paper presents some of the findings of a larger study that examined the impact of ICTs in Sri Lankan distance education using a multiple-case-study method employed in an ethnographic research approach (Liyanagunawardena, 2012). Data was collected from December 2009 to March 2011 using multiple methods: qualitative interviews, questionnaires and documentary evidence. The project explored policy, implementation and the user perspective in using ICTs for distance education in Sri Lanka and the case study of Yellow Fields University is discussed here.

Context

Yellow Fields University is a higher education provider in Sri Lanka with many years of experience in distance education. Distance education at the University uses a variety of media and delivery methods; some examples include printed materials, face-to-face sessions (tutorials or lab classes), digital resources, and audio and video-tapes. DEMP substantially increased the levels of resources at the University and financed the upgrading of some print-based courses to electronic media. Even before the project — as early as 2003 — the University used online learning technologies, but they were largely individual efforts. Today the University uses

Moodle[TM] as its Learning Management System (LMS) and standard templates for courses are in place.

Students registered in Yellow Fields University programmes that have a Moodle[TM] presence (because not all programmes do) are able to view weekly lesson plans and access any resources uploaded through the LMS. Digital submission of assignments is supported in some programmes, while others rely on traditional hard copy submissions. Online discussion forums and chat sessions are highly encouraged; for example, one Faculty (with 43 courses on Moodle[TM] at the time of writing) has introduced a "virtual office hour" where the course lecturer is guaranteed to be online for clarifications through chat. Interaction is considered important at Yellow Fields University, mirroring results from various studies; for example, Owtson, Garrison and Cook (2006) have found student satisfaction to be highly dependent on the level of interaction they have with instructors and other students in blended courses. Some Yellow Fields University programmes use online quizzes as an assessment tool, while Wikis are used for group projects.

All students registered with the University are automatically registered with the National Online Distance Education Service (NODES) established under DEMP. This gives them the right to use the access centres, though, as discussed later, this has proved of limited utility for many.
Yellow Fields University has implemented three types of online courses:
•   Supplementary-Online
•   Blended-Online
•   Online-plus
Very few postgraduate programmes (only three until early 2010) at the University were Online-plus (more than 20% of the activities are compulsory online activities). The majority of courses use ICTs to supplement traditional delivery (where the printed materials are sent to the students and they have occasional face-to-face tutorials) and there are some courses that use a blended approach. A Blended-Online course organizes around 20% of its activities (comprising of compulsory and non-compulsory activities) online as opposed to a Supplementary-Online course, where less than 5% of the activities are non-compulsory online activities. This formula for online activities in Supplementary-Online courses allows students who are unable to access the online component of a course to still engage in the programme. This is important due to the current conditions in Sri Lanka, where a large majority of the households do not own computers.

Data Collection

For the Yellow Fields University case study, permission from the University officials was received and then the research was advertised through official channels to recruit participants. Students and lecturers of the University programmes with some online components were invited to participate in the research. Data collected from the University consisted of 96 usable questionnaires, 13 individual interviews and one group interview involving 16 individuals (Students 10, Lecturers 5, and Administration 1). Another six individual interviews were conducted separately with a purposively-selected set of Sri Lankan educational authorities to understand the thinking behind the initiative to introduce ICTs for distance education.

Printed questionnaires were distributed on four occasions, once in a regional centre and in other three instances at the main campus to students who were registered in a programme that had an online component and volunteered to participate in the study. Out of the 109 questionnaires distributed 92 were received with 84.4% response rate. Email questionnaires were sent to 26 students who provided their contact details, but only 6 responses were received, achieving only a 23% response rate. Jamtsho, Rinchen et al (2010) reported a study where a web-based questionnaire was used in Sri Lanka hoping to attract 500 responses, in fact had only received 20 responses. This shows that there are issues with online questionnaires used in this context, and in fact a survey created for data collection using Bristol Online Survey tool was abandoned due to

the fears of not attracting sufficient responses for a meaningful analysis because it took a long time to load.

Both English and Sinhala (the native language spoken by the majority of Sri Lankans) languages were used to collect data and the questionnaires were prepared in both languages. These questionnaires were used to collect data from students. Questions in the questionnaire were organized into five sections: programme details; the use of ICT in the programme and student views; the use of ICTs for learning; and opportunities for using ICTs and demographic details. At the end of the fourth section, space was provided for comments. This space was used by several students to describe issues they faced when using ICTs. It was also observed that in some instances even though respondents preferred to answer the questionnaire in English medium, this space for comments was written in Sinhala. This shows the importance of using participants' mother tongue in data collection, because even though the respondent selected to respond to an English medium questionnaire, when expressing his/her thoughts freely s/he must have found that his/her knowledge of the language was restrictive. As the respondent in this instance knew that the researcher was able to comprehend Sinhala comments, s/he has used the language s/he is most comfortable with. If that had not been the case, it is suspected that the respondent would have skipped the open-ended question completely.

Each interviewee was given the option to select his/her preferred language for the interview. All interviews were audio recorded and later transcribed. Where clarifications were required, an interviewee was contacted either by email or telephone. Sinhala transcriptions were translated to English and were verified to be satisfactory. (Some of the interview extracts presented here have been translated from Sinhala to English). SPSS 13.0 and MSExcel 2007 software packages were used to analyse and present quantitative data. Qualitative data were first analysed to identify recurring themes and coding was done accordingly using Nvivo 8.

RESULTS AND DISCUSSION

Participant Demographics

Due to incomplete data, only 96 questionnaires were used for the analysis. This consisted of 46% responses from females. 73% of respondents were in the 20-25 years age group. Geographically 54% of the respondents were from the Western Province (the Capital Colombo and surrounding area) and the next highest representation was from the Southern Province (30%).

Rationale for Blended Learning

Interviews conducted with educational authorities revealed that they believed introducing an online component to distance education would reduce the cost to students as well as to institutions while increasing access. For example, some of the views presented were:

> "The government wants to give prominent[sic] to distance education as a low cost answer to our existing problem."

> "Online and distance education mode will be utilized for more programmes and we are experimenting with it [...] Distance education based components, modules are implemented to allow more students to follow and also to cut cost. [..] Students can learn from their own places."

Authorities also believed that by introducing online components, students would acquire the necessary skills of using computers and the Internet that are valued in today's labour market.

Implementation

The approach to implementing online learning at the Yellow Fields University took into account the facilities available to distance students and the difficulties faced by students who do not have their own computers — thus, most of its online activities are non-compulsory. However, it was also seen that because the online components were non-compulsory, some students did not even attempt to use those resources.

Facilitating Change

DEMP conducted a series of workshops for lecturers who intended to introduce blended learning to their courses. Given the available templates (which the interviewed lecturers found easy to use) and proper training, lecturers were willing to experiment with online learning.

However, lecturers who implemented online activities were disappointed with the level of student participation. This was similar to the findings in the Tantrigoda (2010) study. Some lecturers who participated in the study revealed that they wanted to make the online component compulsory for the next cohort of students. They hoped that compulsory online activities would provide motivation for students to participate because these online activities carry marks. Nevertheless, some felt that making the online component of a programme compulsory would discriminate against students from rural areas who do not have facilities to access the Internet.

Students (particularly those employed) who possessed home computers and Internet connectivity felt that having the option to upload an assignment instead of coming to the University to handover a hardcopy would greatly benefit them as it would save time, money and effort. However, students felt that the online activities should be non-compulsory, providing the option to continue the traditional way. For example, a student who never accessed his programme's online component said that he never felt the need to post a question because he would be meeting his lecturers at the University.

Resistance to Change

There were a group of students who strongly opposed the initiative to introduce online components to distance education at the Yellow Fields University. These students did not own computers but were competent users who used the University computer facilities. They feared that the use of online facilities would constrain the poor — the category they identified themselves a part of — from accessing education. A 23-year-old male student said,

> We fear that online and ICTs would render distance education inaccessible to us – people who are not very well to do – and take away our right for education. That is why we think that online method and the use of ICT are not suitable for this context.

Two male students from the group interview had the following to say:

> Student 1: Not everybody can afford to have Internet access from home nor everyone can use the Internet. Then there will be a problem for people who are financially less stable. Children of ordinary families will face difficulty in pursuing a degree. At present if we consider <University Name>, anyone can afford to enter because we can afford the fees that they charge. [identifying information blanked out to preserve anonymity].
> Student 2: This online thing is already in the system, but not much, only about 10%. If this online thing becomes more important in this setup, it is going to create a negative impact on a student's economy because it is difficult to afford the initial capital required for that in the Sri Lankan setup. An ordinary family would find it difficult to afford. The easiest option is the already existing system. [...] If per capita income could be increased to a level

where everyone can afford it and then trying out this method would suit our society better. If this is brought in now, it is not going to succeed. And it is going to create a problem too; in fact, this is not going to be a small one: it will be one which we will never be able to solve.

These students had limited access to resources and they were concerned that any change in the current system would increase course fees, making the programmes unaffordable to them. They also tried to justify why introducing online education would not be beneficial. One participant argued that a student following an online course would only have a "limited range of knowledge" because he/she is "not sharing his knowledge." Conversely, students in this group conversation identified online learning to be a medium for "knowledge sharing," especially with students at foreign universities. The conflict of ideas presented seemed to demonstrate the internal conflict and desperation to justify rejecting the use of ICTs for educational delivery at the University.

Issues

Resource Limitation

Resource Limitation was the main issue that manifested in different forms, such as access to computers and the Internet and financial resources. There were seven student interview participants (out of 10) who owned computers while 68% of the questionnaire respondents owned computers. Considering the much lower level of computer ownership generally in the country, this is a significant figure. The respondents from Colombo (the Sri Lankan capital) were much more likely to own computers than their counterparts from elsewhere. This was not surprising, because in Sri Lanka the ownership of computers is largely among urban dwellers. For example, in 2009 when the country's computer ownership was just 11.4%, computer ownership in the Western province (Colombo and the surrounding area) stood at 19% (Department of Census and Statistics Sri Lanka, 2009). This is also in accordance with the general Sri Lankan income distribution pattern, where Colombo dwellers earn significantly more than those in the other parts of the island (Department of Census and Statistics Sri Lanka, 2011).

Only five student interview participants out of the seven who owned computers had Internet connectivity. Other participants used the University computer lab facilities to access the Internet. One interview participant who did not have access to the Internet from her home computer travelled to a regional centre (this was not an access centre established under DEMP, but a regional centre of the University) via two bus rides consuming at least 45 minutes each way, to access the Internet. As can be seen in Table 1, half of the questionnaire respondents accessed the Internet from the educational institute and only 45% had home Internet connectivity. Library or public access points and Internet-cafes were also used by a sizable proportion of respondents.

Table 1 *Access to the Internet from*

	%
Educational Institute	50
Home	45
Library or public access point	29
Internet cafe	26
Friend/relative's place	21
Work	11

Liyanagunawardena (2008) described how Sri Lankan university students who owned computers but did not possess Internet connectivity overcame that barrier by downloading course materials and saving recommended Web resources page by page to be accessed from home, while students who did not own computers downloaded and printed them. As printing is expensive, these students had to choose only the most important sections of content to be printed. Alternatively, as one interview participant argued, one could convert the content into a short-note for printing, requiring a trade-off between time spent on a non-personal computer (which might cost money or have an overall time limit) and the cost of printing.

According to Bates' (2005) ACTIONS Framework — where he discussed the importance of Accessibility, Cost, Teaching and learning, Interactivity and user friendliness, Organizational issues, Novelty and Speed in relation to adopting technology for open and distance learning — the accessibility of technology is a major factor in selecting a technology for educational delivery, especially in distance education. Both the national figures on computer and Internet penetration and student ownership of resources raise serious concerns about the accessibility of the online component of the blended learning programmes to Yellow Fields University students.

Despite having the option to use access centres established under DEMP, none of the interview participants used these facilities (at the time of interviewing) due to reasons such as the travel distance to a centre, excessive administrative procedures, their Internet access policy and opening hours. Expressing their dissatisfaction with the service offered by these centres, one student mentioned that he was not allowed to use his pen drive (USB flash drive) at one of the centres; another said that he was asked to bring a letter from the Vice Chancellor of his University in order to be given access to a set of headphones to listen to a video lecture. Yellow Fields University, as well as these centres, restricted access to some Internet sites such as YouTube™, due to bandwidth issues. Because some students did not have computers at home, they had no other means of gaining access to these blocked resources.

Infrastructure

Even when students could afford to pay for Internet connectivity and had home computers, there were instances when their area was not serviced by an Internet Service Provider. A student from Hambantota (a rural district from Southern Sri Lanka) mentioned that his village was neither serviced by landline telephone service nor Mobile Broadband service. He had to travel at least 60km to reach the nearest access centre to access the Internet and, as it was a rural area, the public transport was neither reliable nor dependable. The lack of digital infrastructure as well as road infrastructure and reliable public transport in rural areas were other barriers for students to participate in online learning.

Many students complained that the Internet connection was too slow. Some of the views they expressed in questionnaires are presented below:
> "The speed of the connection is not satisfactory. It is slow"; "Sometimes it gets very slow and the pages don't load. So cannot get the contents"; "It takes a considerable amount of time to log on to the Internet and download programs thus I suggest to give programs in a CD."

Corroborating students' statements, a lecturer expressed this view:
> "[T]he network here within the campus at least for the last five-six months has been exclusively [incredibly] slow. It is very difficult to go online, not to mention about chats. So that kind of limitations are there. Specially during the week days, the network connection is not good at all."

In 1993, Nielsen established that 10 seconds is the maximum time that a user can keep attention focused until a response is received from a computer. But a study on browser loading times of Web pages conducted in 12 Asian countries including Sri Lanka reported loading times that were four times slower than generally is accepted (Baggaley & Batpurev, 2007). This showed that using online learning in this context is likely to be a frustrating experience for learners.

Lack of Student Support for Online Learning

Yellow Fields University has yet to establish a proper student support service that helps students to resolve problems they encounter in online learning. There is no uniform way of introducing the LMS to students and it is considered a responsibility of the lecturer if he/she is using Moodle[TM]. Some lecturers used lab classes to introduce the LMS while others used overhead projected screens to show how to use it, especially when student numbers were large. There were lecturers who did not use either of these methods and depended on the textual letter posted to students by the University giving instructions on how to log in to the system. Students using a LMS for the first time encountered many problems when they tried to log in to the system. For example, one interviewee mentioned how she was unable to interpret the letter sent by the University giving instructions to log in to the system and had to get help from three other students to successfully log into the system for the first time. Many students faced similar problems. This corresponds with the findings by Tantrigoda (2010) who reported that 85% of students have not used the LMS because they were not familiar or confident with the Moodle[TM] environment.

Language and Digital Literacy

School education in Sri Lanka is conducted in local languages (Sinhala and Tamil) and recently the option to study in English language medium was also introduced. However, higher education in many disciplines is only accessible in English. Transition from a local language school education to English in higher education is a difficult step for students, especially those from rural areas. The Yellow Fields University's two-year foundation programme (for students not academically qualified in Advanced Level Examination) and the first year of degree programmes are conducted in all three language media (Sinhala, Tamil and English) to allow students who are used to the conventional system of study and have studied the school curriculum in local languages to have a smooth transition to English medium distance education. From the second year (of a degree programme) onward, all students study in English. Currently in the Moodle[TM] environment, resources for first year programmes are only available in English. Researchers from several Sri Lankan universities are involved in translating software, including Moodle[TM], to local languages. However, the lack of general content in local languages on the Internet is a problem for a majority of the people in Sri Lanka who are competent in local languages only.

Questionnaire data revealed that 83% of respondents were able to create and manage files and folders on their own while only 60% were comfortable in using a search engine on their own. Nine percent of respondents had never used a search engine; 5% had never sent an email with an attachment. The computer skills of respondents showed a significant relationship with their ownership of computers in 3 out of the 4 tasks listed in the questionnaire. Task 1 – "creating folders and managing files" did not show any significant relationship with the ownership of computers. In fact, it is a basic task that any novice computer user would learn at the very beginning. On the other hand, the ability to accomplish Task 2, 3 and 4 – "using word processor software to create a document," "sending an email with an attachment" and "using a search engine to find degree programmes offered by the National Online Distance Education Service" showed a positive relationship to the ownership of computers showing that the ownership of computer does help students to gain these valuable skills. The time that a student can use an

access centre facility is usually limited to allow fair access to resources by all students. Thus, students with limited or no other access to computers may not get sufficient time to develop the skills to do effective Web searches and develop strategies to filter results. However, these results and interpretation are indicative and should be treated cautiously as the sample was not drawn at random.

One respondent mentioned in her questionnaire that she did not know how to use a computer that was available to her. This respondent was a 25 year old female teacher from Badulla, possibly teaching in a school with computer facilities, but lacking skills to make use of the available physical resources. This appears to confirm Warschauer's (2003) argument that the minimally invasive learning was not successful unless special educational aid was available to gain digital skills. There could be other students who do not possess computer literacy and these students are likely to be marginalized when online learning is introduced unless they are provided with help to gain necessary skills.

THE BIG PICTURE

It appears that the government of Sri Lanka has invested in online technologies as a means of educational delivery to enhance the quality of programmes and increase access to programmes. However, the computer literacy and English language proficiency of the people, and the level of access to computers and the Internet — along with the supporting infrastructure — severely restrict access for a majority of people. Liyanagunawardena, et al. (2011) showed that 63% of students in a fully-online (no face-to-face component) undergraduate degree programme in Sri Lanka were from households earning more than the national median household income, suggesting that the use of online technology largely served already privileged groups. This could be a reason why 'not so well to do' students in the Yellow Fields University feared the initiative to introduce online components to their learning.

Even though universities, access centres and Internet-cafes provide access to students, there are a variety of problems that students encounter in these places. The lack of reliable public transport services, especially in the evening and weekends, is a problem for many who have to travel to access centres. Some policies practiced by institutions — such as blocking access to sites used by students, not allowing the use of removable storage devices and excessive procedures — make them unpopular among students (Liyanagunawardena, et al, 2013a; 2013b). Download speed (Williams, et al, 2012) and the reliability of connections are also common issues that frustrate learners. Charges for Internet access at Internet-cafes in Sri Lanka vary widely according to location. For example, an Internet-cafe in Kandy charges Rs.3/= (USD 0.02) per minute (that is Rs.180/= or USD 1.36 per hour) and a cafe in Unawatuna charges Rs.10/= (USD 0.08) per minute (that is Rs.600/= or USD 4.54 per hour) (World Embassy Information, n.d.), while access centres established under DEMP charge Rs.50/= (USD 0.38) per hour of Internet access to visitors other than registered students. This shows that students in rural areas are disadvantaged because they have to pay much higher prices for an hour of Internet access at an Internet-cafe while on average also having a lower income, making the comparative cost even more disproportionate. Andersson (2008) has also reported of similar problems faced by Sri Lankan students.

CONCLUSION

The contemporary work world favours knowledge workers with a higher education. The government of Sri Lanka is relying on distance education and educational technology to increase higher educational opportunities and improve the quality of offerings to enhance human

resources to gear towards a knowledge economy. Yellow Fields University has cautiously adapted online learning to its programmes using a blended approach. The lack of infrastructure and access facilities to students, the low level of computer literacy, lack of English language proficiency and the inadequacy of student support services suggest that, at the moment, the conditions are far from perfect to introduce compulsory online activities.

The lack of infrastructure is a major barrier in introducing online components to study programmes. Access centres, which were established to overcome this barrier, were inflexible on too many axes (Liyanagunawardena, et al, 2013a; 2013b) to provide substantial access across the geographic regions. Even though there are issues, such as logistics, that need many resources and/or much effort to overcome, there are others such as access centre opening times, policy on Internet access and policy on the use of hardware (e.g. removable storage, headphones) that can be addressed with relative ease to provide more student-friendly access centre facilities. Making it mandatory to provide an introductory session to the LMS to all students taking part in programmes with an online component is a relatively easy way to help students at the Yellow Fields University to start experimenting with the LMS. The university could then implement a helpline (both email and telephone) that provides help to users experiencing technical issues. In the long term, the government needs to carefully formulate a strategy to provide affordable connectivity to all geographic areas and promote digital literacy and meaningful localized content for Sri Lankans while also providing facilities for international language learning. Unless Sri Lanka addresses these issues effectively through policy, it compromises its ability to harness the full potential of online educational technologies to provide educational opportunities for the majority of Sri Lankans who are left out of traditional higher education system.

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