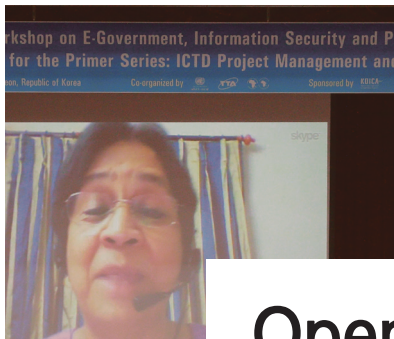




Open and Distance Learning in Asia and the Pacific

United Nations Asian and Pacific Training Centre for Information and
Communication Technology for Development

ICTD Case Study 3 May 2014



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and Communication Technology for Development

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Acronyms and Abbreviations

2G	Second Generation (of mobile telecommunications technology)
3G	Third Generation (of mobile telecommunications technology)
AIOU	Allama Iqbal Open University (Pakistan)
AKU-IED	Aga Khan University's Institute for Educational Development (Pakistan)
APCICT	Asian and Pacific Training Centre for Information and Communication Technology for Development
BOU	Bangladesh Open University
BPO	Business Process Outsourcing
DAI	Degree Awarding Institution (Pakistan)
DDE	Directorates of Distance Education (Pakistan)
DLC-SL	Distance Learning Centre - Sri Lanka
DSL	Digital Subscriber Line
EER	Electronic Educational Resource
GDLN	Global Development Learning Network (World Bank)
HEC	Higher Education Commission (Pakistan)
ICT	Information and Communication Technology
ICTD	Information and Communication Technology for Development
IMM	Interactive Multimedia
IT	Information Technology
KRENA	Kyrgyz Research and Education Network
KRSU	Kyrgyz Russian Slavic University
LEARN	Lanka Education and Research Network
LMS	Learning Management System
MFTOT	Microfinance Training of Trainers (Sri Lanka)
MIT	Massachusetts Institute of Technology (United States of America)
MOOC	Massive Open Online Course
NeLC	National e-Learning Centre (Sri Lanka)
NGO	Non-Governmental Organization
NREN	National Research and Education Network
ODL	Open and Distance Learning
OER	Open Educational Resource
OUSL	Open University of Sri Lanka
PANdora	PAN Asia Networking Distance and Open Resource Access
PC	Personal Computer
SME	Small and Medium Enterprise
SMS	Short Message Service
TEIN4	Trans-Eurasia Information Network 4
TERI	The Energy and Resources Institute (India)
UT	Universitas Terbuka (Indonesia)
UN	UUnited Nations
UNCDF	United Nations Capital Development Fund
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
VoIP	Voice Over Internet Protocol
VU-CPL	Virtual University - Computer Proficiency License (Pakistan)
VUP	Virtual University of Pakistan

Preface

Open and distance learning (ODL) is one of the most rapidly growing delivery channels of education and training at present. The utilization of information and communication technologies (ICTs) has contributed to improving the quality of and access to education. Such has been the case of the Asia-Pacific region, where higher levels of ICT penetration have fostered the development of ODL initiatives that have helped bring this basic right to people facing socio-economic and/or geographic constraints. In South Asia, for instance, ICTs have significantly contributed to delivering education to rural areas, where people are being reached through computers, the Internet and audiovisual technology (such as CDs, cassettes and audio/video-conferencing equipment).

The benefits of ODL initiatives are not limited to the improvement of access to basic education. In a world where scientific, technological, cultural and social innovations are constantly taking place, people need to rapidly adapt to continuously changing circumstances. ODL is facilitating access to continuous learning, enabling people to improve their skills and qualifications anytime, anywhere.

Recognizing the importance and potential of open and distance learning as a mode of delivering training, UN-APCICT has prepared this publication on ODL as the third issue of its ICT for Development (ICTD) Case Study Series. The publication presents a compilation of ODL case studies in Asia-Pacific, providing an overview of the current ODL landscape in the region. The case studies also intend to provide insight on the key challenges faced in the application of ICTs for education and explore possibilities for overcoming them in the future. Finally, the publication is aimed at studying new ways to expand access to APCICT's ICTD capacity building programmes.

The case study presents initiatives in five different countries: Bangladesh, Indonesia, Kyrgyzstan, Pakistan and Sri Lanka. The five cases reflect varying levels of ODL maturity present in the Asia-Pacific region. Through the examination of this spectrum of cases, we hope to create awareness on the opportunities presented by ODL and enhance understanding on the challenges faced in different contexts. The similarities and differences between these cases provide valuable lessons that we believe will help in the pursuit of ODL initiatives in your country and advance ODL in the region.

Hyeun-Suk Rhee
Director
UN-APCICT/ESCAP

Introduction

Christine Apikul

Open and distance learning (ODL) is one of the most rapidly growing fields of higher education and training globally.¹ ODL may be the only way to meet the growing demands for education and learning. At the same time, advances in information and communication technologies (ICTs) continue to create new challenges and opportunities for the design and delivery of education and reinforce the trend towards greater online and open delivery in education. For these reasons, the United Nations Asian and Pacific Training Centre for Information and Communication Technology for Development (UN-APCICT) commissioned country case studies that take stock of ODL initiatives in five selected countries—Bangladesh, Indonesia, Kyrgyzstan, Pakistan and Sri Lanka. Based on an analysis of these initiatives that take into considerations capacity building gaps and opportunities for collaboration, some actions points for UN-APCICT and member States are recommended.

1. The Open and Distance Learning Environment

This document uses the UNESCO definition of ODL:²

Distance learning is any educational process in which all or most of the teaching is conducted by someone geographically removed from the learner, with all or most of the communication between teachers and learners being conducted through electronic or print mediums.

The “open” nature of distance learning might be formally institutionalized in such policies as open admissions, and freedom of selection of what, when and where to learn. The openness of distance learning is also seen in relatively flexible organizational structures, delivery and communication patterns as well as the use of various technologies to support learning.

¹ International Council for Open and Distance Education, Open and Distance Education Policy Briefing (2013).

² UNESCO, “What is Open and Distance Learning (ODL)?” Available from http://portal.unesco.org/education/en/ev.php-URL_ID=22329&URL_DO=DO_TOPIC&URL_SECTION=201.html.

While during the era of industrialization distance education was a vehicle for supplying a skilled labour force, the post-industrial society focused on improving the quality of human lives. At the same time, the advancement of technology and service industries changed the type of skills required in the labour market. This resulted in an increasing need for professional continuing education. The concepts of lifelong learning and education for all stress that education is a basic human right and should be made available over the entire lifetime of each individual. ODL is designed to provide this customized and individualized form of education. In developing countries, ODL is seen as a means to provide a second chance to those who had dropped out or did not have access to the conventional education system due to location, time and socio-economic constraints.³

The principles of ODL were first applied in higher education institutions with the establishment of open universities and virtual universities—these are called single-mode institutions. Some traditional universities have incorporated distance learning in their courses and become dual-mode systems, delivering their courses using distance learning methods as well as in the classroom. Increasingly, distance learning is being offered by private companies, particularly for vocational education and corporate training. To support the growth of ODL is the establishment of regional and global networks such as the Asian Association of Open Universities⁴ in 1987, and the Virtual University for Small States of the Commonwealth⁵ in 2004.

Distance learning traces its origins to mid-19th century Europe and the United States. The pioneers of distance learning used the best technology of their day, the postal system, to open educational opportunities to people who wanted to learn but were not able to attend conventional schools. People who benefited from such correspondence education included those with physical disabilities, women who were not allowed to enrol in educational institutions open only to men, people who had jobs during normal school hours, and those who lived in remote regions where schools did not exist. The invention of educational radio in the 1920s and the advent of television in the 1940s created new forms of communication for use in distance learning. Educators used these new technologies to broadcast educational programmes to millions of learners.⁶

Then in the 1990s with the spread of computers and the Internet, new tools such as video conferencing, websites, e-mails and chats were used. For the first time, these new technologies allowed synchronous interactions in distance learning (i.e. learning in which all parties participate at the same time). More recent tools such as blogs, social media and wikis make it easier for learners to interact with educators and with other learners. These tools are being used to encourage peer-to-peer learning and collaborations on projects. At the same time, devices have become more portable with the wide variety of mobile phones and tablets, allowing learning anytime, anywhere.

The rapid development of e-learning since 2000 is greatly assisted by the emergence of free and open source software that made learning management systems (LMS) widely available and often without cost.

³ Tian Belawati and Jon Baggaley (eds.), *Policy and Practice in Asian Distance Education* (Ottawa, International Development Research Centre, 2010).

⁴ <http://www.aaou.org>.

⁵ <http://www.vussc.info/about-vussc>.

⁶ California Distance Learning Project, "What is Distance Learning?" Available from <http://www.cdlponline.org/index.cfm?fuseaction=whatis&pg=3>.

Nonetheless, print materials remain the dominant delivery technology in ODL institutions, not only in Asia Pacific but worldwide, and continue to use the postal system to send print materials and CD-ROMs to learners. Many open universities have a network of learning centres located in different parts of the country to order to include a student-teaching experience in a regular, offline classroom near the student's home, supervised by university-contracted faculty.

Generally, ODL institutions are responsible for three tasks: (1) designing the content of course materials (self-instructional materials); (2) media production and dissemination/broadcast; and (3) the arrangement of academic counselling and examinations. Often, both formal and non-formal courses are offered. For example, the Bangladesh Open University has formal programmes leading to the certificate, diploma, undergraduate and postgraduate levels of education. They also have non-formal programmes in the areas of agriculture, primary health care, etc.

2. Open and Distance Learning Challenges and Trends

This report includes country case studies of ODL in five countries—Bangladesh, Indonesia, Kyrgyzstan, Pakistan and Sri Lanka. The case studies present different levels of maturity in ODL. ODL has a long history in Indonesia, Pakistan and Sri Lanka, while Kyrgyzstan is still in the process of setting up systems for ODL. Despite the different level of maturity, these countries face common challenges. Some trends affecting ODL are also identified.

2.1 Common Challenges

Access to ICTs

Access to computers and connectivity remains a major challenge in developing countries. However, many of these countries recognize the importance of an ICT infrastructure and are at different stages of building and extending connectivity, especially broadband networks. In many countries, the National Research and Education Networks, the specialized Internet service provider dedicated to supporting the needs of the research and education communities within a country, have contributed to developing the ICT infrastructure for distance learning. In Central Asia, the Central Asian Research and Education Network⁷ is significantly improving the ICT infrastructure for over 500 institutions in Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

⁷ <http://caren.dante.net>.

Devices and broadband Internet connection are also becoming more affordable. Many ODL institutions are anticipating the increased access to the new ICTs (e.g. computers, smart phones, tablets, Internet, social media) and have started to take advantage of these new technologies, particularly to enhance interactions in courses and engage in a two-way communication with students.

Perception and Quality of Education

There is generally a perceived cultural preference for face-to-face interactive methods, and that face-to-face courses are of higher quality than distance learning courses. Many students still prefer face-to-face courses even when there is a more affordable distance education option. However, this perception may be changing as student intake continues to increase and ODL institutions thrive to ensure quality education.

In Asia and the Pacific, several countries have recognized the need for well-defined quality assurance policy frameworks for distance education. The existence of a national quality assurance framework would enable ODL institutions to make quality assurance an integral part of their teaching and research. According to a study in 2010,⁸ quality assurance in distance education is still at an early stage of development compared with quality assurance in conventional higher education.

A constraint not limited to ODL but to continuing education in general is the lack of senior management support for training. According to Chanuka Wattegama, continuing education may not be attractive to a large section of the population. In the Sri Lankan context, training does not necessarily make the corporate climb easier. In government, seniority plays a bigger role. In the private sector, only performance matters. Receiving training, unless it is specific or makes a visible difference within a short time, is rarely identified as a reason for promotion. The “old school” managers generally see training as something totally irrelevant to day-to-day work. Such attitudes stand in the way of capacity building.

Recognition of Qualifications

There is the need for concerted efforts from governments, and national and regional quality assurance bodies to resolve cross-accreditation problems as learners can be located anywhere, and education can be delivered to them wherever they are. In the not-too-distant future, learners may take some part of their course from one university, and others from another.

In 2012, Kyrgyzstan decided to take part in the Bologna process—a major reform of higher education in Europe to ensure a quality higher education system and a more compatible and comparable system, including the recognition of degrees and academic qualifications, and exchanges between institutions.

⁸ Insung Jung and others, “Quality Assurance in Asian Distance Education: Diverse Approaches and Common Culture”, *The International Review of Research in Open and Distance Learning*, Vol. 12, No. 6 (October 2011). Available from <http://www.irrodl.org/index.php/irrodl/article/view/991/1953>.

The Virtual University for Small States of the Commonwealth has come up with a Transnational Qualifications Framework, a reference system to link national qualifications systems and frameworks in different small states together.

High Drop-out Rates

Students are more likely to drop-out from distance learning courses than conventional courses. The learner may be insecure in the absence of a teacher and apprehensive regarding his/her progress in the absence of close feedback and absence of peer learners. The learner may become more insecure if the direction of the course is not very well structured, and if it is not very clear where he or she is in relation to its completion.

According to Dr. Naveed A. Malik, the conventional school system does not prepare students for distance learning where self-motivation, time management and independent learning are key. In conventional schools, students continue to rely heavily on their classroom teachers and peer groups for learning. The Universitas Terbuka in Indonesia have attempted to address the issue of high drop-out using SMS technology and social media to continuously motivate and support learners.

Lack of Support and Interaction

Related to the high drop-out rate is the lack of support and interaction in ODL courses. Teacher-student and student-student interactions are often limited in ODL courses. Academic support including providing academic advice on the subject of study, advice on professional development, and advice to students on how to adjust to the distance learning environment and independent study, is weak in ODL courses.

Needs assessment and user and accessibility surveys conducted by the PAN Asia Networking Distance and Open Resource Access (PANdora) network funded by the International Development Research Centre revealed that students throughout the region prefer a more interactive style of education than they are typically given.⁹

Regulatory Framework

Regulatory frameworks may hinder or enhance the development of ODL. For example, open universities are undermined if national regulatory agencies prescribe minimum entry academic qualifications, or if there are restrictions on institutions offering ODL. Even policies about what hardware and software are provided to students/institutions can have a major impact on learning and pedagogical practice. The critical challenge is to put in place regulatory mechanisms relevant to the emerging learning environment that will not only assure quality and address considerations of local applicability and equity, but will also change public perception on the quality of ODL education programmes and products.

⁹ Digital Review of Asia Pacific, "Distance Education in Asia Pacific", undated. Available from <http://www.digital-review.org/themes/48.html?start=4>.

2.2 Trends

Some trends affecting ODL should be taken into consideration when developing strategies for ODL.

Distance Learning for Professional Development

Many countries are using distance learning as a cost-effective approach for large-scale training of professions. For example in Indonesia, Universitas Terbuka has been training practicing teachers through ODL since 1990. About 50 per cent of the teachers in Indonesia upgrade their qualifications through Universitas Terbuka. Being an archipelago and having more than 2.7 million practicing teachers without the required qualifications, distance education is the only choice and an effective method for raising the quality of teachers in Indonesia. That is because with distance learning, teachers can upgrade their qualifications without having to leave their teaching responsibilities.¹⁰

In the Philippines, business process outsourcing (BPO) provides employment for many young people. But BPO industries find that these young people do not have the skills needed and companies have to constantly conduct training and re-training. Recognizing that a more systematic approach to BPO training is required (rather than each company training their new staff), the Business Processing Association of the Philippines is collaborating with BPO industries and universities such as the University of the Philippines - Open University to develop a massive e-learning programme for BPO.¹¹

MOOCs

Massive open online courses (MOOCs) have received a lot of hype recently where elite universities from the United States, such as Harvard University, MIT, Stanford University and University of California Berkeley, are making entire courses available online to anyone for free. Although there has been access to free online courses on the Internet for years, the quality and quantity of courses has changed. Unique to MOOCs are interactive forums that promote a peer-to-peer learning experience. Because MOOCs are open to all, students can be sharing their experience with thousands of other students and become exposed to different opinions, strategies and thought processes from all over the world.

However, because MOOCs are mostly conducted in English and requires broadband Internet access, it only reinforces the digital divide, and results of recent studies have shown this. The University of Pennsylvania recently conducted a survey involving 35,000 students from more than 200 countries who participated in 32 MOOC courses it distributed through Coursera, which is the largest provider in the field with 5 million students. Results showed that most of these students were already well educated, and most of them were young men looking for new skills to advance their careers. The researchers found that the “educational disparity is particularly stark” in Brazil,

¹⁰ Digital Review of Asia Pacific, “e-DIRAP Interview - Thematic Focus: Education”, 9 September 2013. Available from <http://www.digitalreview.asia/resources/e-dirap-interview-thematic-focus-education>.

¹¹ Digital Review of Asia Pacific, “Google+ Hangout on ICT in Education”, 9 September 2013. Available from <http://www.digitalreview.asia/resources/google-hangout-on-ict-in-education>.

China, India, Russia and South Africa, where almost 80 per cent of MOOC students came from the wealthiest 6 per cent of the population.¹²

Nonetheless, for advocates of ODL, the wide media coverage and interest in MOOCs help to reiterate and emphasize that learning can be done at a distance by using ICTs, and it has increased people's awareness and appreciation of what ODL is about.

Open Educational Resource

Open educational resources (OER) are freely accessible, openly licensed documents and media that are useful for teaching, learning, educational, assessment and research purposes.¹³ ODL institutions are no longer just users of OERs but also producers. For example, the Virtual University of Pakistan has placed nearly 6,000 hours of course material on YouTube, and India's National Programme on Technology Enhanced Learning has uploaded over 260 courses on the Web in text and video formats. Both the Pakistani and Indian initiatives have explicitly adopted an open licensing framework that allows others to re-use and adapt the course materials.¹⁴

Big Data

Another trend involves the use of big data to personalize online courses. According to Doug Guthrie, "big data in the online learning space will give institutions the predictive tools they need to improve learning outcomes for individual students. By designing a curriculum that collects data at every step of the student learning process, universities can address student needs with customized modules, assignments, feedback and learning trees in the curriculum that will promote better and richer learning."¹⁵ By learning online, analytics tools can be used to collect data about who the learners are, what they know, what they don't know, and where they are having difficulty. Data can also pinpoint what media type students prefer to be engaged in, how long they take to complete tasks, when they drop out, repeatedly failed test questions, etc.

ODL in Basic Education

Distance learning has largely been focused in the higher education and professional learning arenas. But recently, especially with the roll out of schemes to provide children with laptops and tablets,¹⁶ many countries have started looking at how to make available relevant digital content for learning, not only in schools but also at home and in the community, as these technologies become portable.

¹² Geoffrey A. Fowler, "Survey: MOOC Students are Elite, Young and Male", The Wall Street Journal, 20 November 2013. Available from <http://blogs.wsj.com/digits/2013/11/20/survey-mooc-students-are-elite-young-and-male-2/>.

¹³ Wikipedia, "Open education resources". Available from http://en.wikipedia.org/wiki/Open_educational_resources.

¹⁴ Gajraj Dhanarajan and David Porter (eds.), Open Educational Resources: An Asian Perspective (Vancouver, Commonwealth of Learning and OER Asia, 2013). Available from http://www.col.org/PublicationDocuments/pub_PS_OER_Asia_web.pdf.

¹⁵ Doug Guthrie, "The Coming Big Data Education Revolution", U.S. News, 15 August 2013. Available from <http://www.usnews.com/opinion/articles/2013/08/15/why-big-data-not-moocs-will-revolutionize-education>.

¹⁶ For example, the One Tablet per Child initiative in Thailand, the Aakash Project in India, and the FAITH initiative in Turkey.

A UNICEF report¹⁷ that explores the potential of ODL in basic education found many innovative but stand-alone ODL initiatives. However, it pointed out that what is needed is: “Governments’ acceptance of the importance of alternative and flexible routes to access formal qualifications, and to actively establish such a route, which is built on a system of credit accumulation and transfer. This on its own will have a significant impact on opening up access for hard-to-reach groups, and has the potential to provide a route to recognized qualifications for non-governmental organizations and non-formal education providers.”

Opportunity to Reform the Education System

Traditionally, Asian students are expected to be respectful listeners and do not question the teachers. From the experience at the Virtual University of Pakistan, learning online creates an “electronic curtain” behind which students become more open to asking questions. Moreover, with a wide variety of educational resources available online for free, learners are now no longer restricted to a single source of information—their teacher. Thus, the online interaction with professors and peers tends to be richer.¹⁸

Yet, the pedagogical structure for most distance learning courses remains traditional. Although there might be a variety of media types, such as videos or reading, the lesson design is still in the “sage on the stage” mode, where the course knows the content and pushes it out on students, instead of creating a space for students to innovate and collaborate together, whether fully online or in a hybrid model.

Online education has the potential to focus on the learning, not seat time, and a movement toward competency-based pathways. Students complete work at their own pace and seek feedback and instruction as they need, rather than when the teacher decides. Students are immersed in a variety of technology tools and media, allowing for different ways to learn content.

For example in Bangladesh, the Bangladesh Technology Enhanced Language Learners’ Association is an ODL and e-learning initiative that uses the flipped classroom method. The flipped classroom is a form of blended learning in which students learn new content online by watching video lectures, usually at home, and what used to be homework (assigned problems) is now done in class with teacher offering more personalized guidance and interaction with students, instead of lecturing.¹⁹

Many ODL courses in developed countries are starting to use a competency-based model to measure the students’ mastery of the content rather than simply using the amount of time they have spent in class. That means highly motivated candidates can progress through their courses as quickly as they want, as long as they can demonstrate the expected skills.

¹⁷ UNICEF and Cambridge Distance Education Consultancy, *Open and Distance Learning for Basic Education in South Asia: Its potential for hard-to-reach children and children in conflict and disaster areas*, 2009. Available from http://www.unicef.org/rosa/ODL_Report_%28Final_version%29__10_Dec_09.pdf.

¹⁸ Digital Review of Asia Pacific, “Google+ Hangout on ICT in Education”, 9 September 2013. Available from <http://www.digitalreview.asia/resources/google-hangout-on-ict-in-education>.

¹⁹ Wikipedia, “Flip teaching”. Available from http://en.wikipedia.org/wiki/Flip_teaching.

3. The Way Forward

The United Nations Asian and Pacific Training Centre for Information and Communication Technology for Development (UN-APCICT) was established on 16 June 2006 in Incheon, Republic of Korea, with a mandate to build the human and institutional capacities of its member States in the use of ICT for development (ICTD).

The Centre's flagship programme is the ***Academy of ICT Essentials for Government Leaders***.²⁰ It aims to build the ICTD capacity of policymakers and government officials. The programme has a comprehensive, modular ICTD training curriculum, and a wide network of partners that are working with UN-APCICT to roll it out at the national level.

Feedback from member States and Academy programme participants has highlighted the need to expand the beneficiary group of the Centre's efforts, and help build the ICTD capacities of students and youth in addition to policymakers. As the youth of today go on to occupy leadership positions in society in the coming years and assume the roles of policymakers and key decision makers in academia, the private sector and civil society, their ability to recognize and leverage the link between ICT and developmental goals will be crucial. Towards this objective, UN-APCICT launched the ***Turning Today's Youth into Tomorrow's Leaders*** programme, with a number of projects focused on building the ICTD capacity of young people, including a project entitled "Strengthening ICT for Development Education in Institutions of Higher Learning" that is aimed at enhancing the coverage of ICTD education in undergraduate and graduate programmes at universities in the Asia-Pacific region. Under the project, the Centre developed a customized ICTD curriculum for universities entitled "Primer Series on ICTD for Youth".

UN-APCICT's programme execution strategy has been based on the principles of promoting partner-driven localization and customization of the content, building a pool of local resource persons to enable institutionalization of the programmes into national capacity development frameworks and providing multiple channels for delivery of the training. On the latter, UN-APCICT recognizes ODL as an important and effective mode of delivering education and training. UN-APCICT is seeking to consolidate its strategy on ODL, and establish partnerships with institutions to exponentially expand access to ICTD courses, and create a critical mass of ICTD professionals.

The ***APCICT Virtual Academy*** (<http://elearning.unapcict.org>) serves as UN-APCICT's e-learning platform and offers ICTD training modules in the form of online video lectures and synchronized PowerPoint presentations. ICTD training modules are

²⁰ See <http://www.unapcict.org/academy>.

currently available in three different languages—English, Bahasa Indonesia and Russian. A DVD version of the APCICT Virtual Academy is also available for those without Internet access.

Some initial partnerships for distance learning have been established. The APCICT Virtual Academy modules are being regularly utilized by the University of Indonesia. In India, the Department of Information Technology has prescribed the online modules as a mandatory training course for about 400 staff members, who have been recruited from the private sector to join e-government teams at the state/provincial level. The ASEAN Cyber University is using the APCICT Virtual Academy for e-learning through a partnership with Seoul Cyber University.

Based on the country case studies, strategies for promoting online and distance learning include:

- Partnering with universities and training institutions that offer distance learning courses to develop content for delivery in distance learning or blended learning modes. Except for where UN-APCICT has initiated ICTD capacity building, all the countries studied do not have courses on ICTD, and some initial assessments have shown the demand for such courses. This gap can be filled by adapting the Academy modules and/or the Primer Series. For example, in Bangladesh, a country highly affected by climate change effects and growing disaster risks, modules on ICT for Disaster Management and on ICT, Climate Change and Green Growth are very relevant. In Sri Lanka, the Distance Learning Centre - Sri Lanka is planning to target courses at the SME sector, and UN-APCICT can support the use and adaption of its training modules.
- In countries where UN-APCICT has already established partnerships with training institutions to integrate the Academy Programme, or with universities to integrate the Primer Series on ICTD for Youth, most of the courses are still delivered face-to-face. As distance learning has the potential to create a multiplier effect in reach, exploring the feasibility of offering the courses through distance learning mode can contribute to increasing the programmes' reach.
- Hosting and facilitating university-university networking and collaboration in distance learning, including the sharing of experience and good practices through events, training courses, pilot initiatives and development of case studies.
- Advocating for policy frameworks that further the development of online and blended learning, including the increase of funding and access, the shift to competency-based models, and the focus on quality education. This can be achieved through awareness events, training courses and development of policy briefs.
- Supporting research and knowledge sharing on the development of new instructional design models that use technologies effectively.
- Developing “how-to” guidelines for transforming conventional educational material to interactive online materials by:
 - Including case studies for online and mobile learning, educational games, apps, multimedia interfaces.
 - Providing information on how to ensure quality and improvement in educational outcomes (standards and indicators).

Country Case Studies

Bangladesh

Hamim Al Ahsan and Fahima Khanam

1. The Open and Distance Learning Environment

A pioneer of open and distance learning (ODL) in Bangladesh is the Bangladesh Open University (BOU), a public institution established in 1992 by the Act of Parliament. BOU's enrolment is open to all learners regardless of their location and age, and the time it will take them to complete the course.

To address the challenge of providing education to Bangladesh's growing population, particularly in the rural areas, BOU makes use of information and communication technologies (ICTs) to deliver distance education. BOU regularly changes and redesigns its curricula and makes use of new ICTs (computers and the Internet) as well as old ICTs (cassette tapes and CDs) to ensure that education is accessible to all. BOU curates audio and visual distance learning modules, and copies them on cassette tapes and CDs that are mailed to students. These modules are also broadcasted on radio and television. At the same time, interactive modules are being designed for delivery on the web. At BOU, audio-videoconferencing technology is available to reach out to students in remote areas. Students usually gather at local centres with teleconferencing facilities for some face-to-face time with professors at the university. These mixed methods have allowed BOU to reach out to thousands of students.

There are other public institutions like Dhaka University and the Bangladesh Institute of Engineering and Technology that are continuously experimenting with ways to improve distance learning through the use of advanced ICTs. A few private universities such as BRAC University that can afford a robust ICT infrastructure have an online learning management system (LMS) that allows students to stay in touch with the course instructors and with other students through blogs, chats and online notification. In some instances, class lectures are recorded and uploaded on social media platforms such as YouTube so that they can be reviewed remotely. Videoconferencing is sometimes used in conducting courses, and in seminars with other institutions.

The Government of Bangladesh is supporting distance learning through tax

exemptions for computer hardware and software, and teleconferencing devices (for public sectors only). The Government is setting up computer labs and multimedia classrooms in primary and secondary schools, especially in rural areas. The Government is also allowing international organizations to operate non-degree trainings in distance learning mode. For instance, some international organizations are using mobile phones to teach English in rural areas.

Some international corporations and non-governmental organizations (NGOs) are using their videoconference facilities for training. They are also developing awareness campaigns for issues such as human rights and women empowerment for broadcast on television and radio. Disaster risk management is another crucial area where the distance learning mode is very effectively applied by broadcasting information about disaster preparedness when a disaster is expected. The information is being broadcasted by traditional means such as television and radio, but increasingly, web-based social media platforms such as YouTube and Vimeo are being used for disaster preparedness, awareness raising and distance learning in general.

Another enabling factor is the steady improvements in the ICT infrastructure. The price of broadband Internet is constantly going down, which means that more public and private educational institutions, as well as students are able to have access to high-speed Internet for ODL. Moreover, with the deployment of 3G mobile networks, this will enable the delivery of ODL modules on smart phones and tablets.

Educational institutions in Bangladesh are taking advantage of free and open source software and open educational resources that are available online to build up their distance learning capacity. The recent popularity of Massive Open Online Courses (MOOCs) offered primarily by US and European universities are enabling interested participants in Bangladesh to learn about subjects that they are interested in (some of which are not even available in the country) with assessments and accreditations. MOOCs are becoming popular gradually and some of the institutions are planning to incorporate content from MOOCs as a non-degree course.

1.1 Regulation and Policies

At present, only BOU can issue a formal degree through distance learning mode. This means that a student enrolled in a BOU course can attend classes remotely using the provided course modules, appear in exams and be certified for a degree. No other public or private institution has the right to confer a degree in the same way. They may conduct one or many distance learning courses but the accreditation for that course has to be like all other courses of the institution. They can also conduct non-degree and training programmes through distance learning.

This policy limits the growth of distance learning in Bangladesh. Some educational institutions may have a robust ICT infrastructure, and the expertise to curate and effectively deliver distance learning modules. Yet, they cannot conduct a formal distance learning programme.

IP-based videoconferencing equipment is one of the core technologies used for distance learning these days and the policy that offers tax exemption on teleconferencing devices for public sector organizations only is limiting the

private sector's ability to purchase these devices as the import tax is 100 per cent in some cases. The protocol for acquiring VoIP license is also very complex for the private sector. However a few private education institutions will soon be connected to the National Research and Education Network (NREN) that will enable them to conduct videoconferencing whenever they want.

1.2 Lack of ICT Professional Competencies and Infrastructure Inadequacies

Overall, distance learning in Bangladesh is not taking full advantage of the advancements in ICTs and the new tools available now for distance learning. Conducting distance learning courses on computers, smartphones and tablets with Internet connection has allowed these courses to be more interactive, interesting and effective for students. However, only a limited number of distance learning courses are re-designing their courses for the web.

In Bangladesh, there is an abundance of professionals that are highly skilled in different areas of ICT, including graphic design, interactive design and web technology. However, only a few of these professionals are working in the education sector. "Education technology" is perceived to mean the ICT infrastructure of the university campus with Internet connection and a website. Insufficient attention is being paid to how ICTs can be used to increase access to education and enhance the quality of education.

There are very few research units on education technology (mostly owned by the public sector) and even fewer in the private sector. In fact, only two or three private universities have just started education technology research. For example, BRAC University is the first university to roll out a university-wide LMS using Moodle.

The lack of general interest in the use of ICT for ODL is resulting in the lack of skilled personnel and technologies dedicated to distance learning. A few private universities are considering some interesting initiatives for distance learning such as a repository of video lectures, cloud-based ODL system, and video and audio conference via the Internet, but implementation of these initiatives are slow due to the lack of interest and expertise.

Internet speed is another aspect that is constraining proper implementation. Modern distance learning modules contain videos and high bandwidth is required to stream those over the Internet. Interactivity and videoconferencing also require a significant amount of bandwidth. Although Internet service providers are now offering high-speed Internet, end users are still finding it inadequate. Using YouTube videos as benchmark, the most common remark is: "If I cannot even watch a YouTube video how can I participate in an online course."

Despite the importance of education technology for distance learning, a large proportion of Bangladesh's population do not have access to computers and the Internet and are not ICT literate. The use of the "old" ICTs remains important in order to ensure that education remains accessible to all.

1.3 Public Perception of Open and Distance Learning

Some of the distance learning modules are telecasted through the national television channels. The public's perception of ODL is largely influenced by the distance learning modules that they see on these television channels. Only those people who are "tech savvy" are exposed to distance learning modules available on the web, and even if they are aware of these online courses, they may still believe that face-to-face courses are better quality than online courses.

2. Open and Distance Learning Initiatives

2.1 Initiative 1: Bangladesh Open University (BOU)

Overview	BOU is an outcome of the Bangladesh Open University Act (passed in 1992 in the national Parliament).
Type of education	23 degree programmes and 19 diploma and certificate programmes. BOU offers Diploma in Computer Science and Application and some of the subjects are: Computer Basics (e.g. web design), Office Automation, Computer Programming (with C), Digital Systems and Computer Organizations, Operating Systems, Microcomputers and Microprocessors.
Process of curriculum and content development	The curricula and content are developed based on needs. Usually, one or two day long workshops are conducted to formulate ways to convert traditional contents and courses into distance learning modules. The contents are mostly recorded lectures (audio and video). The lectures are then copied in cassettes, CDs and DVDs and shipped to various study centres where these modules are used to educate.
Course design and delivery	Instructional and teaching strategies: The developed distance learning modules are played on big screen television at the study centres and the printed version of the modules are provided to the students. Usually a few instructors are present there to clarify any queries. In some cases, the modules are given to the students along with an instruction manual so that they can self-learn at home. Some vocational modules are telecasted through national television channels so that they reach everyone. A few resources (such as library items) are uploaded on the website. At present, real-time and synchronous lectures via videoconferencing are being conducted. To date, BOU has 6 schools, 9 divisions, 12 regional resource centres, 80 coordinating offices and 1,106 study centres.
	Target audience: Anyone who enrolls in the formal, non-formal or vocational programme at BOU.
	Technologies and platform used: Large projection screen, CD/DVD players, print media, satellite television channels, web portal, videoconferencing.

	Cost/benefit analysis: Costs include the production of the digital modules, shipping of the modules, human resources, and the purchase and maintenance of equipment. BOU is a public institution and all expenses are covered by the government. The total budget for ODL constantly varies as the number of students in this mode increases continuously. According to the statistic of 2010-2011, 378,382 students were enrolled in ODL courses at BOU.
	Marketing strategies: Some modules telecasted through the national TV channels intend to encourage enrolment in BOU courses. The ODL system is often talked about in seminars and conferences.
	Organizational issues: BOU is the only institution that can confer a formal degree through distance learning. All the modules produced are open educational resources and can be used by anyone.
Assessment and accreditation	Assessments are embedded in the modules through various forms of evaluations and anyone seeking for a formal degree in this system has to sit for formal exams in order to be certified with that degree.
Results and impact	All types of formal, non-formal and vocational education are reaching even the remotest part of the country, promoting literacy and building human capacity in different disciplines.
URL	http://www.bou.edu.bd

2.2 Initiative 2: BRAC University and the Global Distance Learning Network (GDLN) Centre

Overview	BRAC University is a part of BRAC, an NGO. The BRAC University GDLN Centre is an affiliate of the World Bank's Global Development Learning Network.
Type of distant learning education provided	GDLN Centre: Training sessions, workshops, seminars, webinars and short courses. These are some of the events organized by the BRAC University GDLN Centre: • APO e-learning courses since 2007 (over 600 participants) • Improving the Investment Environment through Infrastructure Development, organized by AFDC on 14 June 2012 (5 participants) • Learning from Mega Disasters, organized by TDLC on 3 April 2012 (6 participants) • Microfinance Training of Trainers Courses, organized by TLDC since 2008 (more than 45 participants) • Practice and Policies on Natural Resource Management, organized by TERI on March-June 2013 (11 participants) • Rural Community Development (Enhancing Agricultural Productivity), organized by KDI on 21 March 2012 (10 participants) • Transport Infrastructure Development and Financing, organized by AFDC (Shanghai DLC) on 14 June 2012 (3 participants) • Seminar on the Use of ICT for Anti-Corruption, organized by VDIC on 3 April 2012 (6 participants) • South-South Knowledge Experience Exchange on Strengthening Local Governance, organized by the World Bank on 10 August 2012. • Understanding Science and Policy of Climate Change, organized by TERI in March 2011 and April 2012 (34+14=48 participants) • Video Conferencing Series on Green Growth, organized by KDI on 14 and 25 November 2012 (7 participants) • World Bank Institute Online Social Accountability training course, organized by ANSA on 5 March-16 April 2012 (21 participants) The GDLN centre recently organized a seminar on Astrophysics of White Dwarf, Pulsar and Black Hole in collaboration with the Department of Mathematics and Natural Sciences at the University of Indonesia, Tribhuvan University in Nepal (NREN VC Centre), and Tokyo Development Learning Centre in Japan. BRAC University: Asynchronous mode of distance learning is an integral part of the curriculum. Almost all the departments of the university take advantage of the communicative and interactive attribute of the installed LMS for their respective courses. The English and Humanities Department of BRAC University is designing a blended classroom course with the history department of TUFTS University, Boston. The course commenced in January 2014.
Process of curriculum and content development	GDLN Centre: The workshop and the seminar contents are developed by organizers. A brainstorming session is normally organized to discuss ways to adapt existing content for distance learning. BRAC University: Digital version of the contents used for teaching in the formal courses is uploaded and made available on the university's LMS.

Course design and delivery	Instructional and teaching strategies GDLN Centre: The real-time and synchronous part of the interaction takes place via videoconferencing, and the asynchronous aspects are executed through the web portal and on the LMS. BRAC University: Asynchronous activities such as online assignment submission, discussion forum and chatting are implemented for each course. A few blended classroom courses have been designed in collaboration with foreign universities.
	Target audience GDLN Centre: Government and private sector employees, NGO employees, research experts and academics. BRAC University: Undergraduate and postgraduate students.
	Technologies and platform used GDLN Centre: Videoconferencing devices, web portal and LMS. BRAC University: LMS, e-portfolio system and videoconferencing devices.
	Cost/Benefit analysis GDLN Centre: Costs include the purchase and maintenance of videoconferencing devices and broadband Internet connection, and the organization of the courses (e.g. facilitation fees and refreshments). Sometimes a small fee is charged to participants and the organizers for using the facility. They have a budget of about USD 32,000 for the execution of the courses. BRAC University: Costs include the establishment of research and development labs, and the hiring of researchers and specialists to develop and operate the LMS and e-portfolio platform.
	Marketing strategy GDLN Centre: Through e-mail contacts, posters and advertisement within existing and potential organizers of training courses and various workshops and seminars.
	Organizational issue GDLN Centre: The centre can only conduct non-degree courses. It can issue a certificate; but it cannot confer any degree. The centre is already equipped with state-of-the-art technology however it needs to involve more resource person for innovation and development. It also needs to offer more courses as with its technology and experience, it has the potential to do a lot more. BRAC University: The university incorporates the distance learning mode in its existing curriculum. The university needs to engage more resources and resource persons so that it can conduct distance learning in full scale.
Assessment and accreditation	GDLN Centre: The assessments are done using multiple choice questions, question and answer sessions, and discussions. BRAC University: Assessments are mostly done through the discussion forum (which is part of the course assessments). However, new ways of assessment are being developed for the upcoming blended classroom courses.
Results and impacts	GDLN Centre: The exchange of knowledge between countries is enhanced (since the centre can connect with other institutions using the videoconferencing facility). The learning and teaching process has become more interactive and participatory through the use of the interactive web portal and LMS. BRAC University: The communication between the course instructors is enhanced and the pedagogy has become much more interactive than it used to be. The setting up of the blended classroom course will enable the exchange of knowledge between students from different cultural backgrounds
URL	http://moodle.bracu.ac.bd

2.3 Initiative 3: BRAC Education Programme

Overview	The initiative is a part of the BRAC Education Programme Computer Aided Learning. This started off as a pilot project to promote e-learning in the secondary education system of the country so that the pedagogy is more accessible and interactive.
Type of education provided	Non-formal: The initiative is an alternative to the traditional secondary education system (from class 6 to class 10), and explores the impact of e-learning on the traditional pedagogy.
Process of curriculum and content development	The contents already available in the national curriculum are prioritized and converted to digital animations (e.g. an animation explaining Newton's third law of motion). The digitized contents are then uploaded on the website or copied in DVDs and delivered to the schools.
Course design and teaching strategies	Instructional and teaching strategies: Training is provided to teachers in rural areas on the use of the newly developed digital material for teaching. Equipment like multimedia projectors, computers and Internet modems are installed in schools. The teachers then facilitate the class as per their training. The training materials are free for anyone to use and can be downloaded from the website for self-learning or teaching.
	Target audience: Secondary level students.
	Technologies and platform used: Graphics animation technology for content development, web portal for hosting the contents, and multimedia class equipment for using the contents in class.
	Cost/ benefit analysis: The costs included the production of the animated contents, the web portal design and the acquisition of multimedia classroom equipment. This initiative was funded by BRAC. The contents are available for sale in DVDs at a very low cost. The sole purpose of the initiative was to experiment with e-learning in secondary level education and it showed some outstanding impact. The process actually made the learning and teaching methods more dynamic and interactive, and most importantly, it allowed mass participation.
	Marketing strategies: This newly innovated system is sometimes advertised in newspapers and through posters so that citizens are aware of the initiative.
Assessment and accreditation	Organizational issue: The contents (although copyrighted) are free for all to use. However, due to the lack of relevant technical competencies (i.e. graphics and web development skill), a certain standard is yet to be attained.
	The assessment is executed through multiple choice questions, fill in the blanks, and matching questions. Since the system is a modification of the existing system, there is no need for any extra accreditation.
Results and impacts	This system has reduced the gap between the instructors and learners in secondary level education. It has made learning more interactive and participatory.
URL	http://e-education.brac.net

2.4 Initiative 4: Amadeyr Cloud Limited

Overview	Amadeyr Cloud Limited is the only private company in the country that has blended vocational education with technology. It was founded by a group of professionals whose expertise has successfully made use of ICTs to address literacy challenges. The company uses the cloud computing platform as a backbone to deliver education. By using the Amadeyr Delivery System, it provides users of all literacy levels with access to public information such as their basic rights, disaster preparedness, health, education, agriculture and more.
Type of education	Non-formal primary level education, general awareness, corporate and vocational.
Process of curriculum and content development	The curricula are based on the surveys gathered from rural and urban areas. Android mobile software applications with interactive animations were developed based on survey results. The development team is comprised of experts in the areas of ICT infrastructure, project financing, public policy, legal and regulatory framework, cloud computing, and application innovation. The applications are hosted in cloud platforms managed by the company.
Course design and delivery	Instructional and teaching strategies: Customized tablets (the Amadeyr Tablet) with the preloaded Android applications for education are provided to the users. The applications are also stored in the company's own cloud computing platform and the tablet can access that platform through GSM, Wi-Fi and wireless mesh network
	Target audience: Rural women, farmers, children and corporate clients.
	Technologies and platform used: Scalable clouding computing, Android platforms, tablet PC and Android applications.
	Cost/benefit analysis: Costs for the content and the infrastructure development are covered by the investments of the owners, funding from donors and from the revenue generated from the corporate trainings. There is, however, no revenue generated from the distance learning that is conducted in the rural areas.
	Marketing strategies: This system is delivered directly to the users and no marketing was done. However, small-scale marketing was done through the donors, corporate agencies, local media agencies and social networks.
Assessment and accreditation	Organizational issue: Amadeyr Cloud has identified a unique niche that makes use of cloud computing to deliver educational content on tablets.
	Assessment is done by an evaluation module that is built in the applications.
Results and impacts	Although only some pilot attempts have been conducted so far, significant results have been shown through anecdotes. For example, a 70 year old lady learned to write within a month; women became significantly knowledgeable about acid violence; and farmers showed excellent outputs from what they learnt through the contents on Amadeyr clouds.
URL	http://www.amadeyr.org

2.5 Other Initiatives

Champs21.com (http://www.champs21.com)	Champs21 is a well-known e-learning initiative in Bangladesh. It is the initiative of the most popular English newspaper in the country, The Daily Star. The contents are mainly web-based games and applications that focus on school subjects such as Mathematics, English, Science, History, etc. The contents are designed mainly for school students, but anyone can access the contents.
Online English Course Modules and m-Learning	This is an initiative by BBC Media Actions that curate online course modules on English and English usage. The modules are copied in DVDs so that they can be widely distributed. They also offer online courses that are open to everyone. Moreover, they have introduced mobile learning in which podcast versions of course modules are stored in memory cards of mobile phones and are distributed to rural people. This way they are trying to build English proficiencies in rural regions of the country.
BDETELLA	The Bangladesh Technology Enhanced Language Learners' Association is an ODL and e-learning initiative that focuses on English language learning and teaching. The initiative is designed to run using the flipped classroom ²¹ method and it will have digital course materials for both teachers and students. The initiative is still in the design phase and it will be launched early 2014.

2.6 Open and Distance Learning Initiatives that Focuses on Building ICT Competencies

At present, there is no public or private institution in the country that focuses on building ICT competencies through distance learning. There are some NGOs and software firms that provide ICT training to their employees through videoconferencing and webinars with foreign collaborators who design the curriculum and the contents. Most of the ICT development training is conducted in academies and institutions that follow traditional classroom pedagogy. Nonetheless, learners interested in ICT and ICT for development issues can access open educational resources that are available online, or participate in ICT-related MOOCs.

Recently, steps have been taken to curate video lectures and screencasts on advanced computer science topics and post them on the Internet along with written instructions. This initiative is taken by some interested professors and university graduates who work in various ICT companies to explore and exploit the impact of online video lectures on advanced topics such as programming languages, cloud computing, database management, etc.

²¹ The flipped classroom is a form of blended learning in which students learn new content online by watching video lectures, usually at home, and what used to be homework (assigned problems) is now done in class with teacher offering more personalized guidance and interaction with students, instead of lecturing. Source: http://en.wikipedia.org/wiki/Flip_teaching.

3. Recommended Actions for UN-APCICT and Member States

The common challenges and priority issues that need to be addressed include the following:

- The ICT incompetency in the public sector
- The lack of knowledge about the tools that can be used to curate modern distance learning module and about systems that facilitate the delivery of such modules
- Incompetent implementation and utilization of already existing ICT technology by some public and private sectors
- Lack of education technology research unit in both public and private sectors (especially in universities)
- (To some extent) ICT illiteracy of the general public, especially in rural areas
- Absence of prominent academies and institutions that conducts ICT capacity building training through distance learning
- Lack of initiative by NGOs to focus on distance learning
- Heavy taxes on videoconferencing devices for private sector organizations
- The complexities of attaining VoIP license
- Lack of interest of the educators to shift to distance learning mode of education
- Inadequate Internet speed in rural areas
- Power outage - Most of the initiatives taken were intensely constrained by power disruptions

The niche areas for UN-APCICT and possible collaborations that could promote ODL include the following:

- Government and NGO education programmes - Collaboration can involve the production and delivery of a distance learning module related to the effective use of ICTs in different aspects of development such as disaster risk reduction, climate change and in project management. Initiatives should build on existing efforts rather than duplicate them.
- Public and private universities - Collaboration can include the provision of technical support for the establishment of education technology research units and LMSes that can enhance the production and delivery of interactive distance learning modules. For example, BRAC University already has full-fledged video conferencing units (with latest video conferencing devices), digital data management platform (i.e. LMS and e-portfolio platforms) and adequate IT infrastructure. UN-APCICT and other partner countries can offer ICT for development courses to students via ODL mode using this facility.
- Capacity building unit of government organizations, NGOs and private companies - Collaboration can involve the establishment of ICT capacity building training units that will be operated by distance learning mode.
- Academies and institutions that provide certificate courses and diplomas, and private IT companies that are contributing to social and economic development - Collaboration can involve the training and capacity development for these institutions and companies. For example, UN-APCICT and other partner countries can build ICT capacity in areas that Bangladesh has few expertise on such as cloud computing, database management and administration, advance graphics and animation, and artificial intelligence, and their applications in the different development sectors.

Country Case Studies

Indonesia

Dimas Agung Prasetyo and Tian Belawati

1. The Open and Distance Learning Environment

Indonesia is one of the most populated countries and the largest archipelagic country in the world. With over 240 million people spread across 17 thousand islands, this country is often called the sleeping giant because of its potentials. The fact that Indonesia has a large youth population, many experts have predicted that Indonesia will be one of the world's economic powers. It is even estimated that by 2030, Indonesia could become the world's seventh largest economy,²² overtaking Germany and the United Kingdom, assuming that Indonesia is able to capitalize on its youth population.

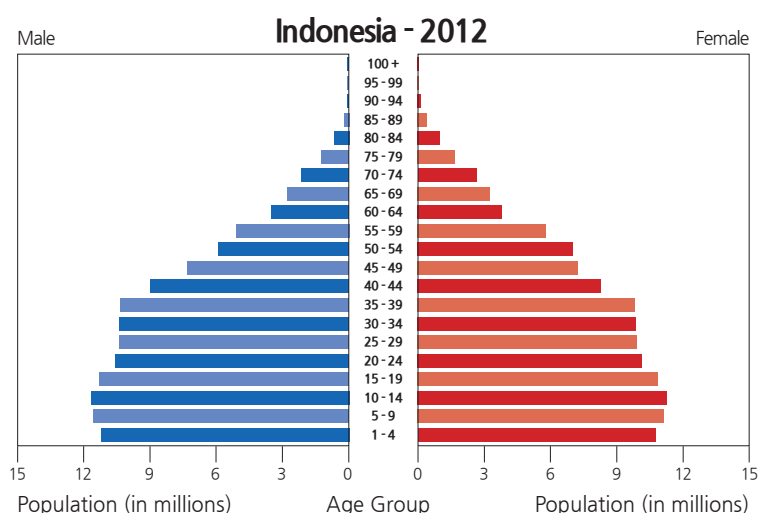


Figure 1: Presentation of localized Primer in Dushanbe on 30 January 2013

Source: Index Mundi, "Indonesia Age Structure". Available from http://www.indexmundi.com/indonesia/age_structure.html.

²² R. Oberman, R., R. Dobbs, and A. Budiman, The archipelago economy: Unleashing Indonesia's potential (McKinsey Global Institute, 2012).

The challenge lies in the nation's capacity to prepare this group of young people to become drivers of social and economic progress. Education, from early childhood to higher education, builds the foundation for youth to have the skills and knowledge for future employment, entrepreneurship and leadership. Education is also important for empowering youth to voice community's concerns and for making informed decisions related to health, safety and other issues. However, many people in developing countries continue to lack access to quality education.

Indonesia is considered successful in its efforts to ensure that all of its citizens complete primary education. Now, more than 95 per cent of children aged between 7 and 12 years old are attending classes across 165,000 primary schools. Unfortunately, the government is still struggling to increase the number of enrolments in junior and senior secondary schools and in higher education institutions. This country only has 43,000 junior schools, 25,000 senior schools and 3,070 higher education institutions.²³ These figures are far from meeting the demand for education.

This problem needs to be addressed to anticipate young population growth and the increase in demand for skilled labour to support the country's economy. The solution is not only to provide more physical infrastructures like school buildings and classrooms, but also to provide affordable and accessible educational services. Distance education has been a good solution to address this issue.

1.1 Distance Education for Professionals and Young Learners

Distance education has proven effective to widen access to education. The main characteristics of distance education are the separation between students and teachers, and the use of media to deliver instructions and interactions. Although many institutions still use print-based media to deliver course content, newer methods using new information and communication technologies such as computers and the Internet are now becoming more popular and demanded.

We know that distance education not only provides the service for formal education. Distance education can be directed as a service to improve professional qualifications. And in fact, the application of distance education in many countries is often initiated from employee qualification improvement programmes to support the country's national programmes.

Distance education is considered suitable as a medium to improve the qualification of employees because of its support of the concept of independent learning. Employees do not need to leave the workplace to participate in educational programmes. The employees are even strongly advised to use their job environment as an experimental laboratory to apply the concepts and skills gained during the learning process.

²³ Anies Baswedan, "Higher Education as an Instrument for Structural Change in Indonesia", Open Forum USINDO Brief, 16 March 2012. Available from <http://www.usindo.org/wp-content/uploads/2012/03/Baswedan-Anies-03-161.pdf>.

Many nations especially developing countries adopt distance education mostly for financial reasons, i.e. it requires fewer educators, less classroom spaces or any physical infrastructures. Bollag and Overland³ mentioned that developing countries are turning to state-run distance education programmes to respond to the increasing enrolments and the lack of physical building space.²⁴ Distance education also promotes flexibility and independence for the learners to structure and manage the learning process that fit them best.

However, distance educators also face a common phenomenon of high drop-out rates. Although there are many reasons causing this phenomenon, learner's characteristics are believed to be one of the significant factors. Bandura's Reciprocal Causation Theory describes the relationships between behaviour of dropout/persistence and three influential factors: course, environmental and person factors (see figure 2). Younger learners may have not developed the capacity to learn as independently as adult learners, and therefore they still need guidance to enhance their ability to self-regulate their learning process. Young adults are still in the stage of searching and creating identity, reforming relationship, exploring and trying any possibilities.²⁵ Thus, they still need social interactions to develop their identities and measure their self-confidence among their peers, and to enhance their process of becoming a self-reliance and autonomous learner.

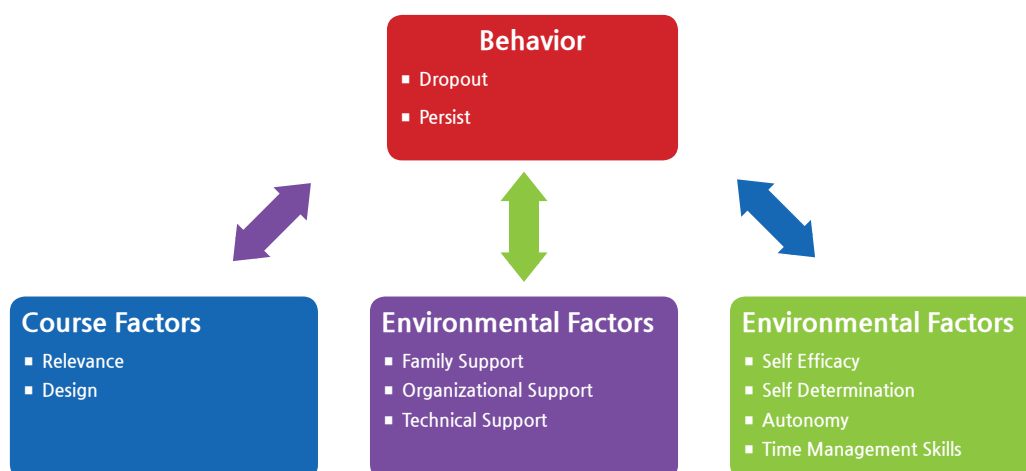


Figure 2. Modified Bandura's Reciprocal Causation Theory

²⁴ Doug Valentine, "Distance Learning: Promises, Problems, and Possibilities", Online Journal of Distance Learning Administration, Vol. 5, No. 3 (2002). Available from <http://www.westga.edu/~distance/ojla/fal53/valentine53.htm>.

²⁵ Tripod, "Daniel Levinson: Theories of Life Stages and Human Development", undated. Available from <http://humangrowth.tripod.com/id3.html>.

A modified version of Bandura's theory can be used as a reference in course design and delivery. The key is how to incorporate young learners' characteristics into course structure and activities, helping them to build self-efficacy and maintain motivation. For example, by utilizing individual and collaborative learning in course activities or assignments, it will encourage students to participate in team activities. Social interactions will help students develop reasoning, critical thinking skills, as well as communication skills, while individual learning helps students to develop their independent potentials. To facilitate the process, the learning environment must be designed to support social interactions where learners can be grouped based on their interests and needs. The remaining question is then how or in what way these interactions can be performed in the distance education environment where students are less likely to meet in person.

1.2 Technology and Tools for Social Interaction

Thanks to the advancement of technologies, distance learning is becoming increasingly easier to do. Web 2.0 technologies, also known as the second generation of Internet usage, allow Internet users to construct knowledge collaboratively, which is ideal for virtual learning. Web 2.0 applications such as blogs (e.g. Blogger and Wordpress), media sharing sites (e.g. Flickr and YouTube), social media sites (e.g. Facebook and Google Plus) and wikis (e.g. Wikipedia) can be used as effective teaching and pedagogical tools. These platforms allow sharing, informing, communicating and interacting. Thus, Web 2.0 allows users to be active in creating content (user generated content). In learning theories, the importance of active participation, critical thinking, social presence, collaborative learning and two-way communications are emphasized for quality learning.²⁶



Figure 3. Modified Bandura's Reciprocal Causation Theory

²⁶ Y. K. Usluel, and S. G. Mazman, Adoption of Web 2.0 tools in distance education, World Conference on Educational Sciences, Cyprus: Procedia, 2009.

Web 2.0 technology allows students to interact synchronously as well. Internet-based video conferencing service, generally referred to as web conferencing, allows multiple users to meet together in a virtual room and share information using audio and video tools. This technology has evolved into various models such as webinars and webcasts. A webinar is an acronym for web and seminars, and can be interpreted as presentations, lectures or conferences conducted over the web, while a webcast is a one-way broadcast such as live video streaming (as shown on television).

Regarding the cost for utilizing Web 2.0 for learning activities, it is apparent and fortunate that Internet access is becoming affordable. The increased numbers of Internet service providers in Indonesia make Internet connection price very competitive with more options to choose so that students do not necessarily have to visit the cybercafe to access the Internet. Table 1 shows the price comparison of Internet connection from a variety of mobile Internet providers in Indonesia.

Operator	Package	Price (IDR) USD 1 = IDR 11,000	Quota	Max Speed
Esia	Super Deal	30,000	1 GB	153.6 Kbps
Axis	Axis Pro	24,900	750 MB	7.2 Mbps
Axis	Axis Pro	49,000	1.5 GB	7.2 Mbps
Esia	Super Mega	50,000	2 GB	3.1 Mbps
Indosat	Super 3G+	50,000	1.2 GB	7.2 Mbps
Indosat	Super 3G+	25,000	500 MB	3.6 Mbps
Kartu As	Ultima	50,000	300 MB	3.6 Mbps
Kartu Halo	Ultima	50,000	1 GB	14.4 Mbps
Simpati	Ultima	25,000	150 Mb	7.2 Mbps
Simpati	Ultima	50,000	600 Mb	7.2 Mbps
SmartFren	Connex	50,000	2 GB	14.7 Mbps
SmartFren	Connex	20,000	600 MB	3.1 Mbps
SmartFren	Connex	49,000	2 GB	5.12 Mbps
Three	Internet	50,000	1 GB	7.2 Mbps
XL	Hotrot 3G+	49,000	500 MB	7.2 Mbps
XL	Hotrot 3G+	25,000	200 MB	7.2 Mbps

Table 1. Internet price comparison in Indonesia

2. Open and Distance Learning Initiatives

In Indonesia, the first educational radio broadcast was aired in 1950 in Western Java. The radio broadcast was intended for residents who could not attend formal education due to economic conditions, civil war and rebellions that occurred at that time. In 1955, the government started to launch correspondence diploma programmes to upgrade teacher qualification. Unfortunately, the unstable political situation at that time forced the government to focus on efforts to stabilize the government, and the development of the education sector including distance education was hampered.

During the “New Order” government era when the political and economic conditions improved, and in the “Oil Boom” era, the Government of Indonesia rolled out several national projects, one of which is targeted at developing the education sector, including distance education. A radio broadcasting programme for primary school teachers was launched in 1970. The programme gained wide acceptance and support from people, and in 1975 the programme was televised in collaboration with the Palapa Satellite Project. This Palapa Satellite Project also resulted in the emergence of new distance education programmes.

Around the same time, the government shifted its focus to provide education services for teachers in secondary schools and at universities. A programme to upgrade junior level teachers using modular instructions for independent study started in 1981. This was followed by the launch of a programme to train junior university lectures in eastern Indonesia universities in 1984.

Universitas Terbuka (UT), also known as the Open University of Indonesia, is the 45th state-owned university founded in 1984 and the only university in Indonesia that exclusively uses the distance learning system. The initial mandate of the university is to widen access of higher education to all citizens, including upgrading primary and secondary school teacher’s qualification up to full-teacher training degree.

The university employs an open and flexible distance learning system to allow every Indonesian to enroll regardless of age and place of residence, as long as they have a high school certificate or its equivalent. With its flexible system, UT has been able to reach “the unreached” group of students, and currently has more than 500,000 active students, placing the institution in 6th place among mega universities in the world.

Age Group	Number	Percentage
~ 25	80,697	15.13
25 ~ 29	165,483	31.03
30 ~ 34	100,550	18.85
35 ~ 39	55,369	10.38
40 ~ 44	47,023	8.82
44 ~	84,205	15.79
Total	533,327	100.00

Table 2. Universitas Terbuka Students Based on Age Distribution (as of December 2013)

Table 2 shows that UT is experiencing the same trend, where the number of young students is likely to increase. Student data captured at the end of 2013 showed that the number of young students (<35years old) has reached 65 per cent of the total student population. This shows a good sign that young people are choosing to pursue their higher education through distance learning mode, and they believe that the quality of education services through distance learning is equal to the quality of that offered by face-to-face systems. They can also take advantage of the flexibility of time, which is one of the advantages of distance learning.

However, this situation also raises new problems for UT. Young students, who generally just graduated from high school, are usually less mature, more dependent and emotionally needing social interactions. The openness and flexibility offered by distance education system may overwhelm them because it requires the ability to self-regulate and self-motivate. It is partly for this reason that UT are now providing several programmes and learning tools to assist and help students cope with the distance education environment. The key is personalization of service with the mass education system: How to provide personalized approach and treatment in order to maintain students' motivation and spirit, especially when they have problems in their studies.

A few years ago, personalized approaches like that may be very difficult to offer, but the previously discussed technologies have allowed distance education providers such as UT to offer a supportive environment for distant education. The interesting fact is that the technology used does not have to be a sophisticated one: it can be as simple as short message services (SMS). Through SMS broadcast system, UT regularly sends personalized messages such as birthday greetings, season's greetings and motivational messages. Students' feedback has shown that they appreciate the messages and the personal reminders for their studies, thus this method has been claimed effective. Students have expressed that they felt guided in their learning process, and the most important thing is that they felt like they are being treated as human beings, and not just statistics in a database.

UT also makes use of social media. Students, especially the younger segment, are generally already familiar with and are users of popular social media applications such as Facebook and Twitter. Besides using these social media as a supplement to the formal learning management system (LMS), UT also uses these to gather feedback from students. Information gathered through social media sites includes what they are doing, what they feel, what they need and what they want to do in their future studies. This information is valuable input for the university's continuous improvement efforts. In addition, UT can also disseminate relevant academic information and news through different social media sites. Nowadays, students do not have to go to the regional offices to look for information; this information goes directly to the students through their message inboxes or their Facebook walls. Social media also helps students form a community based on their interests. Surely this is also used by some students and tutors to form study groups, where students can go to the group page and interact with other students and tutors



Figure 4. Screenshot of UT's official Facebook site and an example of a student's community page

Furthermore, as an additional service to the students, UT has recently launched the use of Office365 service. This service is based on cloud services offered by Microsoft that is free for educational usage. Office365 offers integrated communication tools combined with social media tools and productivity applications such as Word, Excel and Power Point. With this technology, more complex interaction between teachers and students, and among students, can take place online. For example, one student can create a Word file and then share it with others using e-mail or by posting it on his/her "wall" in his/her social media page, and invite other to comment. Students can also invite others to discuss their projects using the webinar application. All of these activities can be managed and done in the Office 365 application interface.

Some conventional universities in Indonesia are starting to blend face-to-face and distance learning methods using similar technologies discussed above. In 2004, Indonesia University launched blended learning courses that combined face-to-face classes with computer-mediated contents and activities. Institut Teknologi Bandung created School on the Internet in Asia that used teleconferencing facilities to deliver courses. Universitas Gajah Mada also followed this trend and the Faculty of Engineering led a small-scale project that utilized problem-based learning.²⁷

Some universities, especially private-owned ones, see distance learning as an opportunity to expand their student-base, and as a result, they have introduced distance learning programmes for formal and non-formal education. Most of these educational programmes use the blended learning approach. However, there are a few private universities that offer full distance educational programmes now. For example, Bina Nusantara University offers full online courses for undergraduate programmes using their own developed learning management system. Aptikom offers a graduate programme for computer study using video conference technology. These initiatives show the positive development of distance education in Indonesia. It also shows how the appropriate use of technology can help the development of distance education and address the problems that often overshadow those who want to join distance education programmes.

²⁷ Problem-based learning is a student-centered pedagogy in which students learn about a subject through the experience of problem solving. Students learn both thinking strategies and domain knowledge. Source: http://en.wikipedia.org/wiki/Problem-based_learning.

3. Conclusion

The younger generations in Indonesia now perceive distance education as an alternative method to higher education and further studies. However, younger students are more likely to experience difficulty that may lead to drop out. This is largely due to their lack of readiness in dealing with the distance education system that requires self-regulation, self-determination and independence. The state-of-the-art technologies and social media tools are now available to address this lack of readiness.

Country Case Studies

Kyrgyzstan

Anna Kutanova

1. The Open and Distance Learning Environment

In 2012, Kyrgyzstan decided to take part in the Bologna process—a major reform of higher education in Europe to ensure a quality higher education system and a more compatible and comparable system, including the recognition of degrees and academic qualifications, and exchanges between institutions. In compliance with the Bologna process, the Ministry of Education decided to transfer all part-time studies at universities to distance learning programmes. At the same time, the Ministry of Education plans to improve the quality of higher education in Kyrgyzstan through the introduction of modern technologies in distance learning education.

In 2012, there were about 100,000 part-time students in Kyrgyzstan that were transferred to distance learning programmes.

The Education Act of Kyrgyz Republic (N 92) was updated on 30 April 2013 to include distance learning education. Universities in Kyrgyzstan that want to introduce distance learning programmes must apply for a license at the Ministry of Education.

The challenges of implementing distance learning education include the inadequate ICT infrastructure and the lack of IT professionals. The public universities find these challenges more difficult to overcome as they have limited budget. The private universities are actively developing distance learning programmes in order to attract new students as well as to provide a more flexible learning environment. Besides, private universities devote more budget to technical infrastructure and innovations.

Despite the limited budget available in public universities, some public universities have been able to introduce distance learning and develop e-learning platforms through the leadership from senior management and commitment of their staff members. For example, the IT staff at Kyrgyz Russian Slavic University (KRSU) created two e-learning platforms without any budget. Other universities have organized fundraising projects to purchase equipment for distance learning.

Leadership and the commitment of senior management to implement distance learning at the university are critical. This is because major efforts are needed to develop the distance learning platforms, and organize training for all the professors and other users of the platform. The distance learning platforms have been used for test verification, attendance monitoring, study progress analysis, notification to students, planning, and course material distribution.

Once the distance learning platform is established, many public universities are faced with the challenge of providing technical and helpdesk support, and the continuous monitoring and maintenance of the distance learning platform. There is generally a lack of personnel to provide quick and qualified customer support at public universities.

The KRSU conducted a survey of 42 respondents who were visitors of the e-learning platform to determine their use of electronic educational resources (EER). The results are as follows:

- 29.3% of the respondents would like to use EER but do not have technical equipment.
- 26.8% of the respondents use EER.
- 9.8% of the respondents felt that the contents in the EER are not good enough.
- 9.8% of the respondents are looking for EER but they did not find resources that are suitable for their course.
- 9.8% of the respondents are against this new development.
- 7.3% of respondents do not use EER and do not plan to use it.
- 7.3% of the respondents plan to use EER.

2. Open and Distance Learning Initiatives

2.1 Manas University

The Kyrgyzstan-Turkey Manas University was founded in 1995 between governments of the Turkish Republic and Kyrgyz Republic and is now one of the leading universities in Kyrgyzstan.

Manas University has the highest budget for its education among the Kyrgyz universities. The University is known to have top professors in the country with high quality instructional and teaching strategies adopted from Western European countries.

The University has more than 550 academic staff. The University also has modern laboratories, film studio and computer classes.²⁸ The curriculum and content of the courses are developed by the hired professors according to the requirements of the Study Department of the University and the standards set by the Ministry of Education. Manas University uses two languages of instruction—Kyrgyz and Turkish.

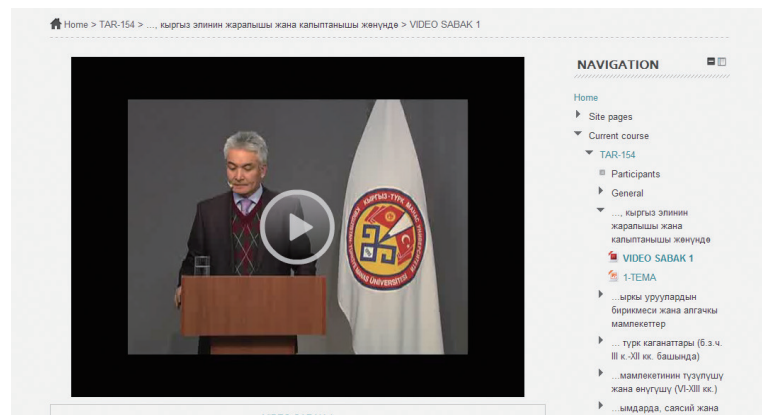


Figure 5. Screenshot of Manas University's e-learning platform

To add value to conventional face-to-face courses, some professors have started making videos of their lectures so that students can watch them at home. These video lectures are uploaded on the University's e-learning platform (<http://eders.manas.edu.kg>). It is important to mention that some course materials have open access for guest users.

²⁸ Higher Education Reform Virtual Community, "Diversification of Funding, Autonomy & Strategic Planning at Universities: Kyrgyzstan-Turkey Manas University". Available from <http://bishkek2013.bolognaexperts.net/page/kyrgyzstan-turkey-manas-university>.

2.2 Kyrgyz Russian Slavic University (KRSU)

KRSU is one of the biggest universities in Bishkek and gets its budget from the Government of the Russian Federation. Like at Manas University, the course curricula and contents are developed by hired professors and require the approval from the Study Department before they can be taught at the University.

KRSU targets students of Law, Economics, Journalism, Management and Technology of Transport Processes. These departments have part-time education programmes that are now being transferred to distance learning programmes according to Kyrgyz legislation.

KRSU developed two e-learning platforms for the students and teachers (<http://cemz.krsu.edu.kg> and <http://e-learn.krsu.edu.kg>). Without any budget for the e-learning platforms, they were developed by the IT specialists of the University. But once the e-learning platforms were launched, additional IT specialists were needed to provide qualified helpdesk and technical support to its 11,000 students. The University is in the process of developing assessment methods and accreditation for its distance learning programmes. In general, in terms of its quality of education, the KRSU has the highest quality of education in the Russian language of instruction.

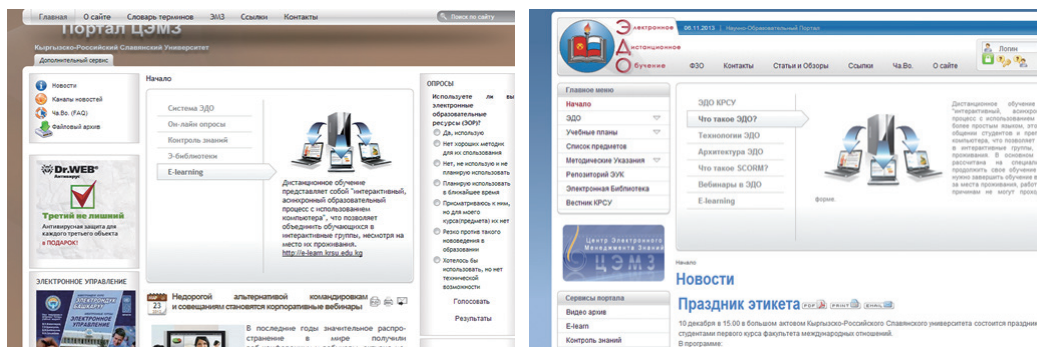


Figure 6. Screenshots of KRSU's e-learning platforms

2.3 Open and Distance Learning Initiative in School Education

On 3 September 2012, Bilimkeni Academy (<http://bilimkeni.kg>), an educational website with 720 video lessons in 12 school subjects in the Kyrgyz language was launched. This is an international project supported by Soros Foundation.

The length of the video lessons is from 5 to 15 minutes. All the lessons have been developed by 13 teachers. The video tutorials cover 13 subject areas that included: algebra, astronomy, biology, chemistry, economics, geography, geometry, history, Kyrgyz, Russian and English languages, literature, and physics. The main target audience is students who are not able to go to school. The major drawback of this educational web resource is that all video lessons are hosted on YouTube and video streaming is quite costly for local audience.



Figure 7. Screenshot of Bilimkeni Academy website

2.4 Open and Distance Learning Initiatives in Health

The Kyrgyz Research and Education Network (KRENA - <http://www.krena.kg>) has been using videoconference facilities to learn about telemedicine from other countries.

On 30 April 2013, KRENA organized a videoconference on telemedicine that was attended by doctors and representatives of the scientific and educational computer networks of Tajikistan, Turkmenistan, Kazakhstan and Kyrgyzstan, and Prof. Shimizu, Chairman of the Center for Telemedicine in Kyushu University Hospital, Japan. In the videoconference, four types of video systems were presented for the further development of telemedicine in the region—DVTS, H.323, Vidyo and HD-SCR.

KRENA has also been participating in videoconferences on telemedicine such as the one organized by the Asia-Pacific Advanced Network that took place on 19-23 August 2013. Doctors from the Ministry of Health, and the Treatment and Health Association Department of President Affairs of the Kyrgyz Republic participated in the videoconference to learn and share experience with doctors from other countries including Japan, Republic of Korea and Thailand.



Figure 8. Videoconference on telemedicine

2.5 Initiative in Building ICT Competency

KRENA provides training to system administrators of universities and schools in system security and Linux. In addition, training is provided to school teachers of information technology. In 2013, KRENA implemented a Smart School Project where Internet was provided to schools using Wi-Fi connection.

KRENA uploaded a series of “how-to” videos on its website on how to use Picasa, BB Flashback Express, Translators in Google, Google documents and calendar, and audio editing and recording on Audacity.

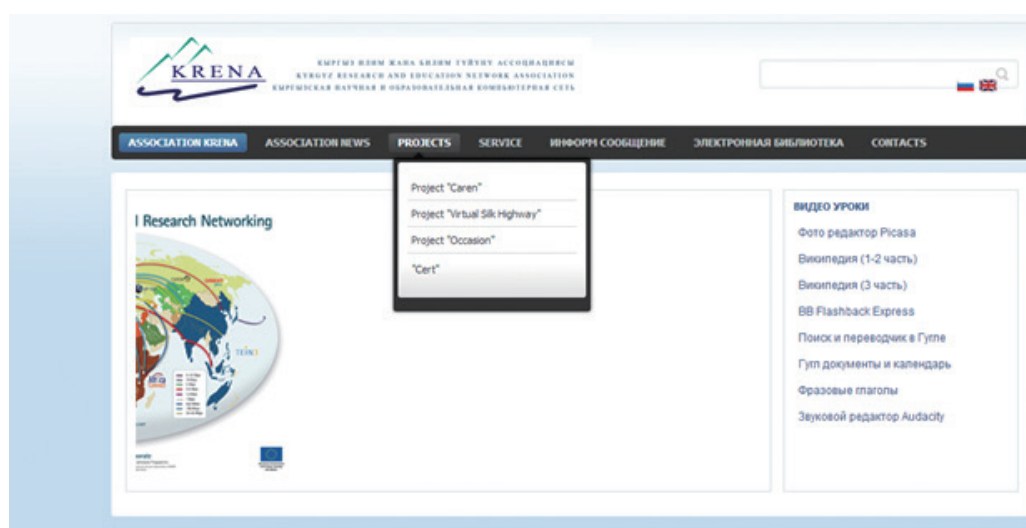


Figure 9. Screenshot of KRENA's website

Many of these videos are in Kyrgyz language and were created by the International Research and Exchanges Board, an international non-profit organization.

3. Recommended Actions for UN-APCICT and Member States

As mentioned earlier, leadership and the commitment of senior management to implement distance learning is critical. Generally, senior management of academic and research institutions in Kyrgyzstan understands the importance of distance learning but it is not a priority for implementation. Continuous awareness raising and exposure to distance learning initiatives and their results, particular for senior managers, is important. A lot of ICT training is taking place in Kyrgyzstan but without commitment from senior management, implementation of distance learning initiatives will be hampered.

Pilot projects in distance learning are also useful to learn about the different platforms, applications and tools for distance learning, and about the good and bad practices of distance learning projects.

Another key aspect for distance learning is the development of relevant educational content and online platform that is open and easily accessible to all to use and adapt; mechanism to monitor the training progress of students; and proper and strict examination procedures via web cameras. These aspects need to be emphasized in Kyrgyzstan.

UN-APCICT may be interested in collaborating with universities to, on the one hand, build their distance learning capacity, and on the other hand, develop educational content on the use of ICT for development.

UN-APCICT may consider providing advisory support and/or implementing a pilot distance learning project in collaboration with one or more academic and research institutions in Kyrgyzstan.

UN-APCICT could also consider involving academic and research institutions in Kyrgyzstan in any events such as conferences, workshops and training courses that aims to share experience about distance learning and ICT for development.

Country Case Studies

Pakistan

Naveed A. Malik

1. The Open and Distance Learning Environment

Pakistan is one of the earliest adopters of open and distance learning (ODL) in the Asian continent. The Allama Iqbal Open University (AIOU) opened its doors as the second Open University in the world in 1974,²⁹ barely three years after the Open University, UK admitted its first cohort.³⁰ This early entry into the field was a direct result of the National Education Policy of 1972 that stated: “Open Universities are being used in several countries to provide education and training to people who cannot leave their homes and jobs for full time studies. An open university will, therefore, be established to provide part-time educational facilities through correspondence courses, tutorials, seminars, workshops, laboratories, television and radio broadcasts and other mass communication media...”.³¹

Support from the national government for distance education fluctuated during the subsequent years depending on policies of the ruling government. There was substantial support for AIOU in its early years (when it was known as People’s Open University), but wavered in the late 1970s and then started picking up again in the 1990s. The first major policy support for modern distance learning using information communication technologies (ICTs) was embodied in the IT Policy and Action Plan 2000. With the boom in the worldwide IT industry at that time, and its related human resource requirements, the IT Policy envisaged the establishment of “virtual classroom education programmes, using online, Internet and/or video facilities, to provide distance learning to a large number of individuals”³² and even allocated PKR 1.5 billion for a “Virtual IT University.”³³ As would be clear from the above statements, the focus had clearly shifted from providing “part-time” study opportunities to providing “learning to a large number of individuals.”

²⁹ AIOU, “Brief History”. Available from <http://aiou.edu.pk/BriefHistory.asp>.

³⁰ The Open University, “History of the OU”. Available from <http://www.open.ac.uk/about/main/the-ou-explained/history-the-ou>.

³¹ AIOU, “Establishment”. Available from <http://aiou.edu.pk/Establishment.asp>.

³² Ministry of Science and Technology, IT Policy and Action Plan, Government of Pakistan, Islamabad, 18 August 2000, p. 11. Available from <http://202.83.164.29/moit/userfiles1/file/policies/Pakistan%20IT%20Policy%20%20Action%20Plan%202000.pdf>.

³³ Ibid., p. 41.

The Virtual University of Pakistan (VUP) was established in 2002 in the public sector, thereby becoming the second distance learning institution in the country. It was designed as a full-fledged university and the nomenclature of “IT University” was dropped. Government funding of PKR 1 billion was provided to the Higher Education Commission (HEC) which became the project owner of the initiative to establish VUP.

Pakistan has maintained a very high population growth rate and by the year 2000, the provision of higher education had lagged considerably behind the demand generated by an increasingly younger population. According to Pakistan Higher Education Statistics published by the HEC,³⁴ only 2.38 per cent of the university-age population (18-23 years of age) was actually enrolled on a university campus in 2003-4. This figure dropped to an even more alarming 1.7 per cent if the 18-26 year old age group was considered.

The higher education sector faced two major problems: a shortage of capacity in the existing institutions and an acute shortage of qualified manpower. While the former could be overcome by establishing new universities, the latter problem hindered the same. In addition, higher education was expensive and universities were concentrated in the larger cities thereby compounding the problem of equitable access. It was felt that by using ICT as a force multiplier, quality higher education could be delivered at a distance and the approach could be used to overcome all of the above mentioned obstacles.

Against this backdrop, the VUP was established as a public sector, not-for-profit university to provide affordable world class education to all aspirants regardless of their geographical location.

While the AIOU model was primarily text-based, VUP used a mix of technologies including free-to-air television broadcasts and the Internet to deliver education. Yet, both institutions share many common aspects. The open broadcasts of the courses at both institutions enable lifelong learners to benefit without even being enrolled at the university. The structure of the programmes offered by both institutions provides the necessary flexibility for working professionals to improve their qualifications by pursuing a part-time path through the curriculum. The low cost of distance education programmes offered by both these institutions has been a major attraction for the financially constrained segments of society, and the fact that these programmes are offered at a distance alleviates the problem of universities being concentrated in the larger cities only.

³⁴ HEC, Statistics on Higher Education in Pakistan, undated, p. 12. Available from http://swisspak.com/web/sites/default/files/pakistan_higher_education_statistics.pdf.

There is another significant cohort that makes its way through the higher educational system of the country, and this is the group of “private” students who appear in the large public examinations conducted by the older, well established public sector universities, without ever attending classes. They simply prepare the material prescribed in the syllabi and register to take the examinations. This cohort represents nearly 70 per cent of all students registered at these universities.³⁵ The HEC felt that universities who were conducting such examinations should provide better support to these students by using distance learning methodologies and directed six of the larger, well-established universities to set up their own directorates of distance education (DDE). The HEC also provided funding for these directorates to improve the quality of their distance education programmes. The participating universities are:

- Bahauddin Zakaria University
- Gomal University
- University of Karachi
- University of Peshawar
- University of the Punjab
- University of Sindh

Some of these universities have risen to the challenge and established successful programmes under their DDE, but others have lagged behind and not given the same amount of importance to the issue. Interestingly, one of the more vibrant programmes being conducted by the Bahauddin Zakaria University³⁶ is more of a weekend programme than a distance learning programme.

Completing the picture, three conventional universities have been granted permission by the HEC to launch their own distance learning programmes. These programmes are still in their infancy and the parent universities are not distance learning institutions nor do they have large public examinations like the six universities mentioned above.

1.1 Policies and Regulations

University and degree awarding institutions (DAIs) in Pakistan operate under charters granted by the provincial or federal governments. The charters take the form of Acts of Parliament or of Ordinances issued by the Government. As such, there is an extensive due-diligence framework that is followed by the concerned Departments of Education, and the HEC is always a stakeholder in the process. As a result, the academic credentials issued by these universities³⁷ and DAIs are accepted internationally, and even graduates from AIU or VUP, the two distance learning institutions, have never faced any difficulties in this regard.

As far as overseas institutions offering their programmes through distance learning in Pakistan, the policy laid down

³⁵ HEC, Guidelines on Quality of Distance Education for External Students at the HEI's of Pakistan, Islamabad, undated. Available from <http://www.hec.gov.pk/InsideHEC/Divisions/QALI/QADivision/Documents/Guidelines%20for%20DDEs.pdf>.

³⁶ Bahauddin Zakariya University, "Distance Education Program". Available from <http://www.bzu.edu.pk/DLP/>.

³⁷ HEC, "HEC Recognized Universities and Degree Awarding Institutions". Available from <http://www.hec.gov.pk/OurInstitutes/Pages/Default.aspx>.

by the HEC is based on three straightforward principles:³⁸

- That the degree is awarded by an accredited university recognized by HEC.
- That the parent university has approval to run distance learning/collaborative degree programmes approved from the home countries' accrediting bodies.
- That the degree awarded through offshore Institution is not different from the degrees awarded to resident students.

There have been a few initiatives aimed towards bringing foreign programmes through distance education into Pakistan, but so far there have been no significant results from these efforts.

An interesting development has been the advent of Massive Open Online Courses (MOOCs) into the ODL landscape and although the initial offerings were not for formal credentials, the landscape is shifting rapidly. Udacity³⁹ was the first MOOC initiative to provide college credit acceptable at all accredited US universities and more are sure to follow. This is going to cause a major disruption in the ODL space internationally but it is too early to predict the precise nature of the impact. There is a substantial MOOC following in Pakistani universities, but more from a pedagogical learning perspective than anything else.

The one area where Pakistan can claim significant progress is the provision of broadband facilities throughout the country. Apart from some inaccessible remote mountain areas in the North, and a few low population hamlets in the vast unpopulated tracts of Balochistan in the South, most of the country has access to reasonable bandwidth through DSL technology. Even in the underserved areas, data access is available through the mobile phone network and with the impending launch of 3G services, the situation is poised to improve even further. Almost all the telephone exchanges in the country are connected over a comprehensive fibre network, which offers the possibility of bandwidth on demand.

However, the availability of broadband does not automatically translate into access to ICT. While the prices of hardware have been declining steadily over the last several years, especially through the import of used previous generation computers, this does not imply that computers have achieved affordability for the lower to mid-income classes. They still represent a luxury for these portions of society and while many may afford the capital cost of equipment, paying the recurring costs associated with bandwidth provision is almost out of reach of this large population segment. This has serious implications for access to quality higher education that is being offered through technology and may end up exacerbating the digital divide.

The VUP has recognized this limitation from the very beginning and as part of its structure it has established a chain

³⁸ HEC, "Approved HEC Policy for Foreign Collaboration". Available from <http://www.hec.gov.pk/INSIDEHEC/DIVISIONS/QALI/DEGREEATTESTATIONEQUIVALENCE/UNIVERSITYACCREDITATION/FOREIGNCOLLABORATION/Pages/ApprovedHECPolicy.aspx>.

³⁹ UDACITY, "For Credit Frequently Asked Questions". Available from <https://www.udacity.com/for-credit-faq>.

of “virtual” campuses throughout the country in collaboration with the private sector. These campuses are basically infrastructure provision centres and are equipped with the necessary hardware and Internet connectivity that are required to pursue an educational programme at the University. No additional costs are associated with students using these centres so the affordability aspect is not compromised. Currently, the University has a presence in more than 100 cities and towns with a network of over 170 such centres.⁴⁰

For the younger cohort representing full-time students who are transitioning directly from high school to university, the lack of ICT skills has not proven to be a hindrance. Peer to peer learning thrives and this segment of students adapts to the system very quickly. The segment of older students representing working professionals faces some difficulty, but this segment is self-motivated and usually finds solutions to challenges on its own.

A major impediment to the adoption of ODL in Pakistan is the inadequate preparation of students at the high school level. There are two levels of school certification in Pakistan. The first level represents ten years of school education and results in a Secondary School Certificate also known commonly as the “Matric” certificate. The second level comes after twelve years of education (two years after Matric) and culminates in the Higher Secondary School Certificate or, in common parlance, the “Intermediate” certificate. Students proceed to universities after their Intermediate examinations.

Over the years, competition has driven the school system to become heavily marks-oriented: teachers teach with that objective and students learn how to obtain maximum marks in these large public examinations that are conducted by the various Boards of Intermediate and Secondary Education. The acquisition of knowledge is quite secondary. With the exception of the Aga Khan University Education Board, the only private Board, all others have been established by the respective provincial or federal governments and have come to embody large bureaucracies that are less concerned with learning outcomes than with managing the examinations. The end result of this system is that high school graduates are simply rote learners and not critical thinkers. They do not challenge or question what is offered to them and rely heavily on their classroom teachers and peer groups to prepare for examinations. This certainly is not the profile of a successful distance learner, where self-motivation, time management and independent learning are key attributes. Younger students are more comfortable with some elements of face-to-face coaching than learning in a pure ODL environment.⁴¹ The Aga Khan Board has tried to introduce outcome-based assessment into its system but its overall impact, in terms of student numbers, remains miniscule.

Another end result of this marks-oriented system is that students obtain astonishingly high marks and yet are unable to secure a seat in any of the top universities: there are enough students ahead of them with even higher marks. This has led to a sense of dissatisfaction in the community and an overhaul of the system is long overdue. Since this has political ramifications, the overhaul may not happen overnight, but at least there is now an acute awareness of the problem.⁴²

⁴⁰ VUP, <http://www.vu.edu.pk>, Home > Virtual Campuses.

⁴¹ Informal research at VUP.

⁴² Private discussions of the author with the Punjab Minister of Education, May 2012.

1.2 Public Perception

Historically, people in Pakistan have considered distance education as an easy way to get university degrees. As a result, the general public perception is very similar to that in many other countries: it is perhaps not as good as face-to-face education. This perspective is, in no small measure, sustained by academics from conventional institutions who have a firm belief that quality education can only be delivered in a face-to-face environment. However, this perception has changed for the better in recent years.

The VUP invited well known academics and top professors from other national institutions to develop its courses, which are based primarily on video lectures. The lectures were then broadcasted on free-to-air television. This combination of high profile professors with public viewing of lectures that could easily be critiqued quickly recast the image of modern distance education and gave it a new face. Simply considering the annual intake of the VUP over the years gives a clear indication of how the perception changed with time (see figure 10).⁴³

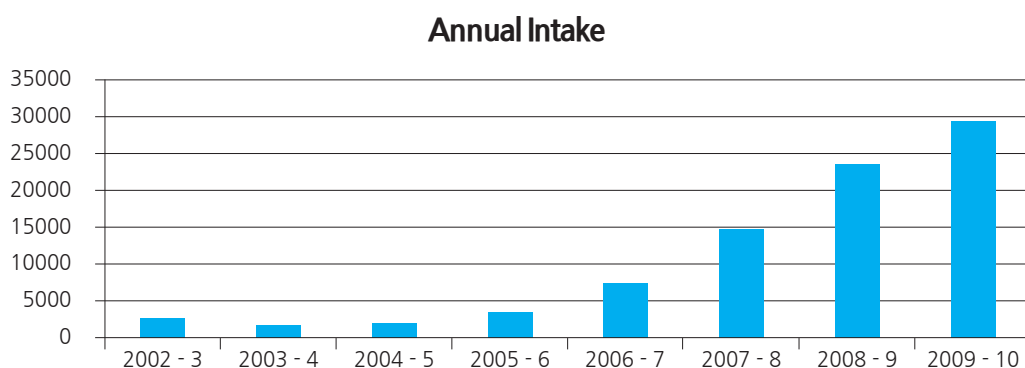


Figure 10. Annual intake of students at the Virtual University of Pakistan

As mentioned earlier, three additional conventional universities have been allowed by the HEC to offer courses at a distance. They see this as a business opportunity, and that could only happen when the perception about distance education is positive. However, the overall pace of acceptance is still slow and one does not see millions of students thronging to these institutions, including the VUP, despite all other positive factors such as affordability, flexibility and convenience.

One major setback that ODL institutions face every year is when the HEC announces its national university rankings. Practically speaking, the HEC does not have an adequately developed ranking measure for ODL institutions and therefore leaves them out, but the end result is a very negative perception at the student end. The issue is being taken up with the HEC by the two major universities, but its resolution does not seem imminent.⁴⁴

⁴³ Data obtained from the VUP Management System.

⁴⁴ HEC, "Quality and Research based Ranking of Pakistani HEIs" - see page 5: Universities excluded from the Ranking. Available from <http://beta.hec.gov.pk/InsideHEC/Divisions/QALI/Others/RankingofUniversities/Pages/Ranking%20Methodology%20Criteria.aspx>.

2. Open and Distance Learning Initiatives

There are several ODL initiatives in Pakistan and these are described below.

The AIOU offers several Bachelor of Education (B.Ed)⁴⁵ and Master of Education (M.Ed)⁴⁶ programmes. Currently, there are two B.Ed programmes being offered—Arts and Arabic, and four M.Ed programmes—Special Education, Science Education, Teacher Education, and Distance and Non-Formal Education. All of these programmes are offered as correspondence programmes in distance mode while one (M.Ed Special Education) is offered in distance and face-to-face modes.⁴⁷ None utilizes any ICT support and is based on printed text materials.

The Aga Khan University Education Board has developed support materials in the form of PDF documents and associated video lectures for grades nine and ten. The subjects covered are English, Mathematics, Physics, Chemistry and Biology. The lectures have been aired over a local television channel since 2010 and are also made available through their website.⁴⁸ These materials are primarily meant to provide support to students as well as teachers who are located in remote and far flung areas and who may not have access to other resources such as libraries, etc. According to their website, “The broadcasts are intended to enhance the teaching of certain key syllabus areas and topics, thus encouraging critical thinking while creating interest and clarity around the topics being taught.”

The Aga Khan University's Institute for Educational Development (AKU-IED) offers the following Certificate in Education programmes⁴⁹ through ODL:

- Educational Leadership and Management
- Inclusive Education for Children with Special Needs
- Health Education
- Environmental Education
- Information and Communications Technology for Educators

⁴⁵ AIOU, “Educational Programmes”. Available from <http://aiou.edu.pk/ProgrammesList.asp?P=BED>.

⁴⁶ AIOU, “Educational Programmes”. Available from <http://aiou.edu.pk/ProgrammesList.asp?P=MASTER>.

⁴⁷ AIOU, “M.Ed in Special Education”. Available from <http://aiou.edu.pk/Programmes.asp?PID=75>.

⁴⁸ Aga Khan University Examination Board, “Learning Support Site”. Available from http://learningsupport.akueb.edu.pk/comp_laait.php.

⁴⁹ The Aga Khan University, “Open and Distance Education”. Available from <http://www.aku.edu/collegesschoolsandinstitutes/ied/pakistan/Academics/OpenEducation/Pages/Home.aspx>.

The Institute's Open Learning Unit focuses on designing and developing learning materials for these programmes, which are primarily meant for practicing teachers and managers/leaders of education. These certificate programmes are designed as components of a continuing professional development framework. As such, the rigour of the Aga Khan University's curriculum development process is applicable to them. Course materials include study guides and audio/video materials and are designed and developed by AKU-IED faculty in close coordination with instructional designers.

A virtual learning environment called IEDOnline⁵⁰ has been established by AKU-IED to further support these programmes. The environment is based on Moodle, a popular open source learning management system (LMS), and course participants are encouraged to participate in online activities whenever they have access to the Internet. The assessment of these programmes is done in exactly the same way as the University's face-to-face courses.

The Aga Khan University is primarily financed by the Aga Khan Foundation from which it derives its capital and recurring budget. It has an international presence with campuses in Pakistan, East Africa and the UK, and derives its organizational structure from its charter.⁵¹

The latest offering on the educational front in Pakistan, is the newly revised curriculum for the B.Ed (Hons) Elementary programme that was approved by the HEC in 2012. The elaborate procedure laid down by the HEC for curriculum revision⁵² was followed for this purpose with important inputs from the United States Agency for International Development funded Pre-Service Teacher Education Program. The revised programme is now being offered by several universities in conventional mode, but the VUP has emerged as an important player in the overall teacher training effort, due to the sheer magnitude of the problem and the large number of teachers that need to be trained. Training school teachers for the future requires a thorough understanding of education technologies and in the current scenario, it is impossible to speak of education technologies without the mention of ICT and e-learning.⁵³ The VUP, with its unique ICT-based delivery mechanism and capability of handling huge class sizes, is being increasingly looked at as the principal source for training the next generation of school teachers.

The VUP launched its four-year B.Ed (Hons) programme in 2012 and the programme is currently in its second semester.⁵⁴ The University has a charter from the Federal Government and as such, its B.Ed. (Hons) programme is available throughout the country. Existing school teachers have a wide variety of qualifications, with the majority not being equivalent to B.Ed. (Hons). A National Experts Group on teacher education has recommended various subsets of the four-year curriculum as bridging programmes so that in-service teachers can improve their qualifications to a standardized level.⁵⁵ These subsets include a one-year Post Graduate Diploma in Education and a 1.5 year Associate Degree in Education.

⁵⁰ Online Learning @ AKU. Available from <http://moodle.aku.edu/>.

⁵¹ The Aga Khan University, "The University Charter". Available from <http://www.aku.edu/aboutaku/leadershipanduniversityadministration/Pages/universitycharter.aspx>.

⁵² HEC, "Curriculum Revision". Available from <http://www.hec.gov.pk/InsideHEC/Divisions/AECA/CurriculumRevision/Pages/NationalCurriculumRevisionCommittee.aspx>.

⁵³ Wikipedia, "Educational Technology". Available from http://en.wikipedia.org/wiki/Educational_technology.

⁵⁴ VUP, <http://www.vu.edu.pk>, Home > Academic Programs > BS and B.Ed (Hons) Programs.

⁵⁵ Minutes of National Experts Group meeting held on 24 April 2013, Lahore.

The VUP follows the curricula and course outlines prescribed by the HEC. The proposed curricula are vetted by the University's own Boards of Study and then hand-picked academics are invited to develop the required courses. The professors are usually from other top-tier national institutions but may even be prominent professionals working in the field. In the case of the B.Ed (Hons) programme, teacher educators from other universities as well as highly qualified consultants involved in the continuous professional development of school teachers have been invited by the University to develop courses.

Course development is a rigorous process that starts with the development of a detailed course outline based on the approved syllabus. The proposed outline is externally reviewed and modified by the principal resource person. Courses are then developed in the form of topic videos or lectures that are captured in the University's own state-of-the-art studios. After undergoing post-processing that includes editing and insertion of slides, animations as well as other video clips, the material finally becomes ready for presentation. The resource person is also required to provide accompanying reading material, a full set of suggested assignments along with grading rubrics and several sets of proposed mid-term and final semester examinations to be used as models by the University internal staff. Once the course development process is completed, the materials are uploaded on the University's LMS (<http://vulms.vu.edu.pk>) that has been custom developed by the VUP's IT team. Course materials are also simultaneously placed in the University's OpenCourseWare site (<http://ocw.vu.edu.pk>) and this is where the entire B.Ed (Hons) content will become available to all universities interested in offering the programme. Since many professors from the same universities would be involved in the course development process, the openness of the approach is poised to positively impact the new teacher training effort.

The VUP's LMS is based on Microsoft technologies and uses Microsoft SQL server and the .Net framework. The system is housed on servers located in a Tier-3 datacentre in the city of Lahore while the University maintains its disaster recovery site within its own offices.

The programme is still in its infancy and there are no graduates under the revised curriculum from any university. As such, a cost/benefit analysis or impact assessment is difficult to present at this time. Based on historical data, the VUP has been able to achieve economies of scale associated with distance education and requires negligible support from the government to operate. This is despite the fact that the delivery mechanism uses expensive equipment and bandwidth and operationally requires the use of uninterruptible power supplies and generators in an energy starved country.

A considerable marketing effort will have to be undertaken once the course development phase is over. This is because the VUP has become known for the rigour of its programmes. This implies a serious competition with other universities, especially in the domain of education which, historically, has never held an attraction for high achievers in Pakistan. School teaching is not a front running career choice as yet.

On the organization side, for the same reason as cited above, the VUP has to face challenges of identifying and engaging quality resources on a full-time basis to manage the delivery of the B.Ed (Hons) programme. The course development effort seems to be a simple one by comparison since there the external resource persons are only engaged for a brief period of time.

The VUP has established an elaborate ICT-based examination system that has been presented internationally and has gained considerable momentum. At least one top-tier national university is using the system for its entrance tests while several other universities have evaluated it with the intention of adopting it for their own use. The system ensures the sanctity of the assessment process while making it extremely convenient for individual students to schedule their examinations.⁵⁶ This is a standardized system and will be used for assessing students in the B.Ed (Hons) programme. In addition, videoconferencing will be used for conducting viva-voce examinations, where applicable. Facilities for this purpose are available at all campuses owned and operated by the VUP.

2.1 ICT Education and Competency Programmes

There are several ODL initiatives in Pakistan that focus on building ICT competencies. These are discussed below.

The AIOU does not offer any Computer Science or Information Technology programmes at a distance. The Bachelor of Science Computer Science programme is a conventional face-to-face programme that is offered at the University's main campus in Islamabad.⁵⁷

The VUP offers three Bachelor programmes that result in the award of Bachelor of Science degrees in Computer Science, Information Technology or Software Engineering. The development and assessment methodology has already been described earlier in the context of the B.Ed (Hons) programme. However, since these programmes have achieved maturity, their cost/benefit and impact can be discussed.

The VUP charges PKR 500 per credit hour for its Bachelor's programmes. In addition, a semester registration fee of PKR 1,000 is charged from all students. This brings the total cost of a 4-year, eight semester Bachelor of Science programme that comprises 132 credits to a grand total of PKR 74,000. At the current exchange rate, the cost of one entire programme comes to approximately USD 740. This is extremely affordable for most aspirants and compares very favourably with other conventional institutions that charge more than this for a single semester. The University is already self-sustaining and therefore this cost does not represent any hidden subsidies from the Government.

As far as the impact of these programmes is concerned, ICT graduates from the VUP have found jobs in almost all major software houses and have very quickly established an enviable reputation as independent workers with a sound grasp of fundamentals.⁵⁸

⁵⁶ Naveed A. Malik, "Assessment of Large Student Cohorts in a Formal Distributed Learning Environment", Proceedings of 5th International LINC Conference MIT, USA, 23-26 May 2010, pp. 44-49, <http://linc.mit.edu/linc2010/proceedings/LINC-2010-Proceedings.pdf>.

⁵⁷ AIOU, "Bachelor of Science (Computer Science)". Available from <http://aiou.edu.pk/Programmes.asp?PID=187>.

⁵⁸ Unpublished survey conducted by VUP.

Punjab is the largest province of Pakistan with nearly 65 per cent of the country's population. The Punjab Government established computer laboratories in more than 4,000 high schools across the province in 2009-2010. VUP graduates were available to staff these laboratories as instructors and a very large number has competed successfully for these positions.

While the Bachelor of Science programmes provide a large pool of highly trained ICT professionals, the VUP has developed another programme that is labelled as the “Virtual University - Computer Proficiency License” or VU-CPL for short.⁵⁹ The programme is designed as a set of self-teaching modules that are installed on a computer equipped with an adequate audio system. The design has been developed so that no teacher is required for hand-holding other than the initial installation. The modules are based on audio-video content with the soundtrack available in Urdu—the local language. In keeping with its open tradition, the modules are available from the University bookshop (<http://bookshop.vu.edu.pk>) for the cost of duplication only.

VU-CPL is a skill development programme. As such, only those learners who stand to materially benefit from formal certification register for the Certificate. Many others benefit from the course but never request certification. These include people from all walks of life, especially clerical office staff. Even some senior managers at the VUP itself have used the course to acquire ICT skills.

One other ICT programme that is being offered at a distance deserves mention here. The University of Engineering and Technology, Taxila, offers a Master of Science programme in Computer Science through its affiliated Centre for Advanced Studies in Engineering. The technology used is a camera in a conventional classroom that records live lectures which are distributed, without any editing, by courier to distance learners all over the country.

There are no open distance initiatives for vocational and corporate training at this time

⁵⁹ VUP, <http://www.vu.edu.pk>, Home > Academic Programs > Courses Catalogue > CS001.

3. Recommended Actions for UN-APCICT and Member States

There are no ICT for development (ICTD) programmes on offer through conventional or open distance learning in Pakistan. This is certainly a priority area for the country as many challenges will require in-depth ICT interventions for Pakistan to be able to overcome them. These challenges include human resource development efforts, e-government and e-health initiatives and even ICT-based management solutions.

The VUP was a green-field project not having any legacy inertia. It was therefore able to induct and use a complete ICT environment for all aspects of its operations. However, it requires a deep appreciation of the capabilities of ICT to design, induct and implement ICT-based systems in running organizations. This appreciation is missing from the Pakistani education and training landscape. The author of this study has had the opportunity to deliver a lecture on e-governance to mid-career government functionaries on several occasions. It turns out that this standalone lecture constitutes their entire exposure to the practical uses of ICT. Unless a deeper understanding of ICT is developed in these decision makers, the potential of ICTD activities will remain untapped.

One action that is strongly recommended is for UN-APCICT to partner with one or more Pakistani universities and offer standalone ICTD programmes, perhaps through its APCICT Virtual Academy. However, a deeper impact could be achieved if ICTD courses were introduced as components of mainstream Bachelors programmes. This would require interaction of UN-APCICT with the Higher Education Commission, but this is something that could be accomplished in a straightforward manner.

Country Case Studies

Sri Lanka

Chanuka Wattagama

1. The Open and Distance Learning Environment

1.1 History

Sri Lanka's first distance learning experiences were pre-information age. Using the postal service, then widespread and accustomed to the public, tutors offered subjects varying from English to radio technology. They were popularly known as "correspondence courses". The model was simple. Teachers and students never met face to face. Once registered for a course, either paying directly or by post, the student received a package of modules in printed form for self-study.⁶⁰ The evaluations were done at regular intervals using the same mode. The question papers came by post and the students were supposed to send answers again by post before a given deadline.

The subjects "taught" in correspondence courses included English, Sinhalese literature, art of making poetry and writing fiction, dress making, radio technology and motor mechanics, among other subjects. The success rates of any of these areas are unknown. A recent blog post by the blogger "Jagan" explains how he learnt Radio Technology from material received by his father from a correspondence course.⁶¹ This could be the exception, not the norm. Irrespective of the success rates, this model was fairly popular during the period between 1940 and 1980.

⁶⁰ Most distance learning service providers at this age owned their own printing presses.

⁶¹ <http://jangun.wordpress.com/2013/02/19/%E0%B6%85%E0%B6%B4%E0%B7%92-%E0%B6%85%E0%B7%84%E0%B6%B4%E0%B7%94-%E0%B7%80%E0%B7%91%E0%B6%BB%E0%B7%8A%E0%B6%BD%E0%B7%83%E0%B7%8A-%E0%B6%B4%E0%B7%85%E0%B6%B8%E0%B7%94%E0%B7%80%E0%B7%90%E0%B6%B1>.

The second phase, which was short lived and not as popular as the first, replaced the printed material with cassettes. The student when registering for a course received a set of cassette pieces (usually 5-10). One is supposed to play them on one's own. This mode was used largely to teach English and other foreign languages. The reasons for its relatively less popularity could be attributed to the lack of facilities at the student end. The mode required both a cassette player and electricity. During the 1980s when this mode started, less than 50 per cent of the Sri Lankan households had electricity and many could not afford to have a cassette player.

The third phase began in the mid-90s with the advent of the Internet age. The visible difference in this phase was the extensive and affordable availability of digital tools. While Sri Lanka is still behind the developed world, as an emerging economy it has made significant developments in the digital front.

1.2 Infrastructure and ICT Literacy

By 2013 there were three fixed and five mobile voice service operators. Six operators were licensed to provide data services using their own facilities while nine could provide data communication services (including Internet services) using the facilities of the former. The number of fixed voice connections was over 2.8 million and mobile voice connection over 19.5 million in June 2013.⁶² This is significant for a country with a population of 20.3 million.

The number of data subscribers was slightly less than half million fixed and a little over one million mobile. While the 2G services were available covering almost the entire island, with the exception of a few remote pockets, 3G services were available only in urban areas and pockets of rural towns. Figure 11 provides a more detailed historical development.

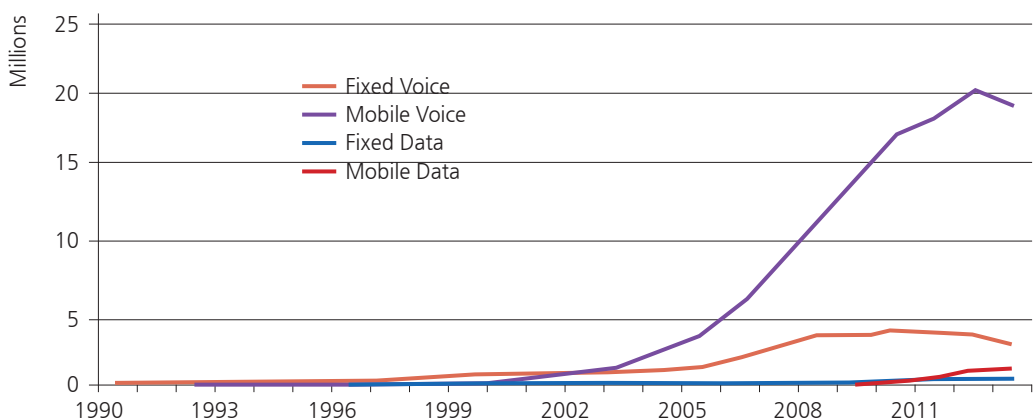


Figure 11. Telecom subscribers - voice and data (1990-June 2013)

Source: Telecom Regulatory Commission, Sri Lanka, 2013.

⁶² Telecommunications Regulatory Commission of Sri Lanka, "Statistical Overview". Available from <http://www.trc.gov.lk/information/statistics.html>.

According to the Department of Census and Statistics, roughly one out of every ten households owned a personal computer in 2009. In the urban sector, the PC ownership was higher (26.3 per cent). It was 9.8 per cent in the rural areas but only 3.3 per cent in the least developed estate sector. The computer literacy level, measured for the population between 5-69 years of age, was 20.3 per cent for the island, and 31.1 per cent in the urban areas.⁶³ These figures might have improved by now, creating an ideal platform for infrastructure delivery.

1.3 Different Modes of Distance Learning Delivery

UNESCO defines distance learning as “any educational process in which all or most of the teaching is conducted by someone geographically removed from the learner, with all or most of the communication between teachers and learners being conducted through electronic or print media.” Under this umbrella term, the channels are mapped as follows.

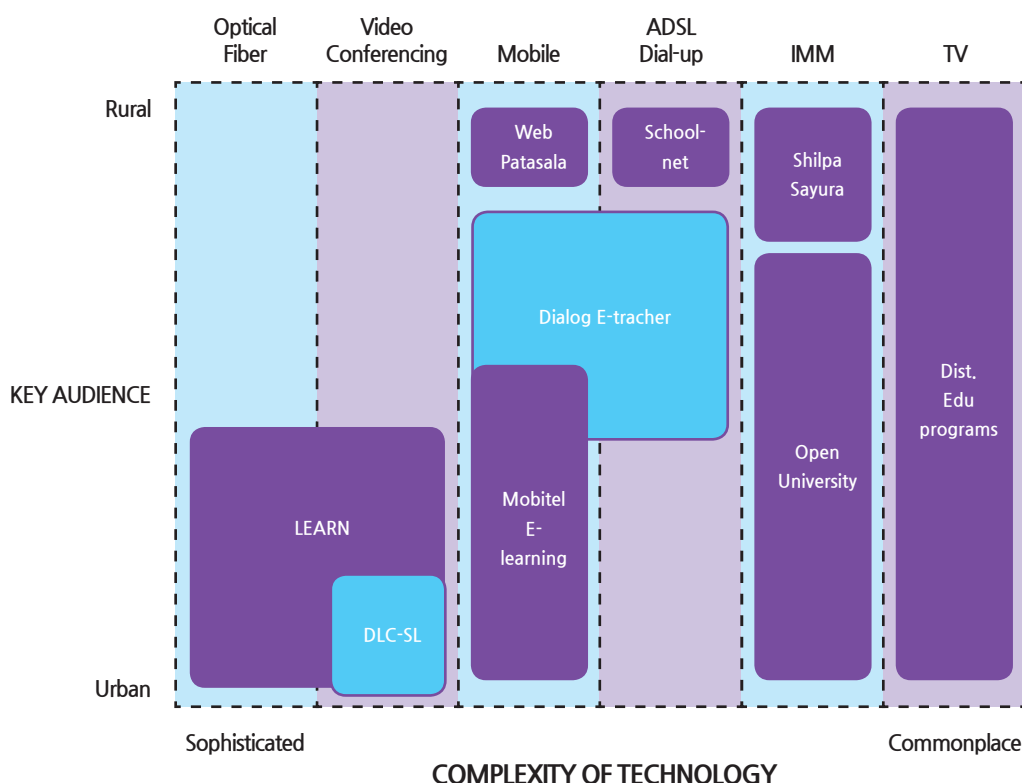


Figure 12. Different distance learning modes

Source: Chanuka Wattegama

⁶³ Department of Census and Statistics Sri Lanka, "Computer Literacy Survey - 2009", December 2009. Available from http://www.statistics.gov.lk/CLS/BuletinComputerLiteracy_2009.pdf.

2. Distance Learning at the Professional Level

2.1 Distance Learning Centre - Sri Lanka

International level distance learning is more affordable compared with standard training, and is popular especially when the resource persons are from developed countries. The Global Development Learning Network (GDLN), an initiative of the World Bank Institute (WBI), is a partnership of over 120 recognized global institutions (affiliates) in over 80 countries. The affiliates are diverse. They can be professional training institutions or even universities. Collectively, the network puts on over 1,000 learning sessions annually. They range from training courses and informal brainstorming sessions to multi-country dialogues and virtual conferences. GDLN learning specialists also collaborate in designing customized learning solutions for clients. With increasing links to in-country networks, GDLN's reach now extends to more than 500 access points around the world.⁶⁴

The Distance Learning Centre - Sri Lanka (DLC-SL) was established as the Sri Lankan node point of the GDLN in 2002. It has been working independently⁶⁵ since 2007 as a learning facility provider for both private sector and public sector clients. The target audience is largely mid-senior level professionals but some courses are aimed at junior officers. DLC-SL mandate includes the development of relevant courses for the Sri Lankan context and subjects include climate change, disaster management, labour relations and microfinance, among others.

DLC-SL uses state-of-the-art videoconferencing facilities and the multimedia lab to create virtual classrooms where the experts and participants can meet each other in a virtual environment, in online or offline modes. DLC-SL is equipped with two videoconferencing rooms, each can accommodate up to 80 and 30 participants respectively. It also has a separate multimedia lab that can be used for hands-on computer training for 50 students simultaneously. International connectivity is made using 1 MB dedicated link to Singapore. All rooms are equipped with branded computers.⁶⁶

⁶⁴ Global Development Learning Network, <http://www.gdln.org>.

⁶⁵ DLC-SL is owned by the Government of Sri Lanka, but operates as a private company.

⁶⁶ Distance Learning Centre Ltd, "About US". Available from <http://www.dlcsrilanka.org/about.html>.



Figure 13. A videoconference at DLC-SL

Source: Distance Learning Centre, Sri Lanka

Examples of Professional Distance Learning Courses

The Microfinance Training of Trainers (MFTOT) course that DLC-SL conducts annually is a good example of the type of the distance learning training it offers. In 2013, DLC-SL locally delivered this course for the ninth time.

Microfinance, internationally recognized as an effective development intervention in improving the livelihoods and reducing the vulnerability of poor and low-income people, is widely practiced in Sri Lanka by banks, finance companies and over 8,000 registered microfinance institutes. While the gap between the supply and demand for microfinance services is huge, the main constraint is the lack of capacity in operating sustainable institutions, not the lack of funds. MFTOT is a course designed to address this constraint, and is developed by the Asian Development Bank Institute, the Tokyo Development Learning Center of the World Bank, and the United Nations Capital Development Fund (UNCDF). Launched in 2005 in multiple countries, the main objective is to increase the number of accredited microfinance trainers in the Asia Pacific Region.⁶⁷

The course has a unique blend of features:

- Self-paced study using the Microfinance Distance Learning Package developed by UNCDF. It brings together advice and best practices from successful practitioners and institutions from Asia, Latin America and Africa.

⁶⁷ Asian Development Bank Institute, "Microfinance Training of Trainers: 3rd Blended Distance Learning Course". Available from <http://www.adbi.org/event/1840.microfinance.blended.learning/#sthash.xxubc70e.dpuf>.

- Meeting with international microfinance experts through four, three-hour videoconference sessions at the local GDLN centre. The videoconference sessions feature presentations and discussions on current issues and best practices in microfinance.
- e-Discussion forum moderated by experts and supported by the Moodle e-learning platform. It also includes online tutoring. Tutors will grade assignments, provide feedback, and administer the final exams.

Another course that uses almost the same mode but not at such a wide scale is the annual course on Science and Policy of Climate Change offered by The Energy and Resources Institute (TERI), India. This twelve-week, blended learning programme has been jointly developed by TERI and the Institute for Global Environmental Strategies, in collaboration with the World Bank Tokyo Development Learning Centre. The programme follows an interdisciplinary approach and is enriched by audio, video and interactive web-based content.⁶⁸

DLC-SL also delivers a large number of short-term courses (half a day to two days) organized by its partners KDI School in the Republic of Korea and the Asia-Pacific Finance and Development Center, in Shanghai, China.

As a self-financed organization, not supported by treasury, DLC-SL faces a gamut of challenges. Having offered its programmes for several years now, it finds that the market is getting thinner. The relatively high cost of programme delivery does not support extensive marketing efforts. It also faces the problem of not having fixed programmes; most GDLN programmes are ad hoc.

One way out of this is to focus more on the training needs of rural areas instead of its currently more urban audience. This again requires a serious investment in infrastructure development. With minimum government focus on capacity building, long-term survival of this mode is questionable.

2.2 National e-Learning Centre

The National e-Learning Centre (NeLC) was established in 2002 to promote e-learning and establish an e-learning culture at the national level. A part of a World Bank initiated e-Sri Lanka Programme, the objective is to open affordable access to learning resources to all layers of Sri Lankan society. The NeLC aims to provide the necessary e-learning capacity for re-engineering government, development of the communications infrastructure that supports both local languages—Sinhala and Tamil, and putting in place societal applications to help alleviate poverty.

NeLC is conducting several research and development work in online learning environments (including virtual learning environment and virtual campus) for higher education, online learner behaviour, language learning, ICT-based learning for primary and secondary education, online e-assessment and e-testing, game-based learning, simulation-based training, e-learning for community education (informal learning), and learning objects repositories.⁶⁹

⁶⁸ ESD Online, "Science and Policy of Climate Change". Available from <http://www.esdonline.org/spcc/>.

⁶⁹ e-learning.lk, "What is NeLC?". Available from <http://www.e-learning.lk/NELC>.

3. Distance Learning at the University Level

3.1 Open University of Sri Lanka

The Open University concept was born in the UK with the establishment of the world's first successful distance teaching university, founded on the belief that ICTs could bring high quality degree-level learning to people who do not have the opportunity to attend traditional campus universities. The Open University in UK was established in 1969 under Prime Minister Harold Wilson. The first batch of 25,000 students was accepted in 1971. It is notable for having an open entry policy, i.e. students' previous academic achievements are not taken into account for entry to most undergraduate courses.⁷⁰

Following the same model, the Open University of Sri Lanka (OUSL) was set up by the Government of Sri Lanka in 1978. An initiation of then Education and Higher Education Minister, it was the first distance mode higher education institution in the country. It aimed to provide opportunities for working adults to pursue higher education. The OUSL enjoys the same legal and academic status as any other university in Sri Lanka and offers courses ranging from one year certificates to diplomas and research degrees at postgraduate level. The subjects are wide ranging and include Professional English, Business Administration, Applied Electronics and Construction Management, among others.

Almost all courses conducted by OUSL use distant education as the dominant mode, and make use of the dynamic network of island wide regional and study centres.

The subject material is distributed in printed and electronic formats. Printed course material, normally provided at the time of registration for a programme/course, is the core element in a typical OUSL study package. Printed course materials are designed to suit self-study. They offer the students the subject content. This assumes a student has the basic capacity to read and write in the relevant course medium.

In most courses, students will also be provided with other supportive materials, such as study guides, practical guides, audio visual materials, etc. Self-assessment questions and activities included in the course materials enable the students to continuously assess themselves as they proceed. Face-to-face teaching is not completely eliminated. The students have face-to-face interactions, but not frequently and only when necessary. They include discussions, tutor clinics, lab and field works, and industry visits.

⁷⁰ The Open University, "History of the OU". Available from <http://www.open.ac.uk/about/main/the-ou-explained/history-the-ou>.

A survey conducted in 2009 gathered data on education and employment among OUSL students. Among the undergraduate degree students, the majority (39 per cent) were teachers when they enrolled. They have chosen to follow a variety of degrees in various disciplines (B Tech, BA in Social Sciences, BBA, LLB and BSc). The rest were from a gamut of occupations. This proves the courses attract a good cross section from Sri Lankan society. The students have not necessarily chosen options tied to their careers. It is a sign the students see the OUSL courses as a gateway to enter a domain that is different from their current one, where they may feel underemployed.

The survey respondents also indicated benefits they gained from studying at OUSL. Twenty-seven per cent of them said it enabled them to improve their job prospects in the current organization, while 9 per cent planned to use the knowledge for better job prospects. Only 5 per cent was looking for a new job. When asked whether they would recommend their programme of study to others, 97 per cent of the students said they would. Eight-seven per cent of the graduates said they were satisfied with the selection criteria for the courses.

Still, OUSL might not be taken as a complete success story. Even after 35 years of its establishment the OUSL has not been successful in exploiting the best of interactive multimedia (IMM) techniques.⁷¹ The basis of most courses is printed material. While the students are encouraged in web-based learning, only a limited number of them effectively engage. This is due to multiple reasons: Lack of infrastructure, low ICT literacy levels, high IMM production cost, and resistance to change by students as well as lecturers. The OUSL is equipped with a sophisticated IMM production facility, but it is not fully utilized for producing course materials.

3.2 Inter University Distance Teaching using LEARN

Almost all Sri Lankan universities are equipped with videoconferencing facilities. Lecturers often use these facilities to reach a remote student community. It saves them the time otherwise spent in travelling. They use the facilities provided by the Lanka Education and Research Network (LEARN), the National Research and Education Network⁷² of Sri Lanka, which interconnects educational and research institutions across the country. LEARN currently interconnects all state universities, a number of public universities under other ministries, private universities, the University Grants Commission, the Ministry of Higher Education, and a number of national research institutions including the National Science Foundation.

⁷¹ Interactive multimedia (IMM) comes in various forms: As an interactive videodisk or compact disk program run in tandem with a computer program offering color, sound and video as well as text and graphics; or virtual reality. IMM technology combines all the processing power and control capabilities of the modern microcomputer with the motivational and presentational capacities of traditional audio-visual media. It offers more storage capacity, greater speed and flexibility of access, more intermingling of various forms of mediated information, greater durability, less maintenance and greater ease of use than any of the more traditional media. IMM can provide a wide range of surrogate experiences with situations, equipment and materials and can require extensive decision-making and thinking skills on the part of the end user.

⁷² A National Research and Education Network is a specialized Internet service provider dedicated to supporting the needs of the research and education communities within a country. See http://en.wikipedia.org/wiki/National_research_and_education_network.

The LEARN network is an advanced network supporting IPv6 and multicast. It currently includes optical fibre links ranging from 500 Mbps to 10 Mbps to most campuses, and 2 Mbps links to universities at distant locations where optical fibre is not available. Smaller institutions/campuses are connected with links ranging from 2 Mbps to 128 kbps. At present, LEARN international connectivity includes a 1.65 Gbps link to the commodity Internet and a 45 Mbps link to the academic/research Internet through the Trans-Eurasia Information Network 4 (TEIN4) network. LEARN also has direct connections to SchoolNet, the network connecting secondary schools, and the Local Government Network, the network connecting government institutions in Sri Lanka.⁷³

4. Distance Education at the School Level

4.1 SchoolNet

SchoolNet is a joint effort by the Ministry of Education and the Asian Development Bank. Funded under the Secondary Education Modernization Project, it is a wide area network connecting key secondary schools and other related organizations. The Network Operation Centre is managed by the University of Moratuwa. Phase 1 of this project connects about 1,000 schools, 100 computer resource centres, 17 national colleges of education, Ministry of Education, National Institute of Education, 8 provincial ICT centres, project management offices of the Secondary Education Modernization Project, zonal education offices and provincial education offices. Phase 2 aims to connect another 500 schools.⁷⁴

SchoolNet offers the following services:

- Network connectivity, management and controlled Internet access to students and teachers
- Learning management system (LMS) to host learning materials for different course modules

However it is questionable whether SchoolNet is used to its full potential. The users complain that the structure is too rigid, as access to content is strictly restricted to sites that are considered “useful” in the view of education authorities. This well-intentioned policy has in reality discouraged the students in using the SchoolNet facilities. The usage level of content rich LMS does not seem to be optimal.

⁷³ Lanka Education and Research Network, <http://www.ac.lk/home>.

⁷⁴ SchoolNet - Sri Lanka, http://www.schoolnet.lk/index.php?lang=en&for=default&page_id=18.

4.2 Shilpa Sayura

In 2006 more than 51 per cent of the candidates failed the General Certificate of Education (Ordinary Level), a secondary school examination after ten years of school education. Failures in English, Mathematics and Science were above 55 per cent. e-Content development was seen as a solution. Subsequently, the Information and Communication Technology Agency, the apex body for ICTs, provided a grant of LKR 5.5 million (about USD 50,000) to initiate a pilot project for creating digital educational content in the local languages, and deploying 20 Nenasala Telecentre Communities⁷⁵ to develop the self-learning capacity of rural students in the Southern province. This was the beginning of Silpa Sayura (literally “the sea of knowledge”).⁷⁶

The Shilpa Sayura pilot project created digital content for eight key subjects for grades 6 through 11. The contents were based on standard school curriculum.⁷⁷ They were Sinhala, Mathematics, Science, Social Science (History, Geography, Civic Studies), Art, Dance, Music and Environmental Studies. These e-contents were initially installed and used in 20 telecentres, but later they were made available to over 200 telecentres, significantly increasing the number of students that can access the Shilpa Sayura e-content. Now it includes 12 subjects, over 12,000 lessons and 5,000 tests. Research has shown improved examination results and the creation of a learning culture in beneficiary communities.

The project now runs in self-sustainable mode as a non-profit venture. Over the short span of existence, it has won seven international awards, namely i4d 2007, GKP 2007, Stockholm Challenge 2008, Diskobolos 2008, WYSA 2008 (Runner-up), e-India 2009 and Lien i3 Challenge 2009. The project was also awarded the Best Corporate Citizen CSR Awards in 2008 and 2009.

The Shilpa Sayura initiative is not without challenges. The telecentre staff is only capable of teaching basic ICT skills, not school curriculum. This forces the students to self-study, a mode they are typically not used to. Other issues identified were incompatibilities with Sinhala Unicode, absence of online communications skills and network management issues. Viruses and spyware were also observed as a major problem at some telecentres.⁷⁸

⁷⁵ Nenasala Project, <http://www.nenasala.lk>.

⁷⁶ Meegammana Niranjan, “Shilpa Sayura - Localized Self and Group e-Learning System for Handicapped Students in Remote Rural Community of Sri Lanka”, paper presented at the 4th International Scientific Conference: eLearning and Software for Education, Bucharest, 17-18 April 2008. Available from http://www.shilpasayura.org/papers/2_Shilpa_Sayura_else.pdf.

⁷⁷ There is only one school curriculum in Sri Lanka. It is decided by the Ministry of Education.

⁷⁸ Shilpa Sayura Foundation, “The Shilpa Sayura e-School (Sea of Knowledge) - A Case Study”, undated. Available from http://www.shilpasayura.org/papers/Shilpa_Sayura_case_study.pdf.

5. Private Sector Initiated Distance Learning Models

Most private mobile operators and broadcasters offer e-content to their customers. The models vary. Some are developed as corporate social responsibility projects and some are commercial operations. Many of these initiatives target high school students and a few focus on higher education. The following offers a snapshot.

5.1 Dialog eTeacher

Dialog Axiata PLC, the mobile service provider with the largest market share in Sri Lanka (about 60 per cent in terms of subscribers) has introduced eTeacher, a web-based education portal that allows subscribers to follow tuition classes conducted by popular lecturers via the web. This service is offered on a commercial basis and not confined to Dialog Axiata's current customers. The content can be accessed using a PC or a mobile handset.

The eTeacher portal (<http://eteacher.dialog.lk>) is an affordable alternative especially for rural students who would otherwise have to travel to city and town centres to attend tuition classes. These online classes are competitively priced, and cost less than attending a live lecture. They can be viewed from a location of student's choice.⁷⁹

Dialog eTeacher primarily caters to students sitting for the highly competitive public examinations. They include the Year 5 scholarship examination, the General Certificate of Education Ordinary (Grade 10) examination and the Advanced (Grade 12) examination. Mathematics, Science, Accountancy, Economics, Physics, Chemistry, Sinhala, Tamil, English, Business Studies and Law Entrance are among the courses with the highest demand. Dialog eTeacher presents courses from some of the most popular tuition masters in the island.

⁷⁹ The Sunday Times, "Dialog brings tuition to your computer screen in the living room", 27 May 2012. Available from <http://www.sundaytimes.lk/120527/BusinessTimes/bt11.html>.

5.2 SLT Mobitel mLearning

The m-learning model for higher education was first launched by the University of Colombo with the support from Sri Lanka Telecom Mobitel, the second largest mobile operator in 2008. It was an option available for students enrolled in postgraduate diploma and degree programmes at the University of Colombo. Adopting problem-based learning as the primary teaching methodology to promote student directed learning, it enabled specialist marketing knowledge and techniques in marketing management. The students received a laptop, a dongle⁸⁰ and a free data package to include voice, a SIM and 3G services for a year. The content was the same as the standard face-to-face courses. Following the success of the trial with the Faculty of Graduate Studies, the m-learning platform was extended to four more faculties of the University of Colombo to offer several other programmes.

Mobitel has expanded its reach significantly since then. In 2011 it signed an agreement with the Ministry of Higher Education to offer Mobitel's mLearning as the National Higher Education Learning Platform through the National Online Distance Education Service. This platform comprises of a wide range of applications including multiple user interactive videoconferencing features, slides, virtual smart boards, material upload facilities, content management facilities and also SMS, e-mail and offline messaging.⁸¹

5.3 Etisalat Web-Patashala

Etisalat, another key mobile services provider, collaborated with the Ministry of Education in developing "Web-Patashala", an e-learning platform for high school students, in 2012. It aims at addressing present gaps in Sri Lanka's education system, including the scarcity of teaching staff (especially in English, Science and Mathematics), and the lack of educational material available to students in rural areas. Etisalat provides the Internet connectivity for the product. The National Institute of Education under the Ministry of Education is responsible for creating and managing the e-content, which is regularly reviewed and updated to meet the changing requirements. The e-content also works as reference material for teachers.⁸²

5.4 Distance Education over Television Channels

Most private television channels in Sri Lanka provide educational contents for students sitting for government examinations. This is largely because the examinations are highly competitive and the education provided at government schools is not adequate to gain results that guarantee university entrance. Mostly these programmes are delivered at off-peak hours, either late night or early morning hours. These sessions are largely monologues and delivered using only primary tools. They are only supplementary and not alternatives to face-to-face teaching. The success rates are not known.

⁸⁰ A device that is connected to a computer to allow access to wireless broadband or use of protected software.

⁸¹ The Sunday Times, "Higher Education Ministry using Mobitel's mLearning", 1 May 2011. Available from <http://sundaytimes.lk/110501/BusinessTimes/bt17.html>.

⁸² The Nation, "'Web Patashala' to address education constraints", 11 March 2012. Available from <http://www.nation.lk/edition/business/item/3713-%E2%80%98web-patashala%E2%80%99-to-address-education-constraints.html>.

6. Challenges to Distance Education and the Way Forward

Despite the obvious differences in the distance learning models presented above, the challenges are largely the same.

One clear challenge is cultural. Sri Lankan society still treats education as a face-to-face activity. It is not just a question of content availability. The physical role of a teacher is still important in education. Hence, the demand for distance education is seriously limited. Most prefer the traditional mode, even when there is a more affordable distance education option. This could be the reason behind the relatively low uptake of distance learning in higher education.

The second impediment is the lack of ICT infrastructure. One PC per every ten households is not an encouraging figure. Even when PCs are available, they are shared by family members limiting the time for a single individual. Not all rural areas are covered by broadband service providers. Electricity may not be available for 24 hours a day. These issues severely reduce the demand for distance learning. Without significant ICT proliferation, the rural population will not benefit.

The third challenge is the language issue. The vast majority of Sri Lankans are not fluent in English, thus hampering the delivery of distance learning courses in English. This challenge is particularly applicable for courses offered by international agencies.

Then, there are general reasons that make education less attractive to a large section of population. In the Sri Lankan context, training does not necessarily make the corporate climb easier. In government, seniority plays a bigger role. In private sector, only performance matters. Receiving training, unless it is specific or makes a visible difference within a short time, is rarely identified as a reason for promotion. The “old school” managers generally see training as something totally irrelevant to day-to-day work. Such attitudes stand in the way of capacity building.

The attitude of government, in general, is neither negative nor positive. While the regulatory environment puts no barriers, the government has made no significant effort to promote distance education on a large scale and in an integrated manner. Distance education efforts in Sri Lanka have generally been implemented by individual government or semi-government agencies as stand-alone initiatives. A change of this attitude is essential for the expansion of distance education in Sri Lanka.

7. Recommended Actions for UN-APCICT and Member States

UN-APCICT can play a role in the expansion of many distance learning modes in Sri Lanka. As the infrastructure already exists in most cases, it is a question of developing and delivering the content. The following are some specific ways UN-APCICT can positively contribute.

Use distance learning mode to deliver UN-APCICT's Academy of ICT Essentials for Government Leaders Programme: On September 2013, UN-APCICT launched the Academy Programme in Colombo, Sri Lanka in partnership with the Information and Communication Technology Agency (ICTA). The Sri Lanka Institute of Development Administration (SLIDA), the training partner will be delivering the Academy Programme but in face-to-face mode. The Academy Programme can be delivered simultaneously using the distance learning mode. The content can be modified for the distance learning mode with minimal cost. The only additional expenses will be the video conferencing facility costs.

Support Open University Interactive Multimedia (IMM) course content development: As explained above, the Open University of Sri Lanka still uses only print material in most of its courses.⁸³ This is despite having adequate facilities to develop IMM content. There are many courses that can benefit from the inclusion of IMM content. However, its development is costly both in terms of time and investment. The advantage is that once it is developed, the content can be used repeatedly in future. UN-APCICT can partner with Open University in developing specific courses for Sri Lanka's professionals.

Support e-learning in the mobile platform: The DLC-SL plans to use the Dialog eTeacher, the Dialog Axiata e-learning platform⁸⁴ to offer courses for the small and medium enterprise (SME) sector in Sri Lanka. These will be delivered on a commercial basis, i.e. the participants have to bear the costs for the full course. The success is to be tested, as it is doubtful whether the SME sector is in a position to make such investments for capacity building. Financial support for content development in some courses might reduce the cost of course delivery. UN-APCICT can use its already developed contents with slight modifications to introduce fresh courses.

One salient feature in all three recommendations is that the support is anticipated largely for content development. No or little support is expected for delivery as the channels have already been established. In short, a moderate assistance, not necessarily financial, can make a significant difference in setting up new courses from which entire communities will ultimately benefit.

⁸³ See section 3: Distance Learning at the University Level.

⁸⁴ See section 5: Private Sector Initiated Distance Learning Models.

UN-APCICT/ESCAP

United Nations Asian and Pacific Training Centre for Information
and Communication Technology for Development

5th Floor, G-Tower, 24-4 Songdo-dong,
Yeonsu-gu, Incheon, Republic of Korea

www.unapcict.org