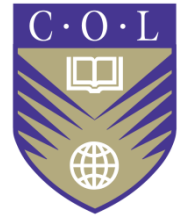


Creativity in Advancing Distance Learning: Models and Technologies



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People's Forum, Theme: Creativity and Innovation

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Introduction

It is a pleasure to be with you. Our original intention was that the Vice-President of the Commonwealth of Learning, Asha Kanwar, would address you today but she was called away to India for an urgent family matter at the weekend so I am standing in for her with my colleague Paul West. Other colleagues, who lead the initiatives that we shall describe, have contributed to this short paper. They are Kodhandaraman Balasubramanian and John Lesperance at COL in Vancouver, and Ramamurthy Sreedher, who heads our Commonwealth Educational Media Centre for Asia in Delhi.

Today's theme is *Creativity and Innovation*. This is a particularly appropriate theme for the Commonwealth of Learning to address in the context of CHOGM. COL, as everyone calls it, is celebrating what you might call its 11th CHOGM birthday this year.

We were set up in 1987 when Heads of Government met in Vancouver. They believed that a communications revolution was underway and that the mass media, information technology and new developments in telecommunications had much to contribute to the advancement of education, training and learning. COL was created to help countries to secure that contribution. Our slogan, and the title of our Three-Year Plan, is *Learning for Development*. We focus on the use of educational technology in general and of open and distance education in particular, to advance learning in support of development.

Today, rather than simply outline our work programme we shall focus on the notions of creativity and innovation as applied to the development of distance learning. Our title is *Creativity in advancing distance learning: models and technologies* and we shall flag three models and three technical developments.

The models have either already shown their worth in some Commonwealth countries and over the coming three years we shall apply them more widely in other countries. Let us begin with a few words about models then comment on the technical developments.

Models are very important to COL because the application of technology to learning for development is very context specific. Countries have different development priorities and technological and communications infrastructures vary widely. Just because an approach was successful in one country does not mean it can readily be transferred to the different circumstances of another, even if the new country seeks the same outcome. In order to maximise the likelihood of successful transfer we analyse carefully the elements that made the model successful in country A in order to be able to check whether those key elements of the model can be reproduced in country B.

The technical initiatives that we shall describe are in the development stage. COL does not do basic research on educational technology. However, we do occasionally take readily available technologies and try to apply them in new ways to solve development challenges at low cost. Those are the types of technical developments we shall describe here. Our aim is always to scale up learning for development at the lowest possible cost commensurate with fostering quality learning that makes a difference.

Model # 1: Lifelong Learning for Farmers

The first model we call Lifelong Learning for Farmers (L3F). This is aimed at one of the most crucial and urgent development priorities, which is to improve the prosperity of farmers and the rural population generally. This is being implemented by our colleague Dr Kodhandaraman Balasubramanian.

The model has four elements. It is a grassroots model because we start with the farmers and villagers in a rural community and get them to tell us how they think they might best improve their economic future. This means that step one is to mobilise the farmers to define their vision. We call this process of helping them to identify promising avenues to greater prosperity the creation of *structural social capital* – essentially having them organise to work together. From this might come a decision that the preferred route to greater prosperity is growing a different crop, which was the case in Hambantota in southern Sri Lanka, or improving diary production, an example from western Tamil Nadu in India.

Step two is to link the village with those who have useful information about how to effect the desired change. In India we get a group of tertiary institutions together to work as a consortium to answer the questions – often simple – that the farmers have. For example, how do you tell the difference between a good milk cow and a poor milk cow? In Sri Lanka the model is implemented a little differently: the community develops a strong link with a particular university that applies its expertise to the change desired.

Step three is to ensure a communications link between the farmers, the sources of information and the wider world. In India we use the commercial ICT kiosks that are present in many villages, but in other places the link might be through community radio. This is an example of the usefulness of models. Having determined that a communications link is essential, we look for an appropriate local link that can feed the process of lifelong learning that is at the heart of the model.

Finally, new ventures require money. COL is not a donor agency and, in any case, both sustainability of the initiative and its potential for replication require that funds be local. So step four is to involve the local banks in the enterprise and, through them, local businesses – such as a dairy company for the village that decided to improve milk production. In a group of villages in India, the L3F process helped 282 poor women to obtain US\$ 255,000- worth of goats and sheep through credit from the bank and within a year, through capacity building and appropriate management, they their assets grew to US\$ 625,000.

The slides show examples of the model at work. This Sri Lankan farmer has changed from rice paddy to growing sour bananas. With him in his plot is Kshanika Hirumburegama, the botanist from the University of Colombo (and now the Vice-Chancellor of the University) who guides the project. As a result of the change the farmer increased his income by a factor of six and moved his family from the thatched house on the left to the white house on the right.

Another feature of the project is that girls passing out of the local school have been taught how to grow tissue cultures for the bananas in a sterile laboratory and these are sold to the farmers who wish to grow them.

In a similar way five Sri Lankan universities are helping to transform agriculture in different ways in different regions. Not far from the banana project in southern Sri Lanka, Ruhuna University is helping farmers switch to mushroom cultivation, which has significantly increased their incomes.

The next pictures show the farmers in Tamil Nadu, mostly women, who are getting loans from the banks to improve their dairying, learning how to test the quality of the milk to satisfy the standards of the dairy company that will buy it, and using the village ICT kiosk as part of their ongoing search for useful information. The decision to improve a particular aspect of their farming leads to a whole programme of informal learning, always focused directly on making a success of the change desired.

Having identified the key elements of the Lifelong Learning for Farmers model in India and Sri Lanka it is now being applied in Jamaica, Papua New Guinea, Kenya, Uganda and Mauritius.

Technical Development #1: LIVES

Describing the Lifelong Learning for Farmers programme leads naturally to the first technical development we shall describe. LIVES stands for *Learning through Interactive Voice Educational System*. It is a joint project of COL and the University of British Columbia. The aim is to use mobile phones at scale in rural development.

The LIVES system automates voicemail-based learning materials to reach thousands of farmers in their local language or dialect. It has been enthusiastically adopted by COL, which is in discussions with IKSL-Airtel group in India for a wider roll-out widely in the coming year. By linking a learning management system to the mobile phone network, LIVES has strong feedback and performance tracking features, can accumulate a large data base of audio learning materials in various languages, and can reach more than 1,000 farmers at a time. The slides show a schematic diagram of the system and a woman goat farmer who, along with hundreds of other women, has been provided with a mobile phone along with her

loan from the bank and is learning more about goat rearing through several short lessons each day on a prototype of LIVES.

Model #2: The Virtual University for Small States of the Commonwealth

Model #3: Transnational Qualifications Framework

Our second and third models are closely linked. The idea of a Virtual University for Small States of the Commonwealth began with the Education Ministers of the Small States of the Commonwealth when they met in 2000 amid all the excitement of the dotcom frenzy. They judged that many of their countries did not have the critical mass of trained people or ICT infrastructure to launch confidently into the eWorld. So they decided to work together and called their collaborative venture the Virtual University for Small States of the Commonwealth (VUSSC).

It is really a misnomer, because this is indeed a collaborative network, not a new tertiary institution. Furthermore, because donors were not interested in funding the organisational infrastructure for a new international body, it has to be created as a bootstrap operation from the bottom up. Our colleagues Paul West and now John Lesperance have worked with 32 small states to develop a model that is now gaining real traction and allowing these countries to enrich and expand their tertiary institutions in just the way they hoped back in 2000.

There are two key elements of the model. The first element is the collaborative production of eLearning materials in a range of practical subjects of special relevance to small states. The second element, capacity building, is a requirement for achieving this. Lack of personnel trained in applying ICTs to learning was a major stimulus to the creation of the VUSSC. The VUSSC pursues these two elements simultaneously by organising a three-week course development workshop to initiate the creation of eLearning materials in each new subject. This picture shows the first such workshop, held in Mauritius in 2006. The subjects were ecotourism and small business and experts on these topics attended from 14 small states. They spent three weeks acquiring the skills necessary to develop eLearning material by collaboration online while beginning the process of creating such materials for these subjects.

The participants had two obligations when they got home. The first was to share their ICT training by passing on the skills they had acquired to five other colleagues. The second was to continue to work online with the other workshop participants to complete the development of the course. Since that first workshop six others have been held. The seventh, on the subject of Port Management and Stevedoring, is being held in Samoa at this moment and has attracted experts from sixteen countries. Earlier similar events had been held in Singapore on Teacher Education; in Trinidad & Tobago on Life Skills; in Samoa on Disaster Management; in Seychelles on Fisheries; and in The Bahamas on Construction Safety. It is fair to say these workshops have become progressively more effective and efficient at both their training and their course development functions.

An important feature of the model is the creation of learning materials in the form of Open Educational Resources that can be freely shared, adapted and re-used. In this respect the VUSSC is part of an exciting worldwide movement to assert that knowledge is the common wealth of humankind and must be shared

as freely as possible. The OER movement gained momentum when the Massachusetts Institute of Technology made its faculty's lecture notes freely available on the web. In a second development the UK Open University offered a large selection of its self-learning course materials in the same way. The VUSSC, in which academics and experts work collaboratively to create courses for everyone to use, might be considered the third generation of the OER project.

Another important feature of the VUSSC is the ownership and management of the programme by the member countries themselves. A Management Committee chaired by Dr Emma Kruse Vaai from Samoa sets the overall strategy of development, which COL then supports.

A sub-committee of the VUSSC Management Committee looks after the Transnational Qualifications Framework that has been developed as part of the programme. We have identified this Transnational Qualifications Framework, or TQF, as our third model in this paper. Through international collaboration the VUSSC is developing courses that will be used all over the world. It is necessary both to ensure that the courses are credible and to show how they fit into the qualifications frameworks in use in different countries. The VUSSC TQF, which was developed with the help of the South African Qualifications Authority, can be thought of as a conversion table that allows people to see how a course from one region fits into the qualification framework of another.

To ensure credibility a course is only accepted for listing on the VUSSC portal if it has been approved by an accredited institution in the originating country – and by the regional accreditation mechanism if one exists. These precautions are particularly important for courses and qualifications emanating from small states since, regrettably, some of these jurisdictions are home to degree mills and bogus colleges that make other countries doubt the validity of any qualification coming from them.

In summary therefore, the Virtual University for Small States of the Commonwealth, itself a new model for international collaboration for the development of learning material, has other models nested within it like a Russian doll. Open Educational Resources and the Transnational Qualifications Framework are the most striking, but you could also call the format of the course development workshops a model. Furthermore, the use of wikis in course development, which we have not explored in this paper, has also yielded a new model of wiki that attempts to combine open content with the use of public domain material that may have some rights reserved.

Technical Development #2: Easy Now

The second technical development we shall describe is the brainchild of Dr Ramamurthy Sreedher and his team at CEMCA in New Delhi. 'Now' sounds like the Hindi word for nine, and Easy Now Uses open source and ICT tools to create multiple media educational content in nine formats at low cost. Very important is its easy by teachers and it is already being used in a number of tertiary institutions in India, Sri Lanka and other Asian countries. It also enables a high degree of compression of materials, so that complex multi-media programmes can be carried on a simple data stick.

This slide shows the nine ways in which learning materials can be configured using Easy Now:

- Text magnification
- Conversion to Braille
- Slide shows
- Web-based Open and Distance Learning
- Text to audio delivery
- Audio streaming
- Audio CD
- Video streaming
- Video CD

The following slides show the four examples of Web-based ODL, an audio CD, a video programme and the Braille version of the courseware.

Interest in using Easy Now is growing steadily in South Asia as teachers discover its ease of use and flexibility.

Technical Development #3: Edu-Frame low-cost educational computing device

The *EduFrame* is an exciting technical development. It is the creation of a really low-cost educational computing device. Given that the pursuit of a cheap laptop for education has created a number of false dawns we make this announcement somewhat hesitantly. A '\$100 laptop' was announced with some fanfare at the Davos World Economic Summit in 2005. However, the 'One Laptop per Child' project of Nicholas Negroponte has still not come close to the \$100 price point and, partly for that reason, fewer than a million of the machines are in circulation rather than the tens of millions forecast. A wider issue is that no one has yet come up with an effective model for putting together children, computers, classrooms and teachers in a way that contributes to the important goal of expanding access to education while at the same time lowering its cost and improving its quality.

However, many governments, such as India's, are determined to put more computers into schools and seek a machine with a price point of \$50 to facilitate this. Dr. Sreedher and his team have taken up the challenge and now have working prototype that costs \$75 to put together with parts purchased retail. With further refinements in the coming months this machine should be capable of being produced in volume for \$50 a unit. COL and CEMCA intend to make the design freely available and encourage firms to manufacture it and continue refining it.

We call the machine *EduFrame* and the prototype is shown being put through its paces in these slides. Technically you could say that it is a blend of a netbook and a digital photo frame. The team is experimenting with a various types of motherboard and software in order to get the best combination of low cost and useful functionality. Already the *EduFrame* can handle all the applications that make useful contributions to education and we hope that the low cost of the machine will lead to wide distribution and the development of many new applications.

The *EduFrame* owes its origins to the widely available digital photo frame, a storage device used primarily to display photos such as a digital photo album. These digital photo frames also have a radio as well as a movie button for browsing. The idea of using digital photo frames as a technology for educational purposes was the brain child of the CEMCA IT Consultant, Mr Krishna Moorthy.

The *EduFrame* is neither a low cost lap top nor an upgraded digital photo frame, it borrows from the technology of the Digital Photo frame and makes use of the *EasyNow* streaming technology to provide not only ready made, customised course ware to learners but also to allow for internet surfing, documentation and office organisation and presentation functions. The *EduFrame* is a computing device that also serves as a teacher/ facilitator to remote learners without internet access. It enables teachers/facilitators to upload material/content on the *EduFrame* as well as on the net, while allowing learners the facility of easy download. It consumes less power (around 10 watts) and is being designed to run on alternative sources of energy apart from electricity. This design would enable even the most remote learner to have access to quality education at their doorstep.

When the prototype is released, it is envisaged that the technical specifications will be as follows:

8.9 inches WXGA TVT – Touch Screen
X BURST 400 MHZ CPU 32 Bit LINUX Support, Office, media, photo, support
256 MB RAM
2 GB NAND Flash
10/100 MB Ethernet Access 802.11 b/g
Key Board, Mouse

Conclusions

We hope that this brief account of the advancement of the use of open and distance learning by the Commonwealth of Learning through three models and three technical developments has shown that there is enormous room for creativity in enhancing the reach and impact of educational technology.

By taking as its goal learning for development COL has had to go beyond the well-trodden paths of formal ODL. The three models we have outlined, Lifelong Learning for Farmers, the Virtual University for Small States of the Commonwealth and its Transnational Qualifications Framework are all making education, training and learning available to new audiences.

COL is not primarily an organisation that works on technical development as its core business. However, when we see new technologies, new hardware and new software that is crying out to be used to improve education we like to work with partners to make that happen. We have no intention of getting into the equipment or software manufacturing business. Just as we do in facilitating the development of Open Educational Resources, our aim is to demonstrate where new low-cost applications of technology are possible and to let the market take care of the rest.