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Editorial: Technology, Policy, and the Right to Education

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On December 10, 1948 the General Assembly of the United Nations adopted and proclaimed the Universal Declaration of Human Rights. Article 26 of that declaration deals with the right to education. Its three clauses are:

> (1) Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit.
>
> (2) Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace.
>
> (3) Parents have a prior right to choose the kind of education that shall be given to their children.

Almost 60 years have passed since this declaration. In that time, distance education has emerged as a way of extending educational opportunities to those for whom poverty, remote location, gender, disability, or dislocation has made education more of a luxury than a right, especially in the world's poverty zones. At basic and secondary levels, open schools and classrooms are using distance education approaches to help universalize primary education and make secondary education at least a possibility for those who would otherwise become permanent school leavers (cf. Yates & Bradley, 2000, and Bradley, 2003). Perraton estimated that as many as 20 per cent of university students in developing countries were studying at a distance, compared with 12 per cent in industrialized countries (2000). Those percentages, no doubt, are considerably higher today. Nonetheless, 72 million children remain out of school, one in five adults is without basic literacy skills, and many pupils leave school without acquiring essential skills and knowledge (UNESCO, 2008). Is distance education helping to make a significant dent in these numbers?

In company with distance education journals worldwide, this special issue of the International Review of Research in Open and Distance Learning (www.irrodl.org) invited contributions that

addressed this question. Contributors were asked to focus on the following issues: What is the role of distance education in the implementation of the right to education? How is distance education involved when education is seen as a right? What is its position in educational policy, as a factor of quality and an instrument for liberty? Do the technologies of distance education act as enablers or barriers to achieving the universal right to education? In response, we received a number of papers that focus particularly on technology and policy.

First up is a trio of papers that concern the way in which technology is facilitating the production and dissemination of Open Educational Resources. Production costs of distance learning materials remain high, but thanks to digitization and communication technologies, the costs of reproduction and dissemination are almost non-existent. As a consequence, producer organizations, primarily universities, can make and are making their materials available to any individual or organization anywhere in the world for immediate use. Recipients are encouraged to adapt materials to meet their own needs. Producer institutions have formed consortia to share the costs of storing, cataloguing and disseminating their courseware, and to facilitate an expanded process of peer review. OpenCourseWare is one such endeavour, begun at the Massachusetts Institute of Technology in 2001.

Among the providers are Utah State University (Caswell, Henson, Jenson and Wiley) and the University of Southern Queensland (Huijser, Bedford and Bull). Caswell and colleagues present the positive case for this technology, arguing that by providing worldwide access to digital 'courseware,' distance education becomes not just a classroom alternative but a 'social transformer.' Huijser and colleagues are somewhat more circumspect, tempering this enthusiasm by detailing some of the challenges involved, in particular the continuing 'digital divide' and the risk of 'cyber imperialism.' OpenCourseWare are produced, after all, in cultural, political, and social contexts specific to their countries of origin, which at the moment are almost exclusively in the global North. Further, 'courseware' are not the same as 'courses'. The latter contain such learner support mechanisms as feedback on assessment, structured time-tabling, and person-to-person support, which distance educators continue to see as critical to the learning process (cf. Tait & Mills, 2003 and the April 2003 issue of www.irrodl.org). Completion of 'courses' also leads to the conferring of a qualification, something that universities essentially sell. In terms of selling, Huijser and colleagues also point to the benefits to producer institutions of becoming known as purveyors of quality OpenCourseWare: students who have sampled these wares and liked what they see are more likely to sign up for the full package. Huijser et al. suggest that this may, in fact, be the real rationale for universities' involvement in the movement. Nonetheless, claim the authors, opening of access to quality materials is a byproduct of such potential value that the movement merits support and continuing work to overcome the challenges it poses.

Wilson adds a third dimension to this consideration of open educational resources by describing a new venture of The Open University of the United Kingdom called 'OpenLearn'. Wilson, picking up a point made by Huijser et al., notes that these materials, having been produced specifically for learners at a distance rather than for conventional classroom use, contain learning support mechanisms such as self-assessment quizzes and guidance for study. Wilson also adds a further international flavour to the discussion by comparing the views regarding possible take up of these materials by a university in South Africa and a college in the United Kingdom, in the process highlighting the differences in access to the Internet that characterize the two institutions but also their similarities of viewpoint regarding the appeal of the content on offer (high) and the role the acquired courseware would play in their curriculum (supplementary rather than core).

The next two papers continue the technology theme, by providing a comprehensive catalogue of the challenges that developing nations face in attempting to benefit from these e-learning developments (Gulati), and an account of a project in western China that is using technology for the professional development of rural teachers (Robinson). Gulati offers us a rather bleak prospect, arguing that although "the availability of new technologies may have opened up developing economies to the world market . . . they have done little to help deprived groups gain access to educational opportunities" (p. 12). The barriers are familiar to anyone who has worked in countries of the global South – lack of educational and technological infrastructures, lack of trained teachers, negative attitudes toward distance learning, social and cultural restrictions imposed on girls and women, and inappropriate policy and funding decisions. Robinson's paper is more hopeful. Reinforcing Gulati's point that trained teachers are a key factor in providing 'education for all,' Robinson describes the work of the European Union-China Gansu Basic Education Project, which is using information and communication technologies to reach rural teachers on a large scale. Fully supported at all levels, the approach is system-wide rather than piecemeal, inclusive of all teachers in the target region, and based on technologies that are appropriate and relevant. So positive have the evaluations been to date that the project may well serve as the basis for much wider provision.

Siaciwena and Lubinda continue on this positive note in their case study of the role of open and distance learning in implementing the right to education in Zambia. Zambia is economically one of the poorest countries in the world, listed on the current Human Development Index as 13th from the bottom (UNDP, 2008). Focusing on the policy framework, the authors demonstrate the commitment of the Government of Zambia to further development of open and distance learning, and the progress that has so far been made. In order to continue this transformation of commitment into reality, there is an urgent need for training of personnel, capacity building in human and technological infrastructure, continuing evaluation and review, quality assurance frameworks, and establishment of partnerships with technology providers as well as a national consortium of materials producers and disseminators.

The final paper speaks more generally to the question of distance education's role in implementing the individual's right – and in this case, access – to education. The individual in question is the first generation student (FGS) in Canada, that is, the student whose parents did not attend university. Priebe, Ross and Low explore the issue of why distance education programs might have a higher proportion of FGS than do more conventional programs. Their research points up a number of possible answers, including the advanced age of these students in entering university which makes open, distance, and independent study an attractive option; and their determination to remain debt-free, which again makes distance and part-time study an appealing mix since it offers learners the possibility of remaining employed while studying. This paper makes a fitting close to the volume, by bringing us back to a consideration of the needs and characteristics of learners, which remain the foundation of our work of widening access to education and learning.

Acknowledgements

Any journal issue is only as good or as useful as the contributions of the authors who respond to the call for papers, and in this case we have, indeed, been well served by our contributors. Many thanks also to our peer reviewers for their guidance and advice. The issue would not have been possible without them, or without the steadfast intellectual, academic and editorial oversight and

organization provided by Paula Smith and Terry Anderson. I am most grateful to them for allowing me the opportunity to be part of this international initiative.

References

Bradley, J. (Ed.) (2003). *The Open Classroom: Distance learning in and out of schools*. London and Sterling, VA.: Kogan Page.

Perraton, H. (2000). *Open and distance learning in the developing world*. London and New York: Routledge.

Tait, A., & Mills, R. (Eds.) (2003). *Rethinking learner support in distance education: change and continuity in an international context.* London and New York: RoutledgeFalmer.

UNDP (2008). *Human development index statistics 2008*. Retrieved February 19, 2008 from:A http://hdr.undp.org/en/statistics/

UNESCO (2008). *Education for All – Global Monitoring Report 2008*. Retrieved February 19, 2008 from: http://portal.unesco.org/education/en/ev.php.url_id=49591&url_do=do_topic&url_section=201.html

Yates, C., & Bradley, J. (Eds.) (2000). *Basic education at a distance*. London and New York: RoutledgeFalmer and Vancouver: Commonwealth of Learning.

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Open Educational Resources: Enabling universal education

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Abstract

The role of distance education is shifting. Traditionally distance education was limited in the number of people served because of production, reproduction, and distribution costs. Today, while it still costs the university time and money to produce a course, technology has made it such that reproduction costs are almost non-existent. This shift has significant implications, and allows distance educators to play an important role in the fulfillment of the promise of the right to universal education. At little or no cost, universities can make their content available to millions. This content has the potential to substantially improve the quality of life of learners around the world. New distance education technologies, such as OpenCourseWares, act as enablers to achieving the universal right to education. These technologies, and the associated changes in the cost of providing access to education, change distance education's role from one of classroom alternative to one of social transformer.

Keywords: OpenCourseWare; distance education; access; new technologies

Introduction

The role of distance education is changing. Traditionally distance education was limited in the number of people served because of production, reproduction, distribution, and communication costs. In the past, schools spent resources to produce a course, and then spent additional resources to reproduce the course, and send it to students. While it still costs a university time and money to produce a course, technology has made reproduction and distribution costs almost non-existent. A course can be sent electronically, or placed online, and any number of students can access the material. This marked decrease in costs has significant implications and allows distance educators to play an important role in the fulfillment of the promise of the right to universal education. At relatively little additional cost, universities can make their content available to millions. This content has the potential to substantially improve the quality of life of learners around the world.

Article 26 of the Universal Declaration of Human Rights declares that everyone has the right to education, and that "technical and professional education shall be made generally available (United Nations, 1948)." The movement to make this happen has already begun.

OpenCourseWares are online open access collections of educational materials used in courses at universities such as the Massachusetts Institute of Technology (MIT), the Open University, Johns Hopkins, Kyoto University, Notre Dame, and Korea University. Currently, over 2,500 open access courses are freely available from over 200 universities worldwide. And additional higher education institutions are launching OpenCourseWare-style projects regularly.

New distance education technologies, legal practices, and philosophies, such as OpenCourseWares, act as enablers to achieving the universal right to education. The Open Educational Resources (OER) movement is a technology-empowered effort to create and share educational content on a global level. This paper will explore these kinds of endeavors, and how they can move distance education's role from one of classroom alternative to one of social transformer.

OpenCourseWare Overview

On April 4, 2001, Massachusetts Institute of Technology's President Charles M. Vest announced that the MIT would make the materials for nearly all its courses freely available on the Internet over the next ten years. This new program would be known as MIT OpenCourseWare (MIT, 2001). MIT OpenCourseWare has a dual mission: First, to provide free access to virtually all MIT course materials for educators, students, and individual learners around the world. Second, to extend the reach and impact of MIT OCW and the OpenCourseWare concept (MIT, 2006).

OpenCourseWare (OCW), an initiative within the Open Educational Resources movement, finds its origins in the free software movement. In 1983, Richard Stallman announced the foundation of the GNU project housed within the MIT Artificial Intelligence Lab. The purpose of this project was to build Unix-compatible software and share it freely with anyone. His plan called for community contributions in the form of programming support, hardware, and even money to hire programmers. This open, community approach became increasingly prevalent with software developers. In 1991, Linus Torvalds used GNU tools to develop Linux, now a popular open source operating system built on the same open principles and licensed under a GNU General Public License (GPL) (Wikipedia, 2007b).

In 1998, David Wiley announced the first open content license. This license was based on the premise that educational content should be freely developed and shared "in a spirit similar to that of free and open software" (Wiley, 2003). The idea that content should be free and openly available became popular quickly. Stallman announced the GNU Free Documentation License (GNU FDL) in 2000. In 2002, Creative Commons released their first set of copyright licenses that helped content producers license their content for reuse (Creative Commons, 2007a).

By the time MIT went live with 50 courses in a pilot version of OpenCourseWare in 2002 (MIT, 2006), Wikipedia had been running for a year, the Internet Archive had been up and running for seven years, and Project Gutenberg had over twenty years of public domain, community-contributed content in its library (Wikipedia, 2007a). These and other projects became core to the Open Educational Resources movement.

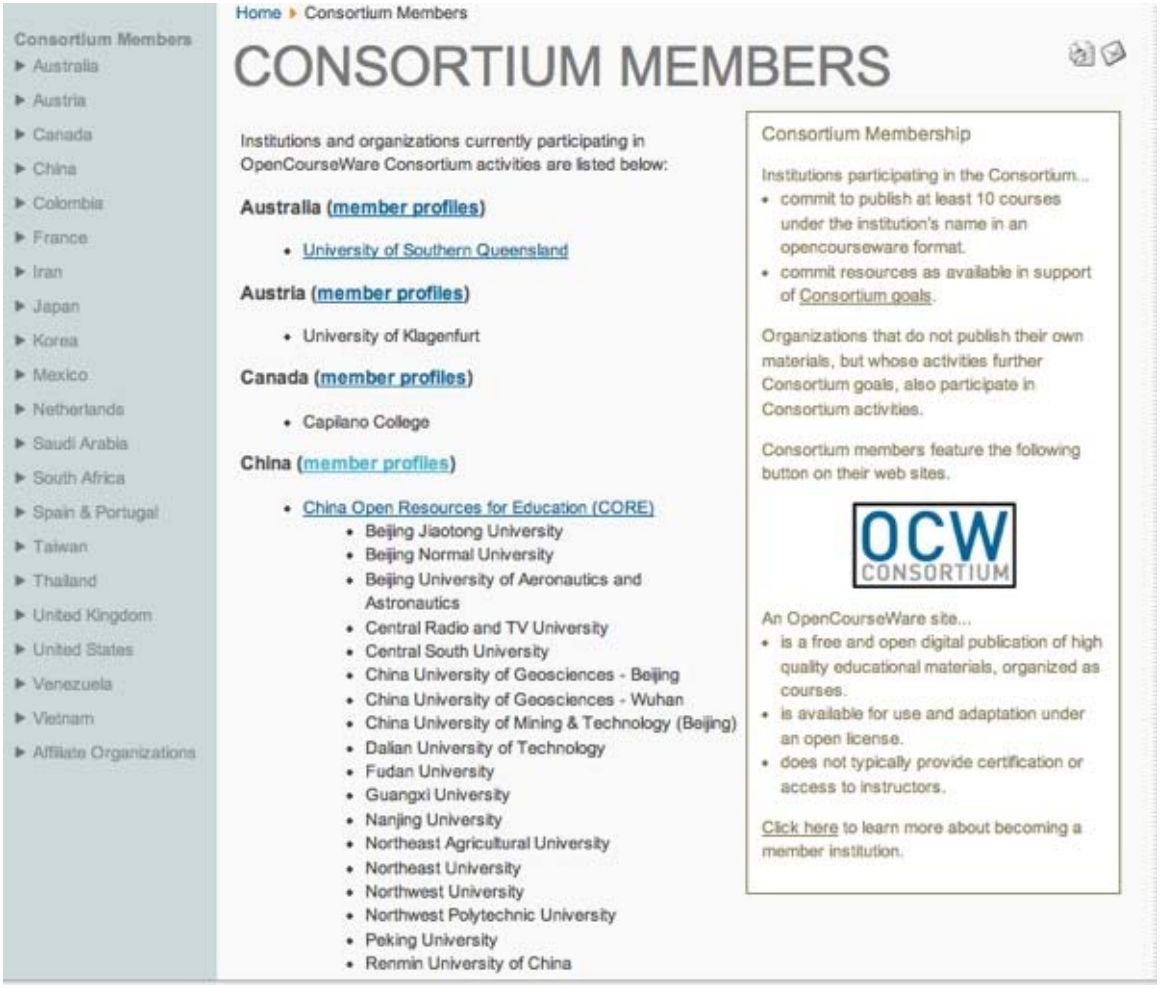
The purpose of the Open Educational Resources movement is to provide open access to high quality digital educational materials. There is broad participation by universities, private organizations, and others. Projects include the Internet Archive (see http://internetarchive.org), Project Gutenberg (see http://gutenberg.org), Wikipedia (see http://wikipedia.com), Creative Commons (see http://creativecommons.org), Sun Microsystems Global Education Learning Community (see https://edu-gelc.dev.java.net/nonav/index.html) and, as is the focus of this article, the OpenCourseWare Consortium (see http://ocwconsortium.org). The list of participating organizations grows every year as the principles of openness spread.

Hewlett (2005) describes OpenCourseWare as an initiative in the Open Educational Resources movement. OpenCourseWare is one way that distance education can support equal access to education. An OpenCourseWare is a digital collection of freely available educational materials organized as courses (OCW Consortium, 2007). OCW materials may include a professor's lecture notes, video of course lectures, exams, reading materials, or any other resources used to teach courses at universities and institutions worldwide.

OpenCourseWare was conceived at MIT by a committee of faculty, students, and administrators. Their charge was to provide the university with guidance regarding how MIT should position itself in the budding online distance education environment. At the time of the dot.com boom, many people felt that tuition and fees from online education would fill university coffers. The MIT committee's recommendations, however, were unexpected. They recommended freely and openly sharing the materials used to teach courses at MIT. In launching this visionary initiative, MIT set the stage to enable universities and organizations to extend the reach and opportunities afforded by teaching and learning to the world at large. Through OCW projects, universities can share and contribute their knowledge and expertise in an open and easily accessible manner.

There is growing momentum among higher education institutions to participate in this "open" movement. As of November 2007, over 160 higher education institutions and affiliated organizations who have committed to begin an OCW website and openly share 10 courses. The 10 course commitment is a requirement to be able to join the OpenCourseWare Consortium, an organization established to assist the OCW movement. Currently, there are over 100 member institutions and associated organizations around the world (see Figure 1). There are currently 28 universities with live sites (OCW Consortium, 2007). On November 28, 2007, the MIT community celebrated a major milestone for OpenCourseWare. This event "marked the publication of core teaching materials including syllabi, lecture notes, assignments and exams from virtually all MIT courses, 1,800 in total. The site includes voluntary contributions from 90% of faculty (MIT, 2007a)." Figure 1 is on the next page.

Figure 1. Image of the top portion of the OCW Consortium page of participants



Other schools' open educational resource initiatives are seeing a large amount of traffic. The Open University of the United Kingdom's "Open Content Initiative" has been online for just over a year and has had over one million visitors come to their site.

MIT and other early adopters started their OCW site with seed money from grants and private funding. Governments now help with the funding of OCW projects. In 2007, Utah became the first state in the United States to provide public money to fund an OCW. The Utah State legislature gave seven state schools money to produce courses for the Utah OpenCourseWare Alliance (Utah OpenCourseWare Alliance, 2007).

OpenCourseWare reaches more learners. Utah State University's OCW (see http://ocw.usu.edu) has a number of courses on biological irrigation engineering with detailed specifications regarding the design and construction of irrigation systems. These materials can be accessed by rural farmers in Azerbaijan looking for a better way to get water to their crops. The Open University of the Netherlands has shared a course on computer science designed for self-paced learning that can be used by a self-taught network administrator in Malaysia. Courses from Notre Dame's Peace Studies department can be easily accessed by university faculty and students in Brazil. Rogelio Morales of Venezuela said, "This has allowed a lot of people to access this

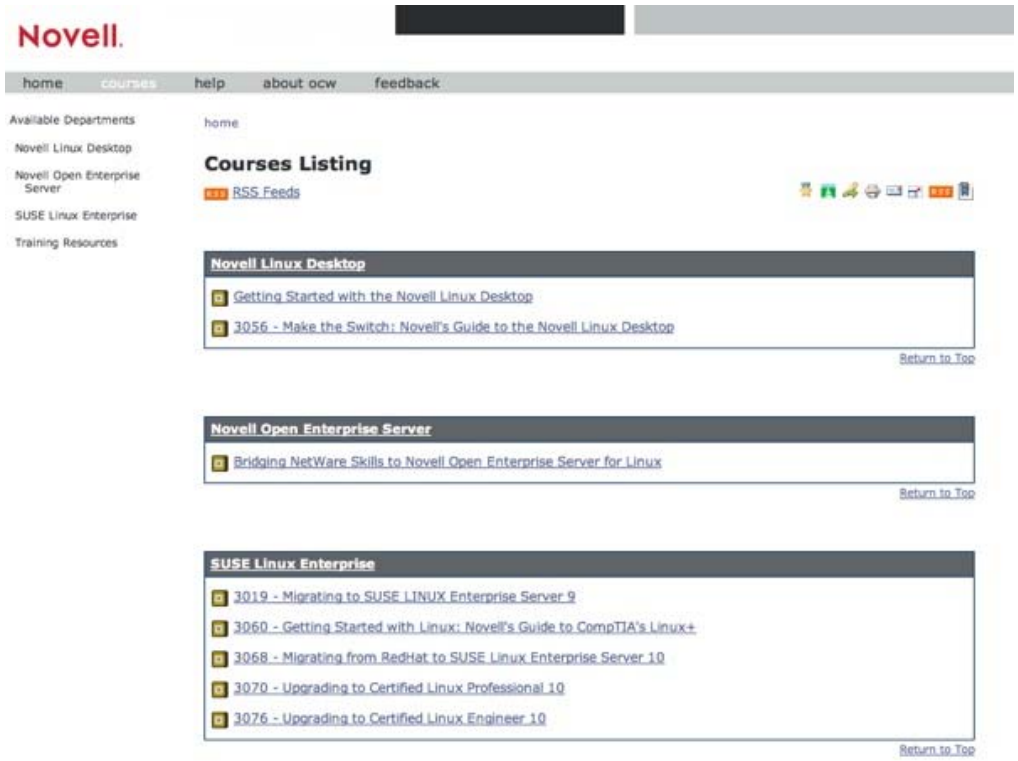
information who might otherwise have been unable to do so. OCW has enormous potential for our country" (MIT, 2007b).

There are many institutions and businesses, and even individuals, creating OCW content. At 1,800 courses and counting (MIT, 2007a) MIT boasts the largest collection of OCW courses, but the number of courses from other participating schools has now surpassed the number of courses offered by MIT. In the United States, the Johns Hopkins Bloomberg School of Public Health, Tufts University, University of Notre Dame, and Utah State University are all active participants, with more than a dozen other schools in the initial stages of launching an OpenCourseWare. Outside the United States, there are approximately 20 countries with schools participating in the movement, including China, Vietnam, Spain, South Africa, Saudi Arabia, France, Japan, and Korea.

Other institutions are sharing their OER content, though not calling what they do OpenCourseWare. Examples of other types of OERs include the iTunes audio lecture series from the University of California at Berkley. Another is the Connexions project at Rice University, which posts educational content online, though not always in course format.

At least one business has entered the OCW arena by providing training and other educational materials under a Creative Commons license. Through its "Novell OpenCourseWare" site, Novell has published documentation, a knowledge base, and training materials (see Figure 2).

Figure 2. Image of Novell's OpenCourseWare Site



Creative Commons

The production of open educational resources goes beyond even the organizations that create the materials. There are thousands of producers involved in the open education movement, though many of them do it without realizing it. Every time material is created and licensed under a Creative Commons (see http://creativecommons.org) or other "open" license, there is potential for that material to be used in an educational setting. Many of the images found in Utah State University's OpenCourseWare courses were found on the Flickr image website using the Creative Commons search. These images were originally taken for some other purpose, but because the creator chose a Creative Commons license, they were easily and legally re-used on an OpenCourseWare site. Project Gutenberg, a collection of over 20,000 public domain books, is another example of how open educational resources can be re-purposed for education. Two public domain plays from the readings section of the Utah State University OCW Theater Arts course have been made available in their entirety in this way. Creative Commons and other open licenses allow material the potential to be readily re-used in an OpenCourseWare course or other educational product. “Creative Commons defines the spectrum of possibilities between full copyright — all rights reserved — and the public domain — no rights reserved:” (Creative Commons, 2007b). In most cases, the only restrictions are that the original producer be given attribution, that the work may not be used for commercial purposes, and that adaptations of the work be shared with the community.

Materials in OCW collections are not only freely available, but their reuse and adaptation is encouraged. Many of these resources are licensed under a Creative Commons license allowing for distribution, remix, and reuse of materials. The Open University of the UK (see http://open.ac.uk) recently announced a competition to encourage users to remix content available on their site. And the Center for Open and Sustainable Learning (see http://cosl.usu.edu) and the Connexions project at Rice University (see http://cnx.org/) have developed technologies that leverage open licenses and encourage users to build and share custom collections of open materials. The materials produced for OpenCourseWare collections are meant to be used and re-used by self-learners, students, and faculty alike.

Support for New OCW Partners

Providing these self-learners, students, and faculty with OpenCourseWare materials from a university is not as difficult as it might seem. It starts with a conversation about OpenCourseWare that includes administrators and key faculty. Finding faculty who are willing to share their course materials is crucial. Once they have identified one or two courses they are willing to share in an open access format, the process can begin. Even a small group of enthusiastic faculty and administrators can provide a strong starting point. They can help build support for OCW and give it a greater chance for success.

Once key faculty are willing to share their content have been identified, a logical next step is to set-up an OpenCourseWare pilot. Organizations, such as the Center for Open and Sustainable Learning, have provided resources such as software and support materials to explain what OCW is and why institutions should participate. An eduCommons demo site is available as a sort of "sandbox" for those interested in trying the software before making a decision about how to host their OpenCourseWare (see http://demo.educommons.usu.edu). The eduCommons software is designed to make implementing and managing an OpenCourseWare project as simple and pain-free as possible. eduCommons makes it easy to get teaching materials into a repository, tag the

materials with metadata, and track each individual bit of teaching material through a copyright clearance, quality assurance, and publication process. The William and Flora Hewlett Foundation generously funds the development of eduCommons, and the Center for Open and Sustainable Learning makes the software available completely free of charge. Support is available as questions arise.

The actual process of managing OpenCourseWare production can be set up many different ways. Often it can be integrated in an institution's existing faculty technology support or media center. Most successful OpenCourseWares have staff dedicated to handling the technical process of converting course content into OCW content. This can reduce the time commitment required of faculty to just a few hours, including an initial meeting to obtain existing course content and a follow-up meeting to obtain final approval once the OCW course has been created. Minimizing the time required of faculty to create an OCW course increases the likelihood that faculty will choose to participate. Other successful OpenCourseWares use the course conversion and redesign process as service opportunities for students looking for capstone projects.

Each institution will need to develop its own policies and standards. This includes course design standards, intellectual property policies, and faculty release agreements. (Samples of these may be obtained free of charge from COSL.) The first few OCW courses published by an institution will serve several purposes. They will help those involved to gain an understanding of the software, how to deal with intellectual property, as well as the overall OCW course publication process. These initial courses, however, can also be good internal marketing tools, useful when approaching other faculty about adding their course materials to the institution's OpenCourseWare. The first few OCW courses and the new OCW site can help start conversations with new, interested faculty. And, finally, once additional interest has been sparked, it may be necessary to pull together more resources to support the growing OCW project. These resources will likely take the form of people, time, and possibly technical infrastructure. This is an iterative process that will continue as the OCW project grows and takes on more meaning and importance within the institution, and as potential participants come to more clearly understand the benefits and possible challenges of an OpenCourseWare project.

Benefits and Challenges

There are several reasons a school, business, or individual would license their material to be used or re-used in an open manner. Wiley (2006) describes one such reason:

> We believe that all human beings are endowed with a capacity to learn, improve, and progress. Educational opportunity is the mechanism by which we fulfill that capacity. Therefore, free and open access to educational opportunity is a basic human right. When educational materials can be electronically copied and transferred around the world at almost no cost, we have a greater ethical obligation than ever before to increase the reach of opportunity. When people can connect with others nearby or in distant lands at almost no cost to ask questions, give answers, and exchange ideas, the moral imperative to meaningfully enable these opportunities weighs profoundly. We cannot in good conscience allow this poverty of educational opportunity to continue when educational provisions are so plentiful, and when their duplication and distribution costs so little. (¶ 1)

MIT's mission statement echoes this sentiment. Their goal is "to advance knowledge and educate students in science, technology, and other areas of scholarship that will best serve the nation and

the world in the 21st century" (see http://ocw.mit.edu/OcwWeb/Global/AboutOCW/our-story.htm). If educational materials can bring people out of poverty, and information can now be copied and shared with greater ease, there is a moral obligation to do so. Information should be shared, because it is the right thing to do.

There are other benefits that come when a university shares their content, however. In a recent survey (MIT, 2006) MIT found 35 percent of Fall 2005 entering freshmen aware of MIT OCW prior to attending MIT indicated the site was a significant or very significant influence on their choice of school. Seventy-one percent of all MIT students (undergraduate and graduate) made use of MIT OCW in their research and studies. Ninety-six percent of MIT students using the MIT OCW site reported it has had a positive or extremely positive impact on their student experience. Finally, 40 percent of MIT faculty using MIT OCW reported that the site is a helpful tool in revising/ updating courses, and 38 percent use the site for advising students. MIT's OCW increased the interest of potential students to apply for MIT, and helped students at their school in both advising, and course work.

Aside from helping administration and students, OpenCourseWare is also beneficial to faculty members. Faculty members can share their work, their research findings, and their course structure with others in their field. Other faculty members can use and re-use their material, building upon the work others have begun. One example of this is Brett Shelton, a faculty member at Utah State University. Dr. Shelton developed an OCW course on instructional games. The course consisted of his content, as well as content generated by his students in the class. Dr. Shelton's OCW course appears fourth on a Google search for the phrase 'instructional games'. This has allowed others to know of Dr. Shelton's interest and expertise in instructional games.

Yue, Yang, Ding, and Chen (2004) discussed the increasing use of OpenCourseWare content for Computer Science education. They described the process Computer Science educators go through to pull raw content from OpenCourseWare sites as they build courses for their own students. The problems of using search engine results instead of OCW content include the lack of detail regarding copyright permissions for search engine results, the uneven quality of resources found on search engines, and how results may be too scattered and disparate to be integrated into a course. When dealing with content from an OCW site, they suggested a spectrum of approaches that runs from directly linking to the OCW content to cutting and pasting the content into a local version of the remixed course. Directly linking to content is simple, but leaves educators with no ability to customize the content for their students. On the other hand, cutting and pasting content can lead to complications. For example, if content on one site is licensed under a Creative Commons Attribution license, and content from another site is licensed under the GNU FDL, it is possible that the license requirements are in conflict with one another. This forces the educator to pay attention to a layer of their instruction beyond what is simply pedagogically sound. Regardless, Yue and colleagues suggest that the benefits of OCW materials outweigh the challenges for educators.

Kirkpatrick (2006) describes the challenges for institutions looking to support OCW sites. One challenge is dealing with intellectual property. Most faculty members in the United States use excerpts from copyrighted materials under the fragile notion of "Fair Use". This works because their content is provided only to enrolled students under controlled conditions such as user authentication. When that same course is meant to be shared openly online, however, "Fair Use" ceases to apply. All content placed online must be cleared for copyright violations. MIT's original model was to contact publishers to gain permission to openly publish materials. Only 20 percent of initial requests were granted from publishers. They modified their approach, and now

recommend only pursuing permission for critical content pieces. Instead, they produce replacement content or, if it is instructionally unnecessary, remove the content altogether. This, however, is not the only challenge institutions face regarding copyright. Many institutions have unclear guidelines regarding who actually owns the copyright, that is, is it the faculty member or the institution? This policy question can create a quagmire of faculty/ administration committee struggles. MIT and Utah State University deal with this by providing a faculty release agreement that indicates that the copyright is retained by the faculty member who grants the institution rights to publish the content. Nearly all content coming out of OCWs is licensed under Creative Commons licenses, but as is true with traditional copyright, there is no guarantee that the user will comply with (or even understand) license requirements.

As with any institutional initiative, OCW can be difficult to fund. To date, private foundations such as the William and Flora Hewlett Foundation and the Andrew W. Mellon Foundation have provided the bulk of the funding for OCW initiatives. There is only so much grant money to go around, however. Costs associated with OCW course development include software, hardware, hosting costs, and human resources. Open source software, like eduCommons, can make projects less expensive. Some schools, such as the Open University of the UK opt to use other open source software such as the Moodle learning management system (see http://moodle.org). Downes (2007) describes a number of financial models that can be used to help sustain OCW projects. These include a sponsorship model, support from governmental agencies, donations, endowments, and other potential models. Insuring the sustainability of these projects moving forward is of critical importance.

Sustaining OpenCourseWare Projects

Distance education has a unique opportunity to deliver on the promise of the universal right to education. OpenCourseWares deliver high quality instructional content to an unlimited number of learners at virtually no additional cost beyond the original cost of production. Other tools are being developed that allow users to innovate with open educational content. Making educational content accessible beyond the walls of the original authoring institution can benefit everyone involved, including the reputation of the author and the institution itself.

Sustaining the OpenCourseWare movement has been a topic of conversation since the inception of the first OCW project. By 2005, the William and Flora Hewlett Foundation has granted in excess of $40 million to support Open Educational Resources (Hewlett, 2005), but private foundation money is not the answer to long term sustainability. Downes (2007) suggested thinking beyond funding models.

> [I]t also seems clear that the sustainability of OERs – in a fashion that renders then at once both affordable and usable – requires that we think of OERs as only part of a larger picture, one that includes volunteers and incentives, community and partnerships, co-production and sharing, distributed management and control. (p. 41)

To be sustainable, OCW will have to look back to its roots in open source software – to a model where the community works together and principles of openness and sharing guide the development of technologies, content, and financial support. "Everyone has the right to education (United Nations, 1948)." It has been almost 60 years since Article 26 of the Universal Declaration of Human Rights was written, and still we fall short of this assertion. And the role of distance education is shifting. "Now we live in a different world, for the first time. All the basic

knowledge, all the refined physics, all the deep mathematics, everything of beauty in music, in the visual arts, all of literature, all of the video arts of the twentieth century can be given to everybody everywhere at essentially no additional cost beyond the cost it required to make the first copy" (Moglen, 2006). Now we have legal and technical tools to convert distance education materials into open education resources. For the first time, we can now begin to convert a 60-year-old declaration into a reality.

References

Creative Commons (2007a). *History: "Some rights reserved." Building a layer of reasonable copyright. Creative Commons.* Retrieved November 17, 2007 from: http://wiki.creativecommons.org/History

Creative Commons (2007b). *About – Creative Commons.* Retrieved November 29, 2007 from: http://creativecommons.org/about/

Downes, S. (2007). Models for sustainable open educational resources. *Interdisciplinary Journal of Knowledge and Learning Objects, 3*. Retrieved November 26, 2007 from: http://www.ijklo.org/Volume3/IJKLOv3p029-044Downes.pdf

Hewlett (2005). *Open Educational Resources Initiative Overview.* William and Flora Hewlett Foundation. Retrieved November 15, 2007 from: http://www.hewlett.org/Programs/Education/OER/Publications/oeroverview.htm

Kirkpatrick, K. L. (2006). OpenCourseWare. *Searcher 14*(6), p. 53-58.

MIT (2001). *MIT to make nearly all course materials available free on the World Wide Web.* Retrieved November 29, 2007 from: http://web.mit.edu/newsoffice/2001/ocw.html

MIT (2006). *2005 Program Evaluation Findings Report. Press Kit.* Retrieved November 29, 2007 from: http://ocw.mit.edu/ans7870/global/05_Prog_Eval_Report_Final.pdf

MIT (2007a). *MIT Marks OpenCourseWare Milestone.* November 2007 Newsletter. Retrieved November 29, 2007 from: http://ocw.mit.edu/OcwWeb/web/about/newsletter/newsletternov07/newsletternov07.htm

MIT (2007b). *Profiles: From diving to surfing.* Retrieved June 7, 2007 from: http://www.ocw.cn/OcwWeb/Global/AboutOCW/profiles.htm

Moglen, E. (2006). *Software and Community in the Early 21st Century.* Retrieved January 30, 2007 from: http://en.wikisource.org/wiki/Software_and_Community_in_the_Early_21st_Century

OCW Consortium (2007). About us. Retrieved February 6, 2008 from: http://www.ocwconsortium.org/index.php?option=com_content&task=view&id=15&Itemid=29

Stallman, R. (1983). *Initial Announcement. GNU's Not Unix! Free Software, Free Community.* Retrieved November 15, 2007 from: http://www.gnu.org/gnu/initial-announcement.html

United Nations General Assembly (1948). Universal Declaration of Human Rights. Retrieved January 30, 2007 from: http://en.wikisource.org/wiki/Universal_Declaration_of_Human_Rights#Article_26

Utah OpenCourseWare Alliance (2007). *Utah OpenCourseWare Alliance Home Page.* Retrieved November 28, 2007 from: http://uocwa.org/

Wiley, D. A. (2003). A modest history of OpenCourseWare. *Autounfocus blog.* Retrieved November 20, 2007 from: http://www.reusability.org/blogs/david/archives/000044.html

Wiley, D. A. (2006). About COSL. *Center for Open and Sustainable Learning.* Retrieved November 1, 2007 from: http://cosl.usu.edu/about/?searchterm=COSL

Wikipedia (2007a). *Wikipedia:About. Wikipedia, the Free Encyclopedia.* Retrieved November 17, 2007 from: http://en.wikipedia.org/wiki/Wikipedia:About

Wikipedia (2007b). *Richard Stallman contribution. Wikipedia, the Free Encyclopedia.* Retrieved November 20, 2007 from: http://en.wikipedia.org/wiki/Richard_Stallman

Yue, K. B., Yang, T. A., Ding, W., Chen, P. (2004). Open courseware and computer science education. *Journal of Computing Sciences in Colleges, 20*(1), 178-186. Retrieved November 21, 2007 from: http://portal.acm.org/citation.cfm?id=1040255

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OpenCourseWare, Global Access and the Right to Education: Real access or marketing ploy?

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Abstract

This paper explores the potential opportunities that OpenCourseWare (OCW) offers in providing wider access to tertiary education, based on the ideal of 'the right to education'. It first discusses the wider implications of OCW, and its underlying philosophy, before using a case study of a tertiary preparation program (TPP) at the University of Southern Queensland (USQ) to draw out the issues involved in offering a program that is created in a particular national and social context on a global scale. This paper draws specific attention to the digital divide, its effects in national and global contexts, and the particular obstacles this presents with regards to OCW. This paper argues that OCW provides many opportunities, both in terms of access to education and in terms of student recruitment and marketing for universities. To take full advantage of those opportunities, however, requires a concerted effort on the part of tertiary education institutions, and it requires a vision that is fundamentally informed by, and committed to, the principle of 'the right to education'.

Keywords: OpenCourseWare (OCW); the right to education; digital divide; tertiary preparation programs

Give a man [sic] a fish and you feed him for a day.
Teach a man to fish and you feed him for a lifetime (Chinese proverb)

Introduction

Article 26 of the Universal Declaration of Human Rights states that "everyone has the right to education" (United Nations, *n.d.*). More specifically with regards to higher education, it states that "higher education shall be equally accessible to all on the basis of merit". While Article 26 is the only Article that is specifically focused on education, it is central to many others, especially Article 23: "Everyone has the right to work, to free choice of employment, to just and favourable conditions of work and to protection against unemployment". Based on this recognition, we specifically focus on access to higher education 'on the basis of merit' in this paper. Showing 'merit' requires access to, and mastery of, the tools of education that are acquired at an earlier stage in an individual's education. On a global scale, social, economic, and cultural circumstances have significant effects upon an individual's ability to acquire these tools and, in turn, on

educational outcomes. A basic question underlying the right to education then becomes one of how to create equal access to the tools of education, and thus the opportunity to show merit.

The Tertiary Preparation Program (TPP) at the University of Southern Queensland (USQ) offers the largest tertiary preparation program by distance in Australia, and specifically targets those who struggle to 'show merit' for one reason or another, often as a result of barriers such as socio-economic circumstances or geographical isolation. Most recently, plans have been put in place, with the help of open source software, to make the program and its course materials globally accessible to 'everyone', or at least those with access to a computer and the Web. This makes USQ the first Australian university to offer programs in line with the OpenCourseWare (OCW) philosophy, of which Massachusetts Institute of Technology's (MIT) OpenCourseWare program is probably the most well known example. The OCW model is fundamentally about creating wider access to educational materials, but there are other issues and agendas involved, driven by the forces of a competitive global marketplace for education. OCW creates potentially beneficial marketing opportunities for universities and, by extension, a potential supply of future fee-paying students. These students could potentially enroll in USQ's undergraduate courses on successful completion of the TPP. What does this market orientation mean, however, for those who have arguably the greatest need for this courseware, but the least opportunity to use it? In the case of TPP, this includes anyone without Internet access, such as prisoners. OCW undoubtedly offers potential benefits from the perspective of institutional market position, but to what extent does this 'market orientation' get in the way of a more fundamental concern with the right to education on a global scale?

This paper explores the question of the competing interests of the 'right to education' and the market orientation of contemporary universities with a specific focus on the TPP, and in the process it addresses a series of questions related to the curriculum and pedagogy of a global cohort of students. For example, what are the pedagogical implications of designing course materials that are specifically geared towards Australian students, both in terms of their content and language, and making them accessible on a global scale? At present, OCW does not require any extra labour, because it essentially 'dumps' existing educational content into an online repository without 'gates'. If the ideal, however, is to provide a tertiary preparation program that genuinely creates more access to higher education for potential students all over the world, then would its content need to be adapted to reflect global issues, or 'trans-nationalised'? Furthermore, would its curriculum and pedagogy need to take greater account of the economic, social, and cultural diversity of individuals in this global environment? More specifically, would it need to be translated into different languages? Who would foot the bill for this and provide the economic support for access by the economically underprivileged? Open source software, which forms the basis on which the TPP will go 'global', potentially allows for a high degree of flexibility, adaptation, and manipulation of content, but exploiting this to the fullest would require a significant degree of cross-institutional and transnational cooperation, which is potentially in conflict with the institutional 'market advantage' orientation outlined above. Overall then, this paper argues that OCW has strong potential as an enabler to achieve the universal right to education, but it would require a firm commitment at various levels of educational governance for this potential to be realised.

OpenCourseWare: From globalisation to glocalisation?

OCW is part of a wider movement, and has grown out of Open Source Software development. Focusing on this movement in higher education, Moore (2002) distinguishes between two

categories of open-source development: "(1) open-source knowledge-ware development (the tools); and (2) open-source courseware development (the content)" (p. 44). Although it is necessary to make this distinction, and we focus here mostly on OCW, the two share important philosophical underpinnings. As Long (as cited in Moore, 2002) notes, "OCW is often viewed as the educational equivalent to the open-source software movement" (p. 46). In his book '*The Cathedral and the Bazaar*,' Raymond (1999) defines open-source software as "the process of systematically harnessing open development and decentralised peer review to lower costs and improve software quality" (p. 1). The underlying philosophy here can be summed up by what Raymond calls 'Linus's Law' (after Linux open software founder Linus Torvalds): "Given enough eyeballs, all bugs are shallow" (Raymond, 1999, p. 41). In other words, 'Linus's Law' assumes a self-correcting mechanism, in the form of 'mass peer review', at the heart of the open source philosophy, which operates without a clearly defined structure in place. Raymond likens the way this operates in practice to a bazaar that "behaves in many respects like a free market or an ecology, a collection of selfish agents attempting to maximise utility which in the process produces a self-correcting spontaneous order more elaborate and efficient than any amount of central planning could have achieved" (1999, p. 64). In this view, the cathedral represents the exact opposite, characterised as it is by central planning and hierarchical governance structures. Following this analogy, universities clearly conform to the cathedral model. How then does OCW fit into current university structures? Can it fit? Moreover, would it fit?

According to Moore (2002), "in aiming for an ideal of open scholarship and free access to course materials and resources online, OCW formalizes the historic process of collegial interaction and review for a new age" (p. 46). The emphasis is thus on free access to course materials, which would then lead to improvement of those materials through an expanded process of peer review. Newmarch (2001) likens this to research practice in universities and identifies a major contradiction: "a scientist does not advance the cause of human knowledge by suppressing their results and they do not gain peer recognition by remaining secret" (¶ 18). Teaching and the development of course materials, however, have not been subject to the same level of peer scrutiny and assessment. Newmarch (2001) argues that in an OCW environment, "peer assessment methods can be applied to courseware in the same way that it is applied to research" (¶ 20). Universities, however, tend to be nervous about 'Intellectual Property,' which is the main reason why course ware tends to be password protected. OCW challenges this practice and Moore (2002) outlines three major benefits for universities when they adopt OCW:

> 1. Doing so results in products that supplement and compete in healthy ways with proprietary products, either in the learning management systems area (knowledge ware) or in the publishing world (course ware).
>
> 2. Working in these environments encourages the use of standards so that users, whether institutions needing knowledge or individual faculty needing courseware, can adapt products to particular needs.
>
> 3. Participation also creates and nurtures expertise in knowledgeware and courseware development in the academy, completing commercial efforts and providing alternative models and materials. (p. 46)

These benefits apply in particular to individual institutions, and are for the most part concerned with benefits for a particular institution. Within this somewhat narrow focus, OCW development provides for example for "the disaggregation of labor and the inclusion of new peers in the

development and review process" (Moore, 2002, p. 50), for instance through collaboration between faculty across many institutions in the development of curriculum materials for the Web. Ideally, this leads to the development of institutional reputations for high quality course ware. According to Oblinger (2001), high quality content is the main driver for 'repeat customers,' and to retain customers and to keep them coming back for more, "e-business sites strive to become 'sticky'" (p. 22).

This appears to be one of the main drivers for USQ to join an OCW consortium, alongside more idealistic objectives. USQ is one of more than 100 higher education institutions that have joined together to share their high quality learning materials as the OpenCourseWare consortium (see www.ocwconsortium.org). The consortium aims to empower people throughout the world through provision of free access to educational materials. Many language groups are represented by member institutions, thus enabling the provision of learning opportunities in a wide range of different languages to a global audience. As membership requires each institution to provide a minimum of 10 courses of instruction, the range of represented discipline areas is considerable. As a consequence, the consortium has the potential to reach and educate a substantial, worldwide population of potential students, limited only by the individual's access to ICT resources.

A recent media release announcing USQ's plans opens with these words: "The University of Southern Queensland (USQ) will contribute to the alleviation of poverty through the signing of an historic partnership agreement with the Asia Pacific Global Development Learning Network (GDLN)" (University of Southern Queensland, 2007). Not until the final sentences does this media release mention the potential commercial benefits to the university: "In addition to the altruistic motives, the University is also excited about the opportunity the agreement *creates in relation to student recruitment*" (emphasis added). Such student recruitment would apply both in a direct sense of potential students sampling the courseware, and then 'signing-up' for it, and in a more long-term sense of reputation building for the university, which would then result in an increase in fee-paying students in a global market. It is interesting in this respect to consider the example of MIT, which in 2001 was the first university (a private institution) to post the content of some 2000 classes on the Web. "Here was the pinnacle of technology and science education ready to give it all away. Not the degrees, which now cost about [US] $41,000 a year, but the content. No registration required" (Diamond, 2003, ¶ 3). MIT's initial nervousness about doing this, including within its own ranks, was based on a simple error: "confusing courseware with courses. But a course is a totality that includes courseware among many other factors" (Newmarch, 2001, ¶ 30), such as feedback on assessment, structured time-tabling, interpersonal communication, and, of course, conferring of a qualification. Universities essentially sell the latter, and this is not likely to lose its value. "OCW is not meant to replace degree-granting higher education or for-credit courses. Rather, the goal is to provide the content that supports an education" (Kirkpatrick, 2006, p. 53). For Newmarch (2001) the central point is: once costs are met, why not just give it away?" Why not, indeed!

While it is clear that the main impetus for OCW from an institutional perspective is a profit motive (despite rhetoric to the contrary), we argue here that this is not necessarily a problem if the by-product of that motive is wider access to education. In relation to MIT's logic, Ishii and Lutterbeck (2001) argue, for example, that, "more open access to source code or course material will generally lead to an increase in knowledge, which in turn will lead to increased innovation in all fields, and stimulate the economy, which ultimately will benefit MIT" (¶ 32). Apart from such institutional benefits, OCW has the potential to provide access to course materials to large numbers of people globally, especially if an increasing number of universities join OCW

consortiums. This raises two important issues. Firstly, there is a global issue of access to technology, which has become know as the 'digital divide,' and we address this in the next section. Secondly, there is a concern about what has been called 'cyber-imperialism' (Rusciano, 2001). In other words, despite the increasing numbers of people who do have access to the Web, a key issue is "whether all citizens and all nations will actively participate in building the information superhighway" (Ebo, 2001, p. 5). Content creation (including educational content) on the Web is currently heavily dominated by the developed and English-speaking world. Concerns about cultural imperialism have a considerable history. In 1983, Mattelart argued, for example, that "global universities produce the internationalisation of cultural commodities, characterised by an unequal exchange favouring industrialised over nonindustrialised nations" (cited in Kraidy, 2001, p. 29). Kraidy (2001) argues for an alternative terminology, pointing out that "with its connotations of standardisation, homogenisation, and universalism, the term 'globalisation' falls short of rendering the complexity of international flows and exchanges of culture, information, capital and people" (p. 32-33). Instead, he offers the term "glocalisation", which recognises "a global outlook adapted to local conditions" (p. 33). This is highly relevant for our purposes here, as OCW by definition allows for adaptation to local conditions. So, while the content and course structures are, in our case, produced in Australia, free access means that there is nothing that prevents someone in Nigeria from adapting these materials for their own purposes, and perhaps even translating them. Where Rusciano (2001) argues that cultural imperialism is a by-product of the market, the potential by-product of OCW (at least to some degree) is that it can be localised and adapted to local needs.

As noted above, however, such localization of open course ware depends on access to adequate technology, which is still more ideal than reality. Recent initiatives, however, such as the New Mexico Laptop Learning Initiative and One Laptop per Child provide some promise in this respect. Both these initiatives are broadly designed to overcome digital divide issues, and both are targeted at disadvantaged groups.

The Mexico Laptop Learning Initiative operates on a state and national level, and is "not only a response to the impact of technology in curriculum . . . it is a response to global competitiveness" (Rutledge, Duran & Carroll-Miranda, 2007, p. 340). In other words, it is a tangible response to the recognition by the United States of America that "countries such as China and India are producing large pools of high-skilled and low-wage workers" (Rutledge et al., 2007, p.341). So despite its somewhat narrow focus on national economic development, the by-product (similar to our argument about OCW) can be positive in that it helps to provide access to learning tools for those who were previously on the negative side of the digital divide. By contrast, the One Laptop per Child initiative has a more global vision, seeking to provide as many children as possible with XO laptops that are specially designed to be used in remote regions of the world. According to its vision (see www.laptop.org), One Laptop per Child is not, at heart, a technology program, nor is the XO a product in any conventional sense of the word. One Laptop Per Child is a non-profit organization providing a means to an end – one that sees children in even the most remote regions of the globe being given the opportunity to tap into their own potential, to be exposed to a whole world of ideas, and to contribute to a more productive and saner world community.

Other initiatives like these are already under way, and no doubt, there will be more in the future, whether based on commercial or altruistic motives. OCW fits well with such initiatives and can be seen as the next step in making education (in terms of content, if not accreditation) globally accessible.

While we have established that OCW can potentially be adapted to local needs, it is equally important to recognise that courseware is not produced in a context vacuum. Rather, it is typically produced in a specific national and cultural context and is primarily aimed at addressing local needs. The TPP at USQ is a good example, because it is designed to provide access to undergraduate programs primarily for Australian students and preparation for lifelong learning in a contemporary Australian context. The TPP was originally developed to provide for mature aged persons returning to study following an extended absence from formal schooling. The program targets Australians from under-represented backgrounds, many of whom had lacked previous opportunities to access tertiary studies. The curriculum and pedagogy of the program are designed to deliberately cater to the demographics of this specific student cohort. For example, the development of essay writing skills is constructed around the themes of sustainable development and welfare reform, which are directly relevant to many Australian citizens. Welfare reform in particular is of direct relevance to the social economic status of many of the enrolled students. Other aspects of the program, such as career development and study management, have a distinct Western cultural orientation and are based on an individualistic approach to manage one's life. The principal purpose for the existence of the program is to prepare Australian students to succeed with undergraduate studies at Australian higher education institutions; and therefore it has currently not taken into consideration the cultural or linguistic diversity of a global online student population.

An essential element for success in the OCW context is access to information and communication technologies (ICTs), and the ability to use the technology. Access to technology, however, is a major issue for the student population of the TPP, as about a quarter of them are incarcerated, and many more are affected by geographical isolation and lack prior formal education. In the next section, we first focus on USQ's TPP program overall, because its courses are among the first to be offered in the OCW model in Australia.

USQ's Tertiary Preparation Program (TPP): Widening access

The TPP has developed from strong philosophical beliefs about the 'right to education'. The program was initially developed in the late 1980s as a fee-paying program in response to identified demand. At about the same time, the then Australian Federal Labor government was developing a strong social justice agenda for education (Commonwealth of Australia 1987, 1988), which reaffirmed the Australian Government's policy of improving access to higher education for all Australians as a means of realising that nation's human resource potential. These policy statements, known as the White and Green papers, also argued that significant barriers existed which hindered the participation of many groups of persons from participating in higher education and that specific strategies needed to be implemented to change the balance of student participation in higher education to reflect more closely the structure and composition of Australian society as a whole. This agenda, which became fully articulated in a policy and action framework entitled *A Fair Chance for All: Higher education that's within everyone's reach* (Commonwealth of Australia, 1990), subsequently became the driving force behind the growth and development of the TPP. The program responded to this challenge by drawing upon seed funding for the provision of 'access and equity' initiatives and developing a curriculum and pedagogy which respected and valued the development of the student as an individual, regardless of social class or cultural background.

Initially, the Program, through an 'open access' policy targeted those groups of Australians identified by the Government as under-represented in Australian higher education:

- Aboriginal and Torres Strait Islander people
- Women in non-traditional areas
- People from non-English speaking backgrounds
- People with disabilities
- Rural and isolated students
- People from socio-economically disadvantaged backgrounds

However, in recognition that many applicants did not neatly fit the identified categories, but were clearly disadvantaged in their ability to access higher education, the program broadened its criteria to ensure the fee-free provision of the program to all who may be in need of entry assistance. USQ perceived an advantage in this 'open' approach to recruitment because it not only overcame a reliance on traditional entry mechanisms and funding sources, it simultaneously enhanced the profile of the institution as one that was accessible to the entire Australian community. As a result of the adoption of a philosophy grounded in these social justice policies and principles, and the unique delivery of the program by distance education, the TPP has become one of the largest alternative entry schemes in Australia, attracting students from widely diverse backgrounds and demographic circumstances.

This student diversity has driven the development of the curriculum and pedagogy of the program. In an inclusive manner, the TPP places the student at the centre of the learning process, guiding students to manage and take responsibility for their own learning, and assisting them to put in place personal goals, action plans, and reflective strategies, while valuing their prior educational and life experiences. This supports students to deal constructively with their own life and learning situation, and helps them to identify the individual problems they may be encountering and to formulate solutions. As such, the TPP is well placed to meet the 'right to education' ideals of Article 26 from an Australian perspective. Now that the program has gone global with the use of open source software, however, many of the access and equity considerations addressed for the social demographics of an Australian population, need to be reconsidered in an even more diverse and socially unjust global environment. In addition, there are important pedagogical issues to consider, as OCW simply provides access to courseware, rather than courses. This places the onus on courseware to provide optimum opportunities for relevant learning in a fast changing global environment, which in turn raises the question of whether courseware designed in a specific context is potentially transferable to other contexts.

Lifelong learning and changing societal needs

The current TPP courseware design is thoroughly based in an Australian context, and is designed to meet the needs of a specific cohort of students. During the past 30 years, there has been rapid, profound, and continuing changes in the types of workplace knowledge and skills demanded by Australian industries, and in the means by which people can acquire the needed knowledge and skills. These changes have necessitated a continual updating of such knowledge and skills in order for people to remain or become productive members of Australian society. For those who want to gain employment or remain in employment, the ongoing changes of the means by which knowledge and skills can be acquired, necessitates a continuing process of 'learning how to learn' in contemporary Australian society. 'Learning how to learn' in contemporary Australian society involves learning how to make effective use of modern information and communication technologies (ICTs), as these technologies are now the major means by which up-to-date information relating to employment is made available to the general public.

In order to achieve and maintain a productive role in contemporary Australian society, one needs to use modern ICTs as a major means of engaging in productive lifelong learning. The relevance of lifelong learning to individuals' career management and vocational education throughout their employable lifetime, and its relevance to society, is emphasised in the 2005 Ministerial Council of Education, Employment, Training and Youth Affairs (MCEETYA) Joint Statement on Education and Training in the Information Economy, in the following words:

> A workforce with access to individualised and flexible quality training through new technologies will address Australia's need for competent workers who learn throughout life. (MCEETYA, 2005, ¶ 2)

Kearns (2004) notes that Australian jurisdictions are progressing towards a national commitment to build Australia as an inclusive learning society, while the general concept of the learning society is encapsulated in Jarvis's (2001) description of contemporary Western societies as 'knowledge societies' in 'the age of learning'. Kearns described a learning society as one where learning is valued and expressed in a myriad of forms and contexts. In such a society, learning is intrinsic to social, cultural, civic, and economic activity. A knowledge society, by its nature, is a learning society where innovation is continuous and embedded in the culture.

One interpretation of a learning society is a society in which a learning approach to life is valued and practised, and in which people draw on a wide range of resources to enable them to support their lifestyle practices (Edwards, 1997). An alternative interpretation is that the learning society can be regarded as a 'learning market' of opportunities that are available to individuals to update their skills and competencies in an economically competitive market (Edwards, 1997). The emphasis placed by MCEETYA (2005) on the importance of individuals' lifelong learning in the development and maintenance of an Australian workforce whose skills remain relevant in "a world of continuous technological change where knowledge is becoming a commodity" (¶ 2) is consistent with an interpretation of the learning society as a learning market. In referring to the capacity of contemporary ICTs to enable the delivery of education and training that matches individuals' interests, potentials, and life stages, MCEETYA advocates the "intelligent use of information and communications technology" to ensure that "all learners have the necessary knowledge and skills for work and life in the twenty-first century" (¶ 10).

Information literacy, access to lifelong learning, and the digital divide

Two types of skills that people need in order to have effective access to contemporary ICT are identified by Mossberger Tolbert and Stansbury (2003) are skills of 'technical competence' and skills of 'information literacy.' The term 'technical competence' as used here refers to the skills needed to operate the hardware and software of ICT, including the skills of using networked computer systems to access and share information. Collectively, these skills have been referred to as 'computer literacy' (Warschauer, 2003). Warschauer points out that people need to have developed a range of 'literacies' that enable them to use the various physical, digital, and human resources involved in ICT. By way of an example of such literacies, Warschauer refers to computer literacy as the literacy that enables a person to decide how to use a computer to access particular kinds of information from Internet sources. Breivik (1992a) and Mossberger and colleagues (2003) draw attention to another type of literacy, that is information literacy, which people need to acquire in order to be able to use contemporary ICT effectively for decision-making and personal education.

Information literacy has been described in general terms by Breivik (1992b) as one's ability to locate, evaluate, and use information. Breivik argued that information literacy is a necessary condition for resource-based learning, an approach to learning that she regarded as essential for people to adopt in order to be able to cope with the demands of a changing social and economic environment. Mossberger and colleagues (2003) define information literacy in the context of one's ability to effectively access ICT as "the ability to recognise when information can solve a problem or fill a need and to effectively employ information resources" (p. 39). This goes well beyond merely accessing information, in that it focuses attention on a person's ability to strategically employ that information for specific purposes. While access to information is relatively easy to provide, the strategic use of that information requires particular skills that need to be taught, which is much more difficult to achieve in an OCW environment. As Pence (1992) has pointed out, resource-based learning, which can be seen as characterising OCW, also requires a supporting learning community of educators and administrators to create an environment in which learners can develop information literacy. Thus, the digital divide as a measure of access may be too limited, since access to information alone does not guarantee the acquisition of information literacy skills. Indeed, being literate in a contemporary global context "implies having the ability to decode information from all types of media" (Sankey & Nooriafshar, 2005, p.155), and then repurposing it to suit a particular context.

Claims that a digital divide exists in many contemporary societies, and that it results in the social and economic marginalisation of under-classes in those societies, have been extensively debated in the literature in recent years (Holloway, 2005; Lindsay, 2005; Mossberger et. al., 2003; Norris, 2001; Pakulski, 2004; Selwyn, 2005). Mossberger and colleagues (2003, p.11) characterise the digital divide as the existence of patterns of unequal access to information technology on the basis of membership of a particular group in society defined by such characteristics as low socioeconomic status or geographic location. The conclusions reached by Warschauer (2003), and by many others on the topic of the digital divide (e.g., Norris, 2001), indicate that a lack of access to contemporary ICTs tends to create or reinforce the social and economic marginalisation of those people who are on the losing side of the divide.

Initiatives mentioned earlier, such as the Mexico Laptop Learning Initiative and the One Laptop Per Child initiative, go some way in widening access to information, and OCW can be seen as an extension of that process, thereby narrowing the divide in terms of access on a basic level. Discussions on this level fit quite comfortably with constructivist models of learning (Laurillard, 2002), where "knowledge is not some 'commodity', 'good' or 'thing' to be handed over, but is constructed by students themselves" (Ishii & Lutterbeck, 2001, ¶ 6). Some refer to 'user-led education' (Bruns, Cobcroft, Smith, & Towers , 2007) in this respect, which is seen as fundamentally changing the role of the 'teacher' from provider to mentor and facilitator (Kehrwald, 2005). In the case of OCW, the 'teacher' functions as the designer of the content, and thus as a facilitator. To 'facilitate' adequately in a way that suits a wide variety of learning contexts across the globe, however, requires extremely careful course design.

Siragusa (2006) has developed a model in which he presents 24 pedagogical dimensions for effective web-based learning environments. Many of these dimensions, however, are based on the assumption of a traditional cohort of students, and therefore do not translate easily to a global OCW context. For example, one of Siragusa's dimensions refers to the importance of recognising students' characteristics and then tailoring the design to their needs. But what if we do not know

the students' characteristics, as is the case in a global OCW context? Similarly, Siragusa (2006, ¶ 8) argues that "the online materials need to be relevant and assist with stimulating student interest and motivation", but again, ascertaining relevance is not possible if the context in which the material is accessed is not known. One characteristic we may assume is that many learners who access OCW will be novice learners, at least when it comes to academic materials. Kirschner and colleagues (cited in Clarebout & Elen, 2008) argue that "only when learners have sufficient prior knowledge to provide internal guidance, can environments with minimal guidance be effective" (p.94). Clarebout and Elen's (2008) recent study on open learning environments reveals that this is a likely reason why "students rarely or often inadequately use instructional interventions-opportunities- in learning environments" (p. 81). Again, while the TPP courses currently offered as OCW address some of these issues, they do so primarily for an audience of mostly Australian learners who have no prior higher education experience. The assumptions made about that audience by courseware designers may not necessarily hold for a more global audience.

Conclusion: The potential role of OCW

The provision by educational institutions of OCW has the potential to play an important role in assisting people to become (or to remain) socially included, productive members of wider society, by providing them with resources they need to participate in lifelong learning. Through mechanisms such as the OpenCourseWare Consortium, education programs, such as the TPP, could potentially help to provide access to the 'right to education' on a global scale, but to action this effectively and to champion the cause requires much more than the dumping of existing Australian curriculum into an open source environment.

Australia has frequently been described as 'the lucky country' (Horne, 1964). Although a wide range of complex social problems, such as poverty, racism and cultural tensions, are as evident in Australia as in other parts of the world, the scale of these problems is relatively manageable. Australia is a wealthy, highly democratic and relatively classless society. As a result of these unique advantages, Australia is well placed to promote an egalitarian and multicultural society strongly influenced by notions of a fair and just treatment for all. Given this background, Australia has a strong tradition of enabling access programs, such as the TPP, that are based on an underlying philosophy that aligns with 'the right to education,' and which are pedagogically designed for students without prior experience in tertiary education environments. This provides a strong foundation from which to develop wider access to education on a global scale in an OCW environment, and in conjunction with other initiatives that provide access to technology. OCW is currently still in its infancy, and mostly entails making pre-existing content globally accessible. To reach its full potential in providing 'real' access for its users, however, the next stage of development should be focused on pedagogically sound design that is open enough to be easily adaptable to local needs. Ultimately, this would require a strong institutional commitment and recognition of the potential benefits of OCW, regardless of whether the underlying reasons for this commitment come from a marketing perspective or from a desire to widen access to education.

References

Breivik, P. S. (1992b). Education for the information age. In T. Farmer & F. Mech (Eds.), *Information Literacy: Developing students as independent learners* (pp. 5-14). San Francisco: Jossey-Bass.

Breivik, P. S. (1992a). Information Literacy: What's it all about. Paper presented at the *1992 Information Literacy Conference*, Adelaide College of TAFE, Adelaide, SA.

Bruns, A., Cobcroft, R., Smith, J., & Towers, S. (2007). Mobile learning technologies and the move towards 'user-led education'. In G. Goggin & L. Hjorth (Eds.), *Mobile Media 2007: Proceedings of an international conference on social and cultural aspects of mobile phones, media and wireless technologies* (pp. 326-334). Sydney: University of Sydney.

Clarebout, G., & Elen, J. (2008). Advice on tool use in open learning environments. *Journal of Educational Multimedia and Hypermedia, 17*(1), 81-97.

Commonwealth of Australia. (1987). *Higher Education: A policy discussion paper*. Canberra, ACT: Australian Government Publishing Service.

Commonwealth of Australia. (1988). *Higher Education: A policy statement.* Canberra, ACT: Australian Government Publishing Service.

Commonwealth of Australia (1990). *A Fair Chance for All: Higher education that's within everyone's reach*. Canberra, ACT: Australian Government Publishing Service.

Diamond, D. (2003). MIT everywhere. *Wired, 11*(9). Retrieved 17 April, 2007, from: http://www.wired.com/wired/archive/11.09/mit_pr.html

Ebo, B. (2001). Cyberglobalisation: Superhighway or superhypeway? In B. Ebo (Ed.), Cyberimperialism? Global relations in the new electronic frontier (pp.1-6). Westport, CT: Praeger.

Edwards, R. (1997). *Changing Places? Flexibility, lifelong learning and a learning society.* New York: Routledge.

Holloway, D. (2005). The digital divide in Sydney. *Information, Communication & Society, 8*(2), 168-194.

Horne, D. (1964). *The Lucky Country: Australia in the sixties.* Adelaide: Penguin.

Ishii, K., & Lutterbeck, B. (2001). Unexploited Resources of Online Education for Democracy: Why the future should belong to OpenCourseWare. *First Monday, 6*(11). Retrieved 26 September, 2007, from: http://firstmonday.org/issues/issue6_11/ishii/index.html

Jarvis, P. (Ed.) (2001). *The age of Learning: Education and the knowledge society.* London: Kogan Page.

Kearns, P. (2004). Towards a learning revolution in Australia. Canberra, ACT: Adult Learning Australia.

Kehrwald, B. (2005). Learner Support in Networked Learning Communities: Opportunities and Challenges. In J. B. Son & S. O'Neill (Eds.), *Enhancing Learning and Teaching: Pedagogy, Technology and Language* (pp.133-148). Flaxton: Post Pressed.

Kirkpatrick, K. L. (2006, November/December). OpenCourseWare: An "MIT Thing"? *Searcher*, 53-58.

Kraidy, M. M. (2001). From Imperialism to Glocalisation: A theoretical framework for the information age. In B. Ebo (Ed.), *Cyberimperialism? Global relations in the new electronic frontier* (pp.27-42). Westport, CT.: Praeger.

Laurillard, D. (2002). *Rethinking University Teaching: A conversational framework for the effective use of learning technologies* (2nd Ed.). London & New York: RoutledgeFalmer.

Lindsay, V. (2005). Employability, services for unemployed job seekers and the digital divide. *Urban Studies*, *42*(2), 325-340.

MCEETYA (2005). *Ministerial Council of Education, Employment, Training, and Youth Affairs' joint statement on education and training in the information economy.* Retrieved 29 April, 2005, from: http://www.dest.gov.au/portfolio_department/ministers_websites/documents/js_pdf

Moore, A. H. (2002, Sept./Oct.). Open-source learning. *Educause Review*, 42-51.

Mossberger, K., Tolbert, C. J., & Stansbury, M. (2003). *Virtual Reality: Beyond the digital divide.* Washington, DC.: Georgetown University Press.

Newmarch, J. (2001). Lessons from Open Source: Intellectual property and courseware. *First Monday*, *6*(6). Retrieved 17 April, 2007, from: http://firstmonday.org/issues/issue6_6/newmarch/index.html

Norris, P. (2001). Digital divide?: Civic engagement, information poverty, and the Internet worldwide. New York: Cambridge University Press.

Oblinger, D. (2001). Will e-business shape the future of open and distance learning? *Open Learning: The Journal of Open and Distance Learning, 16*(1), 9-25.

One Laptop per Child (*n.d.*). Standing still is a reliable recipe for going backward. Retrieved 14 November, 2007, from: http://www.laptop.or/vision/mission/

Pakulski, J. (2004). *Globalising Inequalities: New patterns of social privilege & disadvantage.* Sydney: Allen & Unwin.

Pence, J. L. (1992). Transforming college culture through resource-based learning. In T. Farmer & F. Mech (Eds.), *Information Literacy: developing students as independent learners* (pp. 113-122). San Francisco: Jossey-Bass.

Raymond, E. S. (1999). *The Cathedral and the Bazaar: Musings on Linux and open source by an accidental revolutionary.* Sebastopol, CA.: O'Reilly.

Rusciano, F. L. (2001). The three faces of cyber imperialism. In B. Ebo (Ed.), *Cyberimperialism? Global relations in the new electronic frontier* (pp.9-25). Westport, CT.: Praeger.

Rutledge, D., Duran, J., & Carroll-Miranda, J. (2007). Three years of the New Mexico Laptop Learning Initiative (NMLLI): Stumbling toward innovation. *Association for the Advancement of Computing in Education Journal, 15*(4), 339-366.

Sankey, M. & Nooriafshar, M. (2005). Multiple Representations in Multimedia and E-Learning Materials: An issue of literacy. In J. B.Son & S. O'Neill (Eds.), *Enhancing Learning and Teaching: Pedagogy, technology and language* (pp. 149-171). Flaxton, QSL.: Post Pressed.

Selwyn, N. (2005). The social processes of learning to use a computer. *Social Science Computer Review, 23*(1), 122-136.

Siragusa, L. (2006). Quality E-learning: Designing pedagogically effective web-based environments for enhancing student online learning in higher education. Proceedings of the *21st Annual Western Australian Institute for Educational Research Forum*. Edith Cowan University. Retrieved 8 November, 2007, from http://www.waier.org.au/forums/2006/siragusa/

United Nations (*n.d.*). *UN Universal Declaration of Human Rights.* Retrieved January, 25 2007, from: http://www.hrweb.org/legal/udhr.html

University of Southern Queensland. (2007). USQ helps developing nations through e-learning (Media release). Retrieved May 3, 2007, from: http://www.usq.edu.au/newsevents/news/gdlnsigning.htm

Warschauer, M. (2003). Technology and Social Inclusion: Rethinking the digital divide. Cambridge, MA.: MIT Press.

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New Ways of Mediating Learning: Investigating the implications of adopting open educational resources for tertiary education at an institution in the United Kingdom as compared to one in South Africa

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Abstract

Access to education is not freely available to all. Open Educational Resources (OERs) have the potential to change the playing field in terms of an individual's right to education. The Open University in the United Kingdom was founded almost forty years ago on the principle of 'open' access with no entry requirements necessary. The University develops innovative high quality multiple media distance-learning courses. In a new venture called *OpenLearn*, The Open University is making its course materials freely available worldwide on the Web as OERs (see http://www.open.ac.uk/openlearn). How might other institutions make use of these distance-learning materials? The paper starts by discussing the different contexts wherein two institutions operate and the inequalities that exist between them. One institution is a university based in South Africa and the other is a college located in the United Kingdom. Both institutions, however, deliver distance-learning courses. The second part of the paper discusses preliminary findings when OERs are considered for tertiary education at these two institutions. The findings emphasise some of the opportunities and challenges that exist if these two institutions adopt OERs.

Keywords: open educational resources; distance-learning; open education

Introduction

Every individual worldwide should have access to the widest possible range of educational opportunities. Inequalities of admission to education, however, still exist (Smith & Casserly, 2006; Brennan, 2004; Bekhradnia, 2004; Badat, 2004; Open Content Initiative, 2006). This inequity manifests itself at an individual country level in the form of differences between the facilities and academic resources provided by various institutions. Comparison of one country with another in terms of provision and fairness of access to education indicates even more inequality (Smith & Casserly, 2006). In reality, right of entry to education is much more likely in prosperous countries than poor countries (Tomasevski, 2006). Online educational resources are obtainable through Information and Communication Technologies (ICTs). The availability and reliability of ICTs, however, can also be unequal between different countries. Therefore, the

straightforward adoption of Open Educational Resources (OERs) cannot be taken for granted. Such issues of unequal access are discussed below in terms of two institutions, one in South Africa and the other in the United Kingdom.

Open Educational Resources (OERs) are shareable assets. The origin and development of OERs is discussed in detail by a number of authors (Smith & Casserly, 2006; Hylen, 2006; Downes, 2006; Geser, 2007; Wiley, 2006; Wiley, 2007). OERs can play a part in advancing the lifelong learning and social inclusion agendas (Geser, 2007). They have the potential to provide a wide variety of learning experiences for learners in different countries. They provide the possibility of increasing the range and type of learning opportunities available for those who are

- From non-traditional educational backgrounds
- Travelling extensively
- In employment
- And from under represented groups such as:
    - The vulnerable
    - Those with disabilities
    - The house bound
    - Those with family dependents
    - Those on low incomes or with no income
    - Those from low socio-economic groups
    - Those seeking refuge from another country
    - The elderly
    - Those from minority ethnic groups
    - Those in prison

Indeed, Smith and Casserly (2006) discuss their vision of OERs contributing to the United Nations Millennium goal of basic education for all by 2015. This paper focuses particularly on the course materials category of OERs.

The idea of sharing content is not new. The Massachusetts Institute of Technology's (MIT) course materials have been available to the world through its Open CourseWare (OCW) initiative since September 2002. Other institutions have followed this lead (e.g., John Hopkins Bloomberg School of Public Health, Rice University Connexions, Utah State University, Sharing of Free Intellectual Assets, Open Learning Initiative from Carnegie Mellon, China Open Resources for Education Initiative and Japanese OCW Alliance, among others). The Open University in the United Kingdom, a well-known and respected distance-learning institution, has joined the OER arena.

The Open University has maintained excellence in the open and distance-learning field for almost forty years. It has been developing and delivering innovative course materials that have undergone a long process of peer review. The University has a strong student base throughout the United Kingdom and is currently increasing its student numbers in other parts of the world. In a new venture called *OpenLearn*, The Open University is making its course materials freely available worldwide on the Web as OERs. The distinction with The Open University's contribution is that the materials are from supported open and distance-learning courses (McAndrew, 2006). Prior to *OpenLearn*, the majority of OERs were developed at campus-based institutions where learning and teaching often relies heavily on the lecturer(s)' input to the course materials. The Open University distance-learning materials, by contrast, already embody the lecturer(s) in the form of 'Supported Open Learning.' The high quality Open University materials include many activities (i.e, self assessment and review questions) and, to a large degree, the materials are designed to be self-supporting. In addition, the *Moodle* enhanced environment supporting *OpenLearn* provides freely available online forums, unit reviews, unit rating, and community building tools – all of which are advocated by Smith and Casserly (2006).

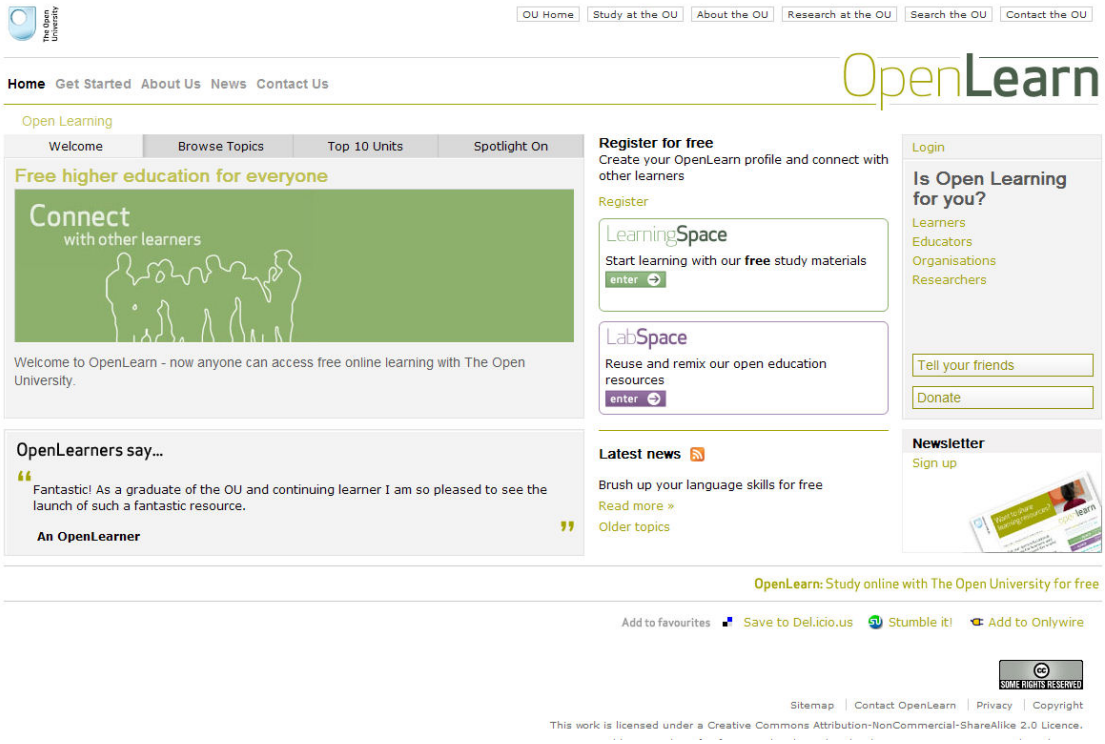
How might these distance-learning OERs be utilised in different countries worldwide? And what barriers might there be to adoption in developing countries? The work reported here focuses on two institutions that deliver distance-learning courses and the circumstances in which they operate. One institution is a university based in South Africa, and the other is a college in the United Kingdom. This research was undertaken at an early point in the project.

OpenLearn

OpenLearn is funded by the William and Flora Hewlett Foundation and was launched on October 25, 2006. The project is adapting distance-learning materials for delivery as multimedia OERs in a *Moodle* enhanced environment on the Web. These materials are taken from the original Supported Open Learning version of a course (which includes tutorial support and assessment). In the *OpenLearn* context, the materials called 'units' will be designed to be 'stand alone' – i.e., without tutorial support or assessment.

OpenLearn consists of twin sites, the *LearningSpace* aimed at learners and the *LabSpace* aimed mainly at educators (see Figure 1). At launch, 900 study hours of material were made available in the *LearningSpace*. The number of units and thus study hours in each site will continue to be updated (to make 5,400 learning hours available in the *LearningSpace*, and 8,100 hours available within the *LabSpace* by April 2008). The *LabSpace* is a more experimental area where educators can download units of material, rework them and re-upload them (McAndrew & Hirst, 2007).

Figure 1. The *OpenLearn* website showing linked captions to the *LearningSpace* and *LabSpace* areas



This environment includes units of high quality accessible learning material. These are accessed by clicking on the 'Browse Topics' tab located near the top of the screen (see Figure 1) or by entering the *LearningSpace* or *LabSpace*. Each unit of material provides between 4 and 30 hours of study time and is specified at a particular level of study (Lane, 2006). Units contain a variety of multimedia components (see Wilson, 2007).

The learner can interact with the material in the eleven different topic areas. A 'learner' is considered to be anyone and everyone. *OpenLearn* provides a vast resource, which could support different types of learning and provide valuable insights for a diverse range of students. Individuals or collections of people can choose to work together in organised or amorphous groupings without being constrained by an organisations' timetable, policies, or procedures. On the other hand, a distance-learning institution may choose to use units of *OpenLearn* OERs as part of their curriculum and decide to give credits or not for the study of this material.

This paper highlights very different circumstances in terms of access to education in South Africa and the United Kingdom. Two distance-learning institutions (one from each of these countries) enable initial research to be undertaken into their proposals for adopting distance-learning OERs that are designed to enhance the teaching and learning experience for learners.

Associated Issues

First, it is important to outline the various issues that are associated with the development and usage of OERs. Although OERs have great potential to equalise access to educational materials they are not always straightforward to produce. There are issues in setting up repositories to store OERs. The initial set-up, continued support, storage, and updating of content for an open educational resource repository are expensive (Smith & Casserly, 2006). Ferreira and Heap (2006) discuss the development of *OpenLearn* OERs and the various roles within this process, including academics who must consider pedagogic and subject issues; rights specialists, who must consider third party issues, and the technical team, whose members must assess whether assets are suitable for online delivery. Sustainability, copyright, intellectual property, and unequal access are all raised as issues with OERs (Smith & Casserly, 2006; Wiley, 2007; Downes, 2006).

The term OER itself covers a wide range of different types of asset. Textual OERs, however, are the most widely available shareable asset in OER repositories (Wiley, 2007). Mathematical and scientific notation are difficult to display within text, so PDFs are often used (Wiley, 2007). Within *OpenLearn*, mathematical and scientific notations are displayed as images though these are not resizable.

Certain distance-learning OERs can be developed without any major transformation being necessary. Other resources, however, need to be converted in some manner for use as OERs:

- The resource may be taken out of context and needs to be changed so that it can stand-alone.

- The original material may need to be presented in a different way to suit online delivery (e.g., long audio, video sequences, and software).

To ensure compatibility between repositories, OERs should be developed in such a way that they are easily reusable: technically, linguistically, culturally, and pedagogically (Wiley, 2007). Wiley, in discussing OERs delivered mainly by campus-based institutions, suggests that it is expensive to develop OERs from scratch or from the different components a lecturer might use in their course delivery at a campus-based institution. Essentially, what Wiley is saying is that it is more expensive to develop OERs for student usage than for educators. This argument is less relevant to the Open University OERs, however, as the material was originally developed to be stand alone, primarily for student consumption. This suggests that conceivably more distance-learning materials (which already embody the lecturer in the form of ‘Supported Open Learning’) should be transformed into OERs, because potentially they are less expensive to produce as stand alone materials. Issues associated with the actual transformation of Open University distance-learning course materials into OERs is discussed in greater detail by Wilson (2007).

Approach

This early stage research sets out to explore the ease or difficulty with which distance-learning OERs can be adopted by two distance-learning institutions operating in different circumstances. Data was collected to give early indications and feedback for the project, and to provide data that could be compared with other findings at a later date. Follow-up research will analyse what the

issues are more widely, and include traditional campus-based institutions that wish to adopt these distance-learning OERs. The data was gathered at an early stage (less than four months after the *OpenLearn* environment was launched) to gather initial information from potential users. The work discussed here is part of a larger project involving 12 representatives from 11 institutions worldwide.

The two institutions discussed in this paper were identified as appropriate as they were both aware of the work of The Open University and deemed to be in a position to re-use distance-learning OERs. One institution, a university, is based in South Africa and the other, a college, is situated in the United Kingdom (the participants and their institutions are discussed further below). Both institutions are involved in distance-learning provision. By comparing an institution in the United Kingdom with one in South Africa, the conditions and implications for an institution in a developing country can be compared with those of a developed country.

In terms of data gathering in these institutions, OECD CERI (2007) reported poor results from a survey aimed at high-ranking members of organisations, thereby suggesting that OER development was perhaps a grass roots process. For that reason, a decision was made to contact senior members of institutions and conduct in-depth interviews rather than conduct a wider survey of staff opinion as, indeed, requests for return of survey questionnaires can more easily be ignored than can requests for interviews.

The South African university involved in this study has been delivering a number of distance-learning courses through study centres since 1996. This university allocates funds to make education more accessible to those from disadvantaged groups. The interviewee is a professor who represents a faculty within the university. The professor consulted 21 lecturers responsible for distance education programmes at the South African university, and provided a summary of their responses in the interview. The professor was selected, as it was determined that s/he was in a position to provide a 'good overview' from a faculty perspective.

The distance-learning college, located in the United Kingdom, involved in this study has been delivering a number of distance-learning courses for more than forty years. In the main, this college's students are adults and study from home. Widening of participation of adults in education is at the heart of this college's undertaking. The courses available are either pre-university courses or lead to professional qualifications. The interviewee is a director of the college, and was selected because it was determined that s/he represented the 'high level views' of the whole college.

To understand the implications for distance-learning institutions adopting OERs the following questions were asked:

- Which topic areas within *OpenLearn* would be of interest to learners?
- Would *OpenLearn* material fit within the present curriculum?
- Would *OpenLearn* material fit within the timetable of study?
- What expectations do the institutions have of using OERs with learners?

- Would the institutions provide assessment for the *OpenLearn* material?
- What form would assessment take?
- What implications are there in terms of policies and procedures when using OER's for accreditation?
- Would *OpenLearn* material be better suited to learning in cases of non-accreditation?

These questions were designed to address the issues of usage, unequal access, assessment, accreditation and non-accreditation, as discussed by Smith and Casserly (2006). Although many OERs have been made available worldwide, little is known in terms of quality research about who is actually using OERs (Hylen, 2006; Wiley, 2006).

The interview with the participant in the South African university took place between February 15 and February 20, 2007; the interview with the college in the United Kingdom took place between January 17 and February 5, 2007. Interviews were used to gather detailed information (Zand, 1994), and were semi-structured (Preece, Rogers, Sharp, Benyon, Holland & Carey, 1994; Zand, 1994; Fowler,1993). As the interviewer and interviewee were located long distances apart, the exchanges with each institution took place as a personal online semi-structured interview, termed as an epistolary interview (Debenham, 2001). The semi-structured interview schedule was piloted in advance with two researchers. This paper discusses nine questions asked in the personal online semi-structured interviews. Seven of these questions were of an open type, requiring 'open-ended' responses. Two questions were of a 'closed ended' type. In response to queries and to help overcome misunderstandings, sub-questions and additional background information was supplied online. As such, ongoing conversations developed overtime.

The data from the interviews is comprised of the users' opinions as expressed in mainly open responses in the personal online semi-structured interviews. The interview transcriptions were broken down into separate responses. The 'open-ended' responses from both interviewees were compared, so that interesting suggestions could be identified.

The Unequal Context in Which the Two Institutions Operate

As indicated in the Introduction, the unproblematic adoption of OERs worldwide cannot be assumed, and thus consideration needs to be given to the underlying circumstances and political climate that prevails in different countries. As Tomaseveki (2006) noted: "Education should be free and compulsory . . ." but ". . . what is mandated by international human rights law reflect deep divisions within the international community. . . The resistance to defining education as a human right informs global education strategies" (pp. pxvii to xix and xxiii). There is conflict between an individual's rights and governments' promises (Tomasevski, 2006).

The two institutions involved in this research are delivering distance-learning courses in different circumstances. They are:

- Based in different countries
- Using different infrastructures to access ICTs

- Working within different educational policies, and
- Teaching at different levels

Such variety of circumstances begs for an initial investigation into the opportunities and challenges that can arise.

Although access to *OpenLearn* itself would not involve a cost to learners, what method of access would learners use and how much might that access cost? To analyse the extent to which access is either equal or unequal, let us now look at the situation in each country wherein each institution is based.

South Africa: Educational policy and access to ICTs

Though South Africa's higher education system can boast of many merits, equality of access to education has not always been one of them. The end of apartheid in the early 1990s provided a major opportunity for change (Badat, 2004; Brennan, King, & Lebeau, 2004). As Badat (2004) wrote, "One key policy imperative of democratic South Africa is to transform higher education so that it becomes more socially equitable . . ." (p. 2). According to this author, equal opportunity together with improved research, teaching, and learning strategies would enable South Africa to participate more fully in the global economy.

Tomasevski (2006), however, argues that education in South Africa has not played its part in the transition from apartheid. She reports that South Africa does not have legal guarantees of free primary education.

According to Tomasevski (2006), "The post-apartheid government [of South Africa] has not managed to universalise education or to make it free after a full decade of having in place a constitutional guarantee of basic education for all" (p. 58). There are plans to have both 'fee-free' and 'for-fee' schools, which Tomasevski argues will only increase inequality in education, as the 'for-fee' schools will provide a much better learning experience than the 'fee-free' schools. She also reports that 11 percent of South African school age children do not even register to attend school.

In addition, there are inequalities of access to fixed telephone lines, modern computers, and the Internet in Sub-Saharan Africa (Ivala, Siluma-Mmekoa, & Butcher, 2005; Spronk, 2001; Smith & Casserly, 2006). Internet access is not widely available and tends to be situated in large cities rather than rural areas (Ivala et al., 2005; Atkins, Seely Brown, & Hammond 2007). Less than 10 percent of the population has access to the Internet; nonetheless, this still puts South Africa ahead of Kenya, Nigeria, and Tanzania (Ivala et al., 2005).

Ivala and colleagues (2005) estimate that more than 50 percent of students and staff in higher education in South Africa are Internet users and that higher education institutions are spending more on improving such facilities. This figure, however, appears not to be true for all universities. Indeed, Connolly, Wilson and Wolfenden (2007) reported that only two percent of the students had access to the Internet on the distance teacher education programmes at the University of Pretoria. Atkins and colleagues (2007) further concur that ability to access the Internet in Africa is between two and five percent. In addition, high-speed Internet access remains very expensive

for African universities compared to costs of high-speed access borne by similar institutions in the developed world.

Roelen, Rienties and Tempelaar (2007), who were concerned with bandwidth capacity and capabilities in Africa and Asia, nonetheless found that students (from developing countries) who studied a higher education course online reported learning online as a positive experience. These students were based in Africa and Asia, and studied with a tutor based in Maastricht. Roelen and colleagues also found that accessing the online facilities did not prove to be difficult, as students reported that they could either use the facilities of their employer (the ministry) or use Internet cafés. The availability of these facilities, however, suggests though that these students were located in urban or city areas rather than rural areas.

One ray of hope is that the widening availability of mobile phones in rural Sub-Saharan Africa and the increased provision of Internet access will facilitate the adoption of OERs in rural areas. The largest increase in mobile phone networks between 2000 and 2005 in the world can be seen in Sub-Saharan Africa (Atkins et al., 2007). Indeed, Atkins and colleagues (2007) propose that the mobile phone or hand held devices will become a popular method used by most people to access the Internet. Ivala and colleagues (2005), however, reported that mobile phones have not yet been used to access the Internet in the African Continent.

In terms of policy, Brennan and colleagues (2004) found that, "Nearly all universities had been under pressure to *reform curricula* and to introduce new forms of academic recognition and quality assurance" (p. 8). A White Paper examining e-Education was released by the Department of Education in South Africa in 2004 (Ivala et al., 2005). A key feature of this White Paper is an assertion that all those working and learning in an educational institution should be self-assured and inspired enough in their use of ICT to develop their skills and knowledge for lifelong learning (Department of Education, 2004). Also, countries in Sub-Saharan Africa have been in deep contemplation about how ICTs could be used in educational contexts from school level right through to university (Swarts, 2007).

United Kingdom: Educational policy and access to ICTs

Although the United Kingdom is a developed country within Western Europe, inequalities of access to education do and still exist. Different institutions have differing entry requirements. Their resources, particularly in terms of staff and equipment, vary considerably and hence they provide dissimilar learning experiences for their students. Although children are encouraged to stay on at school after the age of 16, they must satisfy entry requirements and be in a position to pay tuition fees; as a consequence, students from low socio-economic and minority ethnic groups only comprise a small proportion of the British student population.

Access to ICT facilities is much more prevalent in Western Europe than in developing countries – so much that institutions of all descriptions are adopting online learning environments to enhance teaching and learning processes, and moving towards e-learning approaches for course delivery. An integral part of this e-learning agenda is the inclusion of a Virtual Learning Environment (VLE) such as *WebCT*, *BlackBoard*, or *Moodle*. These VLEs host course materials and communication facilities, although access typically is password protected. Access to online facilities in the United Kingdom, however, can be prohibitively expensive, especially to those on low incomes or with no income at all.

Student numbers have been increasing at institutions in the United Kingdom. Indeed, directed by British Government to increase student numbers, but without additional funding, institutions have recruited many more students than necessary, meaning that they grew more quickly in size than was perhaps prudent (Bekhradnia, 2004).

The 2003 White paper indicates that the British Government expects nearly 50 percent of 18 to 30 year olds to participate in some form of higher education. Bekhradnia (2004), however, argues that it will take more than government policy to truly widen access to education. He suggests that higher levels of achievement in different social groupings while at school will influence a more diverse range of students to apply to institutions.

Availability and Accessibility of High Quality Material

How will the differences between the United Kingdom and South African contexts described here affect the ability of the two institutions in question to adopt OERs? The interviewees at the two institutions involved in this research were asked if they were aware of the *OpenLearn* website, and how they had come to know about it. Both interviewees reported that they were aware of the website. The interviewee at the university in South Africa mentioned that they had heard about *OpenLearn* by word-of-mouth and through links on the Internet. The interviewee located at the college in the United Kingdom became aware of *OpenLearn* through participation in a local workshop.

The subsequent question involved the *OpenLearn* topic areas that are of interest to the two interviewees and their institutions. As mentioned above, there are 11 different topic areas within *OpenLearn*:

- Arts and History
- Business and Management
- Education
- Health and Lifestyle
- IT and Computing
- Mathematics and Statistics
- Modern Languages
- Science and Nature
- Society
- Study Skills
- Technology

Each topic area comprises a variety of units, with different study-hour and level allocations as indicated earlier. The interviewees were asked about which topic areas within *OpenLearn* they felt would be of interest to their learners. It is perhaps surprising to find that both institutions (though based in different countries and teaching at different educational levels) chose very similar topics. The university in South Africa chose 10 of the 11 topics (leaving out ICT and Computing) while the college in the United Kingdom chose nine of the 11 topics (leaving out Technology, ICT and Computing). This suggests that the *OpenLearn* topics could provide a large pool of useful OER units for both of these distance-learning institutions.

Opportunities and Challenges Adopting OERs

A wide variety of topic areas clearly appeared to be of interest to both institutions, although it was also important to establish the extent to which the *OpenLearn* material would actually fit within each institutions' present curriculum offering. The university in South Africa responded that the *OpenLearn* OERs would fit well within their present curriculum, but implied that they would not accommodate all their learners' requirements. This interviewee also consulted the lecturers responsible for distance education programmes at the university in South Africa. The summary of the lecturers' responses was as follows:

- The "majority of lecturers [were] in favour especially for additional reading."
- "Some material might fit in with our programmes, but others are not even covered as far as we know".

These responses suggest that the *OpenLearn* units would fit in with the curriculum as a form of supplementary material, and that *OpenLearn* provides units in areas that are not yet covered by the university in South Africa.

By contrast, the college in the United Kingdom indicated that the *OpenLearn* units would not fit directly with their curriculum, but ". . . could provide some optional added interest". This suggests that the *OpenLearn* material would be complementary to current curriculum offerings. As the materials on *OpenLearn* are mostly at university level, perhaps they are not directly relevant to a college.

Another issue was whether the *OpenLearn* material would fit within the two institutions timetable of study. The university in South Africa indicated that the *OpenLearn* units of material would not fit into their present timetable of study. The interviewee, however, clarified this statement further by saying "we will first have to look at your material and see how we can adapt it to our situation" and consider the "time allocation" to do this. It is not surprising, however, that time would be required to reflect on the present curriculum and how these new materials could become integral to the university's offerings. A number of other issues come into play here also. The *OpenLearn* materials in the main are written in English, although some have been translated into other languages. Moreover, the materials are designed for a mainly Western European audience.

In adapting the *OpenLearn* materials, the South African university would also have to consider the issue of language because:

- English is not the first language for most African people (Ivala et al., 2005).

and

- the need to localise content for the audience (Connolly et al., 2007).

Cultural and linguistic issues concerning the adoption of OERs are also discussed by Wiley (2007).

The college in the United Kingdom was unsure about whether the material would fit into their timetable of study, as their "students don't work in cohorts" and they tend to work individually and at their own pace. An option for the college might be to consider their tutors as a guide to point students to relevant units within *OpenLearn.*

The interviewees were then asked about their institutions' expectations of how they will use OERs with their learners. The interviewee in the university in South Africa again consulted the lecturers responsible for distance education programmes at the university. The following responses were received:

- "Downloading from Internet"
- "Expose students on an experimental basis to this type of learning"
- "Personal and professional development of students can be promoted"
- "To connect your subject content to some of our modules"
- "Can be used as additional sources"

These responses suggest that the *OpenLearn* units can be used to change the teaching practice in the university in South Africa, a favourable outcome as advocated by Geser (2007). First, this outcome would be achieved by promoting different types of learning, and second by linking to subject specific content, and finally by adopting supplementary material. The college in the United Kingdom suggested the viability of linking to specific relevant units within *OpenLearn*. "We could provide selections of links to appropriate topics from the student interest groups for each course." Both of these institutions envisioned ways that they could adopt OERs for use with their students.

It seems clear that the *OpenLearn* units will be a valuable resource for both of these institutions. Would these institutions, however, provide assessment for the *OpenLearn* material? And if yes, what form would this take? The South African university confirmed that they would assess the *OpenLearn* content once they "are aware of the type of content." They would assess it as "part of an assignments, as well as part of a portfolio where applicable. By means of a trial run: include some material in a section of our programme and letting students give feedback." The college in the United Kingdom, for instance, reported that it is "very unlikely [that we would assess use of

the Open Learn units] initially." However, "if we were subsequently to provide assessment – then it could be, perhaps, in a relatively open-ended assignment, asking learners to select material for themselves and work with it and report, back to the tutor . . . or in the form of short accompanying quizzes".

The next issues addressed were those of policy and procedure that would need to be used or changed to allow the adoption of *OpenLearn* units for assessment. The university in South Africa reported that assessment of *OpenLearn* units would "have to be discussed with the director of our faculty, as well as with the director of the School. . . We must also be aware of the policies and procedures at Open Learn." It is not surprising that this is a difficult question to answer, especially given that the university in South Africa has not had time to consider, in detail, how they would adopt *OpenLearn* OERs. It will be interesting to revisit this issue with the South African university in the future. The college in the United Kingdom, on the other hand, was able to give a definite response. "For formal assessment – we are tied to the requirements of awarding bodies. As a rule, students are interested in studying only what relates directly to the award. So we'd be unlikely to use your material for this." It appears, therefore that the college in the United Kingdom would use a more informal assessment for *OpenLearn* material.

The interviewees were then asked whether they felt *OpenLearn* material would be better suited to learning in cases of non-accreditation. The interviewee at the university in South Africa was unable to say whether or not the O*penLearn* OERs were more suited for circumstances of non-accreditation, indicating that "This material will have to be tested in some way with our students' in a pilot form at first." The interviewee at the college in the United Kingdom response was much more in favour of the OERs being used in circumstance of non-accreditation. According to this interviewee, "they could be used 'for informal assessment – for example, in a quiz, or in an analysis, in our learning skills courses. No issues of policy or procedural change here, but the wider *OpenLearn* option (and links to the site as a whole) would have to be just that, since not all our students have online access."

OpenLearn units therefore may be used in the future for either accreditation or non-accreditation. An interesting issue, which could affect the accessibility of the OERs and thus any such assessment of them, is whether all distance-learners have access to the Internet. As pointed out earlier, those living in rural areas of Africa may not have a reliable electricity supply, and the college in the United Kingdom has indicated that some of their students are unable to access the Internet.

Limitations and Conclusions

This early stage research was undertaken less than four months after the OpenLearn environment was launched and has certain inherent limitations. The two interviewees actively involved in the study account for a very small proportion of potential users of OERs. This therefore calls for caution in interpreting the findings. They provide only initial data from the distance-learning institutions' perspective on the adoption of distance-learning OERs, which can then be compared with data collected at a later date. Each interviewee can give only limited feedback on the policies of a complex institution. Nonetheless, this early stage study does point to areas that merit further investigation.

This paper started by relating the unequal contexts in which a South African university and a college in the United Kingdom function. The discussion covered access to education, to ICTs, and the influence of government policy. Inequalities in educational achievements between developed and developing countries do exist as a result of vastly different levels of funding. Developing countries strive for primary education for all as a long-term goal, whilst developed countries aim for secondary education for all followed by lifelong learning (Tomasevski, 2006). In the United Kingdom, there is a legal guarantee of free and compulsory education and parents receive a family allowance (Tomasevski, 2006), which can be used to offset any additional costs. We should not, however, forget the situation of the poor living in developed countries (Tomasevski, 2006) and how the cost of tuition fees affects entry to post compulsory education.
Though communication facilities offer many opportunities to support learning and teaching over long distances (Krause, 2005; Spronk, 2001) the reality in developing countries can be rather different. Spronk (2001) highlights:

- Poverty
- Political upheaval
- High levels of illiteracy
- Unreliable access to electricity (Atkins et al., 2007; Spronk, 2001)
- Low levels of ownership of telephone lines, radios, televisions, and access to the Internet (Ivala et al., 2005; Spronk, 2001)

One would expect that OERs could not be as easily adopted in a developing country, particularly given limited access to education and ICTs. The interviewee from the university in South Africa involved in this study reported that some of these issues are still relevant in 2007. “Some students in the urban areas do have access to Internet facilities, while students in the deep rural areas might not even have electricity to use computers.” This is further evidence of the inequalities of access to commodities between urban and rural areas in South Africa. The interviewee from the South African university, however, did not highlight any other barriers to the adoption of OERs. Indeed, Atkins and colleagues (2007) are optimistic about improved networking in sub-Saharan Africa, but stress that the supporting technology cannot be taken for granted. The importance of being able to work offline is further emphasised by Esslemont (2007).

OERs alone will not solve all of the problems related to the availability of educational resources. If infrastructure and facilities are not put in place to access the Internet, then access to distance-learning OERs will not be possible. Alternatives types of OER (Connolly et al., 2007; Wiley, 2007) will need to be considered in these cases to improve distribution and access. In the United Kingdom where access to ICTs is more prevalent, OERs should be made more available. For example, through provision in libraries, job centres, prisons, and detention centres.
OERs present a prospect of improving access to education throughout the world. Hylen (2006) argues that the sharing of information, including educational resources, helps to reduce social inequalities. Access to updated computing facilities and the Internet have improved over the last ten years, although reciprocal changes have not occurred in teaching methods to improve graduates’ participation in the knowledge economy and society (Geser, 2007). If teaching methods can be changed to truly take advantage of OERs, then more engaging methods of

teaching may attract all types of learners. Indeed, in this preliminary research the university in South Africa indicated that the adoption of OERs could change the style of teaching at the university. Moreover, there is little difference in the appeal of new technology to the younger generation, whether they are based in developing or developed countries (Atkins et al, 2007). Also, students expect technology to support them with their studies while on the move (Krause, 2005).

In this study, 9 of the 11 *OpenLearn* topics were of interest to the two interviewees from the institutions involved in this research. This suggests that units within the different topics could provide a large and valuable repository of units for many institutions, groups, and individuals worldwide. This is in line with Vest's (2004) article indicating that the MIT OERs appear to be valuable to other institutions. The *OpenLearn* materials seem particularly valuable to the programmes of study at the South African university. Since the materials are mainly at higher education level and of a distance-learning type, perhaps this is not surprising; though Heller and Torun (2007) found that OERs are more likely to be used within the context of an educational programme. In any case, accessible *OpenLearn* material that has undergone extensive peer review to ensure high quality will likely be a valuable resource in both developed or developing countries. The *OpenLearn* OERs can provide supplementary or complementary resources to institutions. This corresponds with the OECD CERI (2007) study, which found that "instructors view OER as a high-quality complement to other resources." (p. 52). In the case of the South African university, the interviewee indicated that they would see the OERs as fitting in well with their present teaching commitments and curriculum. Interviewees from both institutions indicated that they would link to the *OpenLearn* units from their own websites. Both interviewees indicated that they would assess their students' use of the OER units given adequate time to assimilate their content. While the interviewee from the university in South Africa indicated that they would use formal assessment, the interviewee from the college in the United Kingdom would favour more informal assessment. The findings from the college in the United Kingdom with respect to using the OER material for non-accreditation concur with the reasoning of Smith and Casserly (2006) and is in line with that of Heller and Torun (2007) who are starting to look at accreditation issues for public health courses in developed and developing countries.

The enthusiasm of the interviewees from these two institutions to use the *OpenLearn* distance-learning OERs (with the lecturer embedded in the material in the form of 'Supported Open Learning') suggests that more distance-learning OERs should be made available. As mentioned earlier, the cost of transforming distance-learning course material into OERs may be less than that suggested by Wiley (2007) for OERs developed at campus-based institutions.

These findings provide a basis on which to undertake further research. Moreover, it will be interesting to more fully determine how distance-learning OER units are adopted in reality, in both of these institutions and in traditional campus-based institutions.

A higher-level question, which should also be asked is 'how might distance-learning institutions change to promote life long learning?' How will they cater to those who want a mix of courses, some for accreditation and some without accreditation? Indeed, learners' reported their desire to study for their qualifications at a number of different institutions (Krause, 2005), by picking and combining a portfolio of courses and modules by which to earn their qualification. The adoption of OERs could be part of a solution to this current issue.

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References

Atkins, D. Seely Brown, J., & Hammond, A. (2007). *A Review of the Open Educational Resources (OER) Movement: Achievements, challenges, and new opportunities.* A Report to The William and Flora Hewlett Foundation. Retrieved May 31, 2007 from: http://www.oerderves.org/wp-content/uploads/2007/03/a-review-of-the-open-educational-resources-oer-movement_final.pdf

Badat, S. (2004). Higher education and society in post-apartheid South Africa. In *Ten Years On: Changing higher education in a changing world* (pp. 2-6). The Open University: Milton Keynes. Retrieved August 2, 2007 from: http://www.open.ac.uk/cheri/index.htm

Bekhradnia, B. (2004). 20 Years of higher education policy in the United Kingdom: looking back 10 years and forward to the next decade. In *Ten Years On: Changing higher education in a changing world* (pp. 11-21). The Open University: Milton Keynes. Retrieved August 2, 2007 from: http://www.open.ac.uk/cheri/index.htm

Brennan, J. (2004). The Social Role of the Contemporary University: Contradictions boundaries and change. In *Ten Years On: Changing higher education in a changing world* (pp. 22-26). The Open University: Milton Keynes. Retrieved August 2, 2007, from: http://www.open.ac.uk/cheri/index.htm

Brennan, J., King, R., & Lebeau, Y. (2004). *The Role of Universities in the Transformation of Societies: An international research project – synthesis report.* Association of Commonwealth Universities & The Centre for Higher Education Research and Information: Milton Keynes. Retrieved August 1, 2007 from: http://www.open.ac.uk/cheri/pdfs/tr_final_report.pdf

Connolly, T., Wilson, T., & Wolfenden, F. (2007). Reaching the Boundaries of the Global South: Exploring the importance of guidelines for the localisation of OERs. In proceedings of *Open Education 2007: Localizing and learning*, September 26-28, Logan, Utah.

Department of Education (2004). *White paper on E-Education.* Pretoria.

Debenham, M. (2001). *Computer Mediated Communication and Disability Support: Addressing barriers to study for undergraduate distance learners with long-term health problems.* Doctoral Thesis. Milton Keynes: The Open University.

Downes, S. (2006). *Models for sustainable Open Educational Resources*. OECD experts' meeting on Open Educational Resources, Malmo Sweden, February 2006. Retrieved January 29, 2008 from: http://www.downes.ca/cgi-bin/page.cgi?post=33401

Esslemont, C. (2007). Bridging the Abyss: Open content to meaningful learning. In Proceedings of *OpenLearn 2007: Researching open content in education* (pp. 44-46), October 30-31, 2007, Milton Keynes. Retrieved January 29, 2008 from: http://kn.open.ac.uk/public/getfile.cfm?documentfileid=12174

Ferreira, G., & Heap, N. (2006) From Print to Web: Issues in re-purposing for an Open Resources Repository. Proceedings of the *2006 EADTU Conference*, November, 23-24, 2006, Tallin, Estonia. Retrieved August 20, 2007 from: http://kn.open.ac.uk/public/document.cfm?docid=8979

Fowler, F. J., Jr. (1993). *Survey Research Methods* (Second edition) Newbury Park, CA.: Sage Publications.

Geser, G. (Ed.) (2007) *Open Educational Practices and Resources, OLCOS Roadmap 2012.* Salzburg Austria: Salzburg Research Edumedia Research Group. Retrieved August 24, 2007 from: http://www.olcos.org/cms/upload/docs/olcos_roadmap.pdf

Heller, R., F., & Torun, P. (2007). Embedding Open Content in Education: peoples-uni.org. In Proceedings of OpenLearn 2007: Researching open content in education (pp. 55-57) October, 30-31, Milton Keynes, UK.

Hylen, J. (2006) Open Educational Resources: Opportunities and challenges. Proceedings of *Open Education 2006: Community, culture and content.* September 27-29, Utah State University (pp. 49-63). Retrieved August 28, 2007 from: http://cosl.usu.edu/conferences/opened2006/docs/opened2006-proceedings.pdf

Ivala, E., Siluma-Mmekoa, E., & Butcher, N. (2005). *Online access and connectivity of primary school teachers in sub-Saharan Africa.* Braamfontien: South African Institute for Distance Education (SAIDE). Retrieved August 1, 2007 from: http://www.tessaprogramme.org/pdf/d50716.pdf

Krause, K. (2005). The Changing Face of the First Year: Challenges for policy and practice in research-led universities. Keynote Paper. *First Year Experience Workshop 2005: University of Queensland*, Brisbane, Australia. Retrieved August 28, 2007 from: http://www.uq.edu.au/teaching-learning/docs/FYEUQKeynote2005.doc

Lane, A. (2006). *From Pillar to Post: Exploring the issues involved in re-purposing distance learning materials for use as open educational resources.* Retrieved August 30, 2007 from: http://kn.open.ac.uk/public/document.cfm?docid=9724

McAndrew, P. (2006) Motivations for OpenLearn: The Open University's open content initiative. Paper presented at the *OECD experts meeting on Open Educational Resources*. October 26-27, Barcelona. Retrieved August, 28, 2007 from: http://kn.open.ac.uk/public/document.cfm?docid=8816

McAndrew, P., & Hirst, T. (2007). Open content for open development. The second TenCompetence workshop on *Service Oriented Approaches and Lifelong Competence Development Infrastructures*. January 11-12, Manchester.

OECD CERI (2007). *Giving Knowledge for Free: The emergence of open educational resources.* Milton Keynes: The Open University, Centre for Educational Research and Innovation (CERI). Retrieved August 2, 2007 from: http://www.oecd.org/document/41/0,3343,en_2649_201185_38659497_1_1_1_1,00.html

Open Content Initiative (2006). Funding proposal to the William and Flora Hewlett Foundation. Milton Keynes: OpenLearn. Retrieved August 3, 2007 from: http://www.open.ac.uk/openlearn/__assets/06sngpqpwminsmwxov.pdf

OpenLearn (*n.d.*). *The Open University OpenLearn website.* Retrieved January 29, 2008 from: http://www.open.ac.uk/openlearn

Preece, J., Rogers, Y., Sharp, H., Benyon, D., Holland, S., & Carey, T. (1994). *Human Computer Interaction.* Wokingham, UK.: Addison-Wesley.

Roelen, K, Rienties, B., & Tempelaar, D. (2007) The use of ICT in higher education to support capacity development in developing countries. In proceedings *CAL '07 Development Disruption and Debate*. March 26-28, 2007 Dublin, Ireland.

Smith, M. S., & Casserly, C. M. (2006). The promise of open educational resources. *Change 38*(5), 8-17.

Spronk, B. (2001). Naming the learning technology issues in developing countries. In E. J. Burge & M. Haughey (Eds.) *Using Learning Technologies: International perspectives on practice.* London: RoutledgeFalmer.

Swarts, P. (2007). The African context for ICTs in teaching and learning. In proceedings *CAL '07 Development Disruption and Debate.* March 26-28, Dublin, Ireland.

Tomasevski, K. (2006). *The State of the Right to Education Worldwide. Free of fee: 2006 Global report.* Self published report. Copenhagen. Retrieved August 28, 2007 from: http://www.katarinatomasevski.com/images/Global_Report.pdf

Vest, C. M. (2004, January 30). Why MIT decided to give away all its course materials via the Internet. *The Chronicle of Higher Education, 50*(21), B20. Retrieved August 28, 2007 from: http://web.mit.edu/ocwhq/pres/facpack/ChronHigherEd_1-30-04.pdf

Wiley, D. (2006). Organisation for Economic Co-operation and development. Paper for *Expert Meeting on Open Educational Resources, OECD-CERI*, February 6-7, Malmö, Sweden. Retrieved July 28, 2007 from: http://www.oecd.org/dataoecd/19/26/36224377.pdf

Wiley, D. (2007). *Open Educational Resources: On the Sustainability of OER initiatives in Higher Education.* Paper commissioned by the OECD's Centre for Educational Research and Innovation (CERI) for the project on Open Educational Resources. Retrieved July 1, 2007 from: http://www.oecd.org/dataoecd/33/9/38645447.pdf

Wilson, T. (2007). Transformation for an Open Education Repository: Issues associated with IT and Computing distance learning course materials. In proceedings of the international conference, *Information Technologies: Theory, Practice, Innovations* (pp. 143-147). December 6-7, 2007, Alytus, Lithuania.

Zand, H. (1994). Developmental Testing: monitoring academic quality and teaching effectiveness'. In Fred Lockwood (Ed.), *Materials Production in Open and Distance Learning* (pp. 121-130). London: Paul Chapman Publishing.

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Technology-Enhanced Learning in Developing Nations: A review

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Abstract

Learning 'using' technologies has become a global phenomenon. The Internet is often seen as a value-neutral tool that potentially allows individuals to overcome the constraints of traditional elitist spaces and gain unhindered access to learning. It is widely suggested that online technologies can help address issues of educational equity and social exclusion, and open up democratic and accessible educational opportunities. The national governments and non-governmental agencies who fund educational endeavours in developing countries have advocated the use of new technologies to reduce the cost of reaching and educating large numbers of children and adults who are currently missing out on education. This paper presents an overview of the educational developments in open, distance, and technology-facilitated learning that aim to reach the educationally deprived populations of the world. It reveals the challenges encountered by children and adults in developing countries as they attempt to access available educational opportunities. The discussion questions whether, in face of these challenges, developing nations should continue to invest money, time, and effort into e-learning developments. Can technology-enhanced learning help address the poverty, literacy, social, and political problems in developing countries?

Keywords: developing countries; technology; e-learning; access; rhetoric; reality

Introduction

New communication technologies, particularly the Internet, appear to offer exciting possibilities for overcoming geographical access and cost barriers to learning. Yet it is hard to imagine that these technologies can have a positive influence on the education of children and adults who lack basic living resources and live with an underdeveloped educational infrastructure in an environment of political instability. This paper explores the advances in open and distance learning in developing nations, and questions if these advances are addressing the educational gaps. The discussion highlights the challenges created by poverty, lack of social and educational infrastructures, and cultural issues that restrict educational progress in developing countries. This paper explores the conundrum that learning technologies on one hand (i.e., print-material, radio, television, video, audio, telephone, computers, and the Internet) are seen as an answer to the limitations and rigidities of conventional education because they reach a larger number of learners (Sutaria, 1990); while on the other hand, where these technologies are being used, the

difficulty of accessing them and the digital divide between privileged and deprived groups continues to widen the educational gap.

Although this paper refers to technology-enhanced learning developments in developing countries, it by no means assumes that all developing nations have homogenous characteristics, social problems, and issues. These countries differ in their political circumstances, the history of their educational developments, culture, language, religion, gender issues, population size, resources (Lewins & Stuart, 1991), and the contemporary influx of technology. Each country has developed different forms of open and distance learning alternatives to meet the demand for education. Nonetheless, the key challenges all these nations face in trying to reach the masses and address issues of poverty and educational access make it worthwhile to compare and contrast their situations and strategies.

Educational Gaps and Expansions in Developing Countries

Most countries in Latin America, Middle East, Africa, Southeast Asia, and some parts of southern Europe, are designated as 'developing countries' because of their lower rank in the United Nations Development Program (UNDP) Human Development Index. Yet it is worth noting that these countries have rich histories and educational traditions. The Indian Gurukul system, the first schools in Egypt, and the first universities in Babylonia, are only a few examples of early and advanced education systems among developing nations (Saheb, 2005).

Since the spread of the industrial revolution and the end of WW II, there has been a widening gap in socio-economic systems, living standards, and educational opportunities between developing and developed countries (note that the latter include Western Europe, North America, Australia and New Zealand). In 1913, the income gap between the world's richest and poorest people was 13 to 1 (UNDP, 2000). By 1997, the income gap was 74 to 1. In 1999, the richest 200 people in the world had a combined wealth of US $1,135 billion, whereas the total income of the poorest half billion people in all developing countries barely exceeded 10 percent of that amount (UNDP, 2000). According to the United Nations Educational, Scientific, and Cultural Organization (UNESCO) (1993), in 1960 one in four children went to school in sub-Saharan Africa, one in two in Asia, and just over one in two in Latin America. Developing countries lacked educational infrastructures, teachers, economic structures, and technologies to support the demand for education at all levels.

After decolonisation (1940s – 1960s), developing nations' governments and associated non-governmental agencies identified the need for educational infrastructures to address the widening gap between the educated and non-educated (Kamau, 2001). About a dozen developing countries, including Samoa, Columbia, Niger, Mexico, and El Salvador, with funds from various agencies including the United States Agency for International Development (USAID), UNESCO, and the French aid to North African countries, invested in televised primary schooling to reach their deprived populations (Perraton, 2000). In the 1960s, China introduced nine-year compulsory schooling, and started building schools in rural and urban regions supported by televised learning (CERNET, 2007). Emphasis on televised primary schooling in these countries further amplified the demand for human and material resources for primary and secondary education. Despite these open and distance learning alternatives to increase education for the masses, however, problems of infrastructure and access remain unresolved 47 years later. For instance, in Asia alone there are over 560 million adults, or 70 percent of the world's adult population, who cannot read or write – including the majority of females (66%) (Malik, Belawati & Baggaley, 2005).

In the 1960s and 70s, most developing countries based their decisions to expand educational opportunities on economic grounds, and began expansion at secondary and tertiary levels. This orientation was congruent with the goals of the World Bank, a funding agency with an economic focus (Perraton, 2000). In 1963, the World Bank considered funding education projects for the first time, but these were limited to vocational, technical, and some secondary education projects. Psacharopoulos (2006), who worked for the World Bank, argues that the projects they funded did not work because funding allocation was driven by solely economic motivations and therefore lacked focus. He reasons that the Bank had considerable inertia in understanding and fitting with different developing countries' needs (Psacharopoulos, 2006). Perraton (2000) substantiates Psacharopoulos' view and explains that the World Bank's loans responded to the demands of the urban elite and funded their children's vocational and higher education. Funding one child's university education was the same as funding 60 children's primary school education (Perraton, 2000). The result is that while the public expenditure per inhabitant on education in developing countries has gradually risen, educational expansion still lags behind that in developed countries (Perraton, 2000). Illiteracy rates in developing countries may have fallen between the 1960s and 1980s, yet there are still more than 900 million illiterate adults in the world (UNESCO, 1993).

Perraton (2000) explains that global economic conditions were not conducive to educational expansion in developing countries. The shortage of resources caused, in part, by the Organisation of the Petroleum Exporting Countries (OPEC) oil crises, global food shortages in the 1970s, and the falling prices of primary products in 1980s, resulted in increased debt, particularly in sub-Saharan African and Latin American countries. As a result of these changes, developed nations prospered and enjoyed the political and economic opportunities that widened access to resources for the less well-off. The situation in developing countries, however, was quite different. The reduction in resources and funding in developing countries meant that less was spent on training teachers and on educational resources for the poor (Perraton, 2000). Lack of resources, including a limited number of textbooks and desks or writing spaces, libraries without journals, and laboratories without equipment remain a reality today in many developing nations of the world (Perraton, 2000).

Lewins and Stuart (1991) propose that educational provisions in developing countries were limited due to their governments' failures to recognise and address the issues of access, culture, and the gender gap that affected poorer population groups. Lewins (1991) describes this as the 'educational planner's paradox.' His review of the research on innovation in education suggests that, although innovation has good intentions, too many changes often penalise those who need them most:

> In many educational systems in developing countries, the losers in the change process are those clients on the margins of the existing system. Rural children and teachers in isolated, under-resourced, and neglected schools, with many unqualified teachers and little access to information, are those least prepared for the change. (Lewins 1991, p. 16)

The complexities of systems and funding compounded by local cultural issues hinder access for less privileged groups. These inequalities continue to exist despite the growth in communication and technology applications that are advocated to address the educational gaps in developing countries. For instance, in the late 1980s the vocational focus by the National Commission of Nomadic Education in Nigeria provided funding for radio programs to educate the rural nomadic Fulbe community in Nigeria (Usman, 2001). The program covered prevention of animal diseases, information on animal and crop practices, production of cheese, milk, and butter, cooking and nutrition programs, and religious programs. The funding agencies and organisers of these

programs however failed to consider the difficulties Fulbe women experienced in gaining access to radios, which were purchased and used mostly by their husbands. Broadcast times did not easily fit around the busy lives of these women, who also had domestic obligations and financial responsibilities for the dairy products. As such, Usman's interviews with these women revealed unhelpful approaches and assumptions about equal access that were insensitive to Fulbe women's needs and reinforced the patriarchal norms that marginalize women.

The sections that follow highlight challenges people in developing countries continue to face as their governments increasingly employ technologies such as radio, television, audio, videocassettes, print material, and computers to facilitate the delivery of distance education to larger populations.

Open and Distance Learning Successes and Challenges

Since the 1990s, open and distance learning has gained increasing legitimacy, as evident in the policy statements by the main international agencies (i.e., UNESCO, European Commission, World Bank) and various national policies (Perraton, 2000). Lack of resources, including buildings, desks, books, and qualified teachers, has been a significant obstacle for open and distance learning. While the success of the UK Open University, established in1969, is cited as an example that led to the opening of over 25 open universities in developing countries (Perraton, 2000), it was the University of South Africa in 1946 that became the first to offer single-mode, distance education (Mackintosh, 2005). Arguably, the aims of distance education in developing countries are different from those of developed countries. In developed countries, moves to widen participation and lifelong learning for non-traditional learners are closely linked to the development of a strong knowledge economy. In contrast, developing countries' motives for distance learning are to provide basic and literacy education to large numbers of poor people (Zhang, 2005).

For instance, in 1968 Mexico launched Telesecundaria, televised lessons in distant classrooms in the presence of a teacher, to extend lower secondary schooling to its rural and far-flung communities. The cost analysis by Klees, McAnany, and Mayo (1975) concluded that even though Telesecundaria, schools had fewer and untrained teachers with larger classes than did conventional schools, the system was more cost efficient in supporting student achievement in subjects such as Spanish, math, and chemistry. The system achieved greater educational output as compared to traditional secondary schools (Klees & Mayo, 1974). By 1993, the system had reached 15 percent of the lower secondary school learners. Since 1994, the model has used advanced satellite for televised broadcasts and local teachers to encourage interaction in distant classrooms (Calderoni, 2005). Perraton (2000) notes that although the costs per student have now increased as compared to conventional schools, Telesecundaria continues to provide a fruitful alternative model of schooling.

Lack of trained teachers has meant that several open learning initiatives in developing countries have focused on educating and training their unqualified teaching force. Bof (2004) describes the Brazilian Ministry of Education distance education model called Proformação, a distance teacher certification course designed to train 27,000 uncertified teachers in 15 Brazilian states. Proformação includes face-to-face sessions, workbook activities, practice evaluations, tutorial meetings, and bi-monthly tests. Following an evaluation that revealed the program's positive impact on participants' teaching practices and a significantly low dropout rate (11.5%), Proformação has been identified as the "distance learning program for the 21st century" (Moore, 2001). It is noteworthy that the successes of *Proformação* and *Telesecundaria* are attributed to

print and television technologies (Bof, 2004) and not the Internet, which remains inaccessible to most individuals in these countries.

Not all distance education in developing countries has been successful. Kamau (2001) describes the challenges and constraints in developing distance education for Kenyan and Botswanan untrained primary school teachers. As in Mexico, the courses use printed learning materials, supported by educational radio, occasional audiocassette tapes, and face-to-face sessions. Since 1985, course development has faced resistance from conventional university staff and procedural barriers that give priority to campus-based programs. National policy requirements and deadlines allowed limited time to complete the course material, which consequently led to high dropout rates (Kamau, 2001). The courses were developed and supported by campus-based teachers that typically lacked the requisite experience or skills in developing distance material. Additionally, the tutor-students did not have equal access to audio technologies needed for the course (Kamau, 2001).

The University of West Indies Distance Teaching Experiment in 1978 began with similar problems. Funding from USAID was used to develop real-time, interactive teaching using satellite television, regional telephone links, and teleconferencing centres in local schools and colleges supported by live audio communications, lectures, and print course materials (Marrett & Harvey, 2001). By the late 1980s, the University of West Indies' Distance Teaching Enterprise (UWIDTE) became a significant contributor to social and medical science education. In 1996, the University of West Indies established non-campus distance education as one of its key functional departments to serve the 16 Caribbean countries. Distance education, however, was still being sidelined by face-to-face teaching faculty who viewed it as an add-on, and voicing fears they were 'giving away' their intellectual property. They did not view their distance teaching experience as a positive influence on their careers, nor did they identify with distance education's goal of widening access.

Interestingly, distance education was also perceived as 'second best' in Asian countries. This is in spite of the fact that Asia has clearly led the way in open and distance learning enrolments. In the 1970s and 1980s, when conventional Asian universities faced limited investment, enrolment in open universities throughout Asia increased from 4.9 percent in 1980 to 7.0 percent in 1990 (Perraton, 2000). The Chinese Central Radio and TV University (CERNET, 2007), established after the end of the 'Cultural Revolution' in 1976, and the Indian state (Naidu, 2005) and national open universities established in 1982, demonstrate two distinct models of distance education in Asia. Their aims were to meet the growing demands of secondary and tertiary education and to widen access to the masses.

According to Rufang (1997), the Chinese government intention was to use Chinese Radio and TV University for socialist construction much at the cost of individualism. The University aimed to produce a qualified work force and raise the social and cultural standing of the country. This coincided with the introduction of a 1985 compulsory education policy focused on nation building. The Radio and TV University alongside conventional institutions was charged with training 105 million of China's workforce, including technical and engineering personnel and 3.5 million new teachers (Rufang, 1997). Since the 1980s, personal computers have begun to change the mode of dissemination of learning materials, while radio and television enhanced by satellite transmissions remain the main methods of teaching. According to the China Education and Research Network (2001) by 1999, the Chinese Radio and TV University had seen over 2.6 million college and vocational school graduates, 35 million non-degree graduates for continuing

education, and in-service training and tens of millions of farmers for various agricultural practices.

An insufficient infrastructure and growing demand for secondary education led India, a secular democracy, to develop an alternative model, National Open School (NOS) (Sujatha, 2002). The school offered non-formal, distance schooling for learners of all ages. Using paper-based self-learning material, the school intake increased from 1,672 enrolments in 1981 to 3,355,100 by 1999. The chance to sit for the same exams as formal schools has added to the standing of open schooling. As in China and other developing countries however, in India there are also gender gaps. Only 36 percent of those enrolled in NOS courses since 1990 are female. Furthermore, although there are low or no schooling costs for members of India's scheduled castes and tribes – groups that make up a high proportion of India's population – enrolment from these groups remains the lowest, at 21.92 percent. Outcomes of the system are also questionable because the pass rate for secondary and senior secondary levels in 1999 was between 25 percent to 29 percent (Sujatha, 2002).

The above examples demonstrate the variety of open and distance learning methods that have been successfully implemented, and that have reached at least some of the poorer and deprived groups in developing countries. The following sections outline the hidden challenges faced by these countries as they join the international economic race.

The Poverty Challenge in India and China

Economists have identified India and China, the world's two most populated and diverse nations, as the fastest growing economies in the world ("New World Economy," 2005). India, as a global leader in the out-sourcing of IT services is, unlike most developing countries, contributing to the technological revolution (Sharma, 2005). The growth of China's manufacturing industry now means that most products used by people around the world are manufactured in China. The Indian and Chinese open and distance learning case studies above, combined with their economic success, paint a picture of success in education and opportunity for their people. Do all Indian and Chinese citizens share these successes?

Per capita incomes for India and China are rising, but this may be happening at the expense of the poorer citizens in these populous nations. A closer look at the critical literature on distance education exposes the poverty challenges that persist despite the economic growth and technological developments of these two nations (Carr-Chellman, 2005). According to Abdul Waheed Khan of the Indira Gandhi National Open University, (Sharma, 2005), despite the Indian NOS schools raising the aspirations of the poorer classes, "only 6.5% of school graduates pursue higher education degrees in India as compared to 30% in developed countries" (p. 54). This highlights the educational divide in India, which dates back to the policies proposed after independence in 1947.

While NOS has reached some individuals and helped to raise their living standards by enabling them to gain employment in different government sectors, overall there has been limited funding to address the growing demands of primary education sectors. Unlike China, which made primary education compulsory in 1960s, since Independence in 1947 India has concentrated investment in university education (Sharma, 2005). As a result India now has a large number of uneducated adults (Dhanrajan 1997, cited in Sharma), and a small number of middle-class, educated adults and their children, who continue to benefit from private and public investments. These middle-

class, white-collar workers are now leading the information technology revolution in India, making the elite wealthier whilst ignoring the needs of the non-elite (Sharma, 2005).

As India wrestles with the challenges and opportunities that distance technologies offer for education, it presents an example of a developing country whose economic progress may be ignoring the diverse educational needs of 75 to 90 million children (Human Rights Watch, 1996, cited in Badiwala, 1998). This is the estimated number of children from poor families who work in agricultural and industrial employment and contribute up to 37 percent of the total household income (Badiwala, 1998). India's child labourers are typically exploited and paid much less than adults. Badiwala concludes that a combination of poverty, caste system, parental attitudes, lack of schools, expense of schooling, and government neglect continues to fuel this oppressive situation.

The Indian Constitution (Article 24) identifies the need to protect children from forced labour, but it was not until 1994 that the government called for elimination of child labour altogether. Yet there is no evidence that this proposal is being enforced. Only recently has the Indian government sought to make free and compulsory education a fundamental right for all children between 6 and 14 years of age (UNESCO, 2004). Badiwala (1998) discusses the successes of Sri Lanka and the Indian state of Kerela, which have enforced compulsory education, and by spending more on mass primary and secondary education than on higher education. This enforced compulsory education, combined with the changing attitudes and aspirations of the people, has reduced child labour in Sri Lanka and Kerala, but the remainder of the Indian subcontinent lags behind in basic education.

The reality of rural China also challenges the rhetoric of open access and social equality of the Chinese education system (Wei, 1999 & MOE, 2002, cited in Zhang, 2005). Despite China's television and radio distance learning being focused on providing nine-year compulsory education to rural populations, many rural poor children continue to fall short of the national goal (Hannum, 1999). The government and the World Bank have provided investment and fee waivers for basic education in poor provinces (Li & Piazza, 2002). The Chinese government has identified means to link institutions between the developed (eastern) and less developed (western) regions of China for one-to-one developmental support (Ma, 2004; Zhang, 2005). Zhang questions the long-term effectiveness of these policy-driven support initiatives to meet the needs of the 800 million rural Chinese (Li & Piazza, 2002) in a market-driven economy.

Ma (2004), in her travels to China, found that despite these initiatives, rural schools have great difficulty attracting qualified teachers. The chances of urban school aged children going into higher education are three or four times greater than rural children (Ma, 2004). This is compounded by the trend towards reducing government spending on higher education and increasing private sector funding (Wu, Li & Wong, 2005), the latter of which tends to favour developed, urban centres over poor, rural regions (Zhang, 2005). This unequal distribution of wealth and educational opportunities has meant that while the rural populations are the long-term engine behind economic development (Ma, 2004), they hardly benefit from economic progress. In a journalistic review, Wingfield-Hayes (2006) shows that rural people are treated like second-class citizens who have lower hygiene standards and educational abilities. As Chinese cities expand, rural populations who will work for a minimal wage or no wage at all are migrating to urban centres (Qiang, 2005). The urban expansion, according to Wingfield-Hayes, is also resulting in surrounding villages being bought by developers without the knowledge of, or payment to, the impoverished villagers who own the sections of communally leased land.

There are some poorer social groups in urban areas that have benefited from vocational and occupational learning opportunities (Zhang, 2005); however, there remain limited policy

proposals and funds planned to engage rural groups in higher academic learning. The Chinese Ministry of Education clearly distinguishes between types and forms of educational investments made available to urban and rural populaces. Wei (1999, cited in Zhang), the vice minister of the Ministry of Education, concludes that access to education in rural regions, particularly in western China, will continue to be a "one-way broadcasting" medium, but one that "costs much less," with the "average ownership of TV sets [being] ninety-two percent in 1997" (Zhang, 2005, p. 24). Such attitudes influence continuing investments in education and technology in cities and areas that already have access to IT, and not in rural regions that lack infrastructure.

Similar cyclical dilemmas of investment in educational opportunities are evident in Pakistan, which like many developing countries lacks highly educated faculty, has higher education institutions concentrated in urban areas, and remains influenced by social, cultural, and political factors that do not allow people, particularly women, to leave their homes to study in cities (Toor, 2005). For countries like Pakistan, Afghanistan, Iraq, Palestine, and countries in sub-Saharan Africa, political instability makes it even more difficult to have policies that address the education gaps between the rich and poor. While there is an assumption that lack of education and poverty can increase recruitment by militias and terrorist organisations, the available evidence by experts suggests no connection between poverty, education, and participation in terrorism (Krueger & Malecková, 2003).

Computers in Education and the Digital Divide

What can new information and communication technologies (ICTs) do to raise the status and actual and perceived quality of distance education status in developing countries? And what can they do to influence the status of those who engage in distance learning? Can ICTs benefit those who are resource poor and have limited or no access to paper-based modes of distance education delivery? The 1990s saw an increase in developing countries' policies to introduce computers in schools, with the aim of enabling students to gain basic computer skills. The following section questions who is benefiting from this introduction of computers and how.

The 1998 Working Conference on *Capacity Building for IT in Education in Developing Countries* demonstrated the importance that developing countries' governments place on computer education (Marshall & Ruohonen, 1998). The conference representatives identified the need to provide computers to enable students to first develop computer skills, and second to use computers to learn at a distance.

As an example, Botswanan policies identify computer education as necessary for the people of Botswana to compete in a modern, IT-driven, global economy (Ojo & Awuah, 1998). Their goal is not to create computer experts, but to give citizens basic computer skills and to enable them to use computers for learning. Despite the government's efforts to supply computers to primary and secondary schools, there are significant challenges, including a shortage of teachers who know how to use computers and teach IT skills. The rural-urban infrastructure disparities indicate that while urban areas can boast about electricity and telecommunications, rural areas remain unconnected and hence disadvantaged. There is a high dependency on expatriate teachers and learning materials developed in the West to support teaching in subjects such as science and technology. Limited internal human resource capacity means learning is not specific to the local populations and their learning needs. The critical challenge in Botswana is the need to balance investment in computer education against more pressing needs of basic living resources, particularly in rural and deprived areas (Ojo & Awuah, 1998).

Likewise, efforts of the Namibian government to offer computer education in schools since 1995 have resulted in only the most privileged private schools connected, with 0.5 percent to 2.6 percent of students enrolled in computer courses at any one level (Kiangi, 1998). While the number of Internet cafés in urban areas is growing in Namibia, the telecommunications infrastructure and human resources to provide computer education in rural areas remains underdeveloped to meet the educational demands of the poor majority. Kiangi also points out that these challenges mean, "Namibia is mainly a consumer rather than developer of IT" (p. 46).

Similar findings were confirmed in a survey of IT used in education in the Philippines. Philippine educators have used combinations of radio, print, audio, and video recordings for distance education of learners scattered around the Filipino islands since 1952 (dela Peña-Bandalaria, 2007). Yet the country faces typical infrastructural and digital divide challenges between rural-urban populations when it comes to using computers and associated technologies for learning. The proliferation of mobile phones in developing countries like the Philippines may enhance the development of mobile learning (m-learning), to educate the masses. The University of the Philippines' Open University launched an m-learning program in 2004 that offered print and mobile materials for simple and universally relevant health, literacy, and numeracy education. Such mobile learning programs may have potential for growth, but the limited capacity of mobile devices, the cost of synchronous interactions, and the rural-urban divide may hinder further developments (dela Peña-Bandalaria, 2007).

Other developing countries that have large populations and a rural-urban divide also have less than 1 percent of their populations accessing the Internet (Mutonyi & Norton, 2007). China, for example, has 70,000 schools with computers and more than 10 million students who have mastered basic computer skills, but most of these schools are in cities, not in poorer, rural areas (Zhang, 2005). Despite the availability of technologies in urban regions, rural and poor people continue to be deprived of investment, infrastructure, and skilled teachers. Thus far, the introduction of computers into education in developing countries seems to have done little to widen educational access to the rural poor, who also do not have easy access to conventional schools and colleges. A small percentage of individuals are gaining access to computers in developing countries; however, this minority is not yet ready to contribute independently to the world's digital content. They remain the consumers rather than producers of this content.

Is E-learning Working?

A review of 150 distance education programs in sub-Saharan Africa has concluded that traditional, paper-based means of distance learning continues to be more reliable, sustainable, and widely used than online and Web-based methods of learning (Leary & Berge, 2006). Does this imply that developing countries with limited infrastructures should not use online learning methods? There have been reported advances in e-learning in developing countries, and there are several determinants that may influence e-learning success in these countries, as exemplified in the case studies below.

First, Internet access at home is an obvious determinant of who has access to online learning and who benefits from these e-learning initiatives. According to UNESCO (1999, as cited in Mackintosh, 2005) 42 percent of the inhabitants of developed countries have telephone connections in contrast with 4.5 percent in developing countries, and only a mere 1.4 percent in sub-Saharan Africa. In addition, most single telephone connections in rural areas in developing countries are typically shared among communities, rather than owned by individual households (Mackintosh, 2005). The cost of Internet connections remains high for those who cannot afford

such basic educational necessities. For instance, in Turkey, a middle-income country, the cost of an Internet connection (available only in cities) is US $50 per month, a substantial proportion of the average monthly income of between US $300 and $500 (Gursoy, 2005). This basic lack of infrastructure in telecommunications continues to define the online learning experience of different groups of learners in developing countries.

A survey of 387 students in their final undergraduate year at the Virtual University of Pakistan (established in 2002) concluded that the majority of students (over 90%) found learning over the Internet and via satellite TV beneficial (Hussain, 2007). As of 2004, however, Pakistan had only five internet cafés for every 10,000 people, and most students rely on these locations for access (Syed, 2004). The result is that Pakistani students in this study reported difficulties in accessing computers, libraries, friendly learning environments, and efficient mentors. The majority also reported on electricity failures, computer vision syndrome, finger joint pain, backaches, headaches, and dizziness due to occasional long periods of computer use to compensate for limited access (Hussain, 2007).

At Indonesia's Open University, the University of Terbuka, 320,000 students reported similar limitations in online infrastructure and access (Belawati & Zuhairi, 2007). Distance education systems and students continue to rely heavily on post, courier services, and telephones (Belawati & Zuhairi, 2007). The widespread use of print, audiocassettes, face-to-face tutorials, and intermittent, government-controlled radio and television broadcasts supports over 600,000 urban, sub-urban, and rural learners attached to the Bangladesh Open University (Islam, Rahman & Rahman, 2006). These traditional methods may be more reliable, but they are often one-way and lack teacher-student and student-student interactivity.

Second, the underlying intentions and goals of investment and educational developments determine whether deprived and poorer groups are able to participate in the information society. The Prime Minister of India, Atal Behari Vajpayee (1998, cited in Sharma, 2005) recognised the potential of information technology to enable the Indian citizen to "overcome historical disabilities and once again become the master of [his or her] own destiny" and to "enable India to achieve the goal of becoming a strong, prosperous and self-confident nation" (Sharma 2005, p. 56). The recent announcement by the Indian government that it will invest in providing free broadband to all residents by 2009 is ambitious and a step in the right direction ("Broadband Initiatives," 2007). India's technology and distance learning institutions, including the Indira Ghandi National Open University (IGNOU), the Indian Institute of Technology, the Birla Institute of Technology, and the School of Education Technology at Jadavpur University, have led the way in online degree courses and modules (Sharma, 2005). A government supported project called Vidyakash aimed to develop support and training for teachers and provide an infrastructure for Indian institutions to use Internet technologies for education. As a consequence, India now has 4 million technology workers, 700,000 software professionals, and 1,700 technical institutes (Sharma, 2005). These initiatives, however, have arguably been supported by courses demanding high fees and therefore remain the privilege of the elite, educated, and wealthy. Moreover, they fail to consider the need to provide basic literacy and computer skills and access to computers to poorer groups before they can begin to engage in higher online learning.

Third, there are issues surrounding the practice of buying offshore courses with the aim of meeting the learning needs of diverse population groups. The World Bank-supported African Virtual University Project is being launched in African universities to provide online access to undergraduate and remedial academic courses, including calculus, differential equations, physics, chemistry, statistics, computers, and engineering. Academics, administrators, and technologists in Western countries including Australia, United States, Canada, and Belgium have led the task

force, seminars, and courses. For example, for mounting on the system, "Universities in Belgium and Canada are developing French-language seminars in business management, environment, teacher training, and computer and Internet literacy. Recently, a curriculum task force was formed to structure a four-year undergraduate degree program in computer science, computer engineering, and electrical engineering" (World Bank, 1998, ¶ 2). Mackintosh (2005) argues that for sub-Saharan African countries, the offshore courses provided by Western countries may result in university education becoming even more elitist. Zhang (2005) also critiques the courses available from U.S. universities in China, and argues that these courses are not culturally grounded, have language barriers, and exhibit limited awareness of students' backgrounds and experiences in the field of study.

Fourth, the types of courses and learning methods influence who has a greater opportunity to contribute to global, digital content and developments. For example, in India and China, computer-supported courses and computer skills courses available for the less privileged are focused on developing vocational skills to perform an identified task. These tasks are typically repetitive and often require working for long hours for a sub-contract firm, which, in turn, is contracted by larger software companies or service providers. This is in contrast with the computer education programs developed by collaboration between the government and foreign investors to train software engineers (Sharma, 2005). Entry into the latter programs is extremely competitive and targeted at upper middle-class professionals, who gain the opportunity to contribute to the digital content. In the information society, this division between which computer courses are available to whom further contributes to the digital divide and widens inequalities between 'haves' and 'have nots.'

The above discussion of e-learning determinants suggest that e-learning does have the potential to meet the educational needs of masses of poor people in developing countries; however, this potential has yet to be recognised. The present IT provisions in developing countries is limited to the elite. Existing infrastructures allow only a few to develop communication and interaction skills and to become part of the new social networking paradigm. Education for the masses continues to be didactic and devoid of interaction and critique. And while e-learning may offer the opportunity to shift the distance learning paradigm from delivery of content towards learner-centred and discussion-led learning, continuing reliance on print material and broadcast technologies dominates in developing countries (Islam, Rahman & Rahman, 2006). The IT access gap is contributing to the widening digital divide between haves and haves not in developing countries.

Developing countries, wherein only a small proportion of the population has Internet access, need to realise the disparities between rural and urban communities, male and female students, and elite and non-elite groups. They need to consider how to adapt global software and hardware to benefit all of their citizens. Distance learning quality frameworks need to take into account the actual needs of their target populations, not just the learning content (Belawati & Zuhairi, 2007). Belawati (2005) identifies this as the critical challenge for developing countries – to educate students and teachers to use computers and develop accessible infrastructures so that they may benefit from the interactivity offered by online learning.

Conclusion

This paper provides an insight into the challenges faced by policy makers, educational institutions, course developers, and learners dealing with issues of access to education in developing countries. The analysis of open and distance learning developments in developing

countries concludes that although these developments aim for equitable and extended educational opportunities that extend to disadvantaged and poor populations, the lack of educational and technology infrastructures, lack of trained teachers, negative attitudes towards distance learning, social and cultural restrictions imposed on girls and women, and inappropriate policy and funding decisions, have all resulted in furthering the gap between the rich and poor, rural and urban, and between genders.

The paper has identified significant challenges developing countries face when attempting to make learning more accessible by using Internet technologies for poorer populations. The literature shows that while distance learning and e-learning are advocated as easily accessible, for the rural poor in the developing world, books, teachers, classrooms, money, and time, continue to be significant issues. The availability of new technologies may have opened up developing economies to the world market, but they have done little to help deprived groups gain access to educational opportunities. There remain high percentages of people from lower social classes, females, and rural areas, who continue to be marginalized due to their lack of access to adequate learning resources and basic education.

This paper concludes that in many cases where there is limited IT infrastructure, traditional technologies such as printed material, radio, and television remain more effective and accessible for rural and disadvantaged groups. This conclusion, however, does not attempt to suggest that developing countries should stop developing IT infrastructures in rural and deprived areas. The implication is quite the opposite. Existing attempts to improve IT access in developing countries have promoted opportunities for some and not for others. The discussion has shown that in different developing countries it is the rich, upper middle classes and the urban elite who benefit from new infrastructures and investment. The paper recommends the need for holistic policies that acknowledge these challenges and focus on basic and primary educational infrastructure to support low-cost, higher quality access in rural and deprived areas. This is important not only for equal access to learning, but also so that different groups may have the opportunity to contribute to the development of global knowledge.

References

Badiwala, M. (1998). Child Labour in India: Causes, governmental policies and the role of education. *The Child Labour Inquiry, 1*. Retrieved June 7, 2007 from: http://www.geocities.com/CollegePark/Library/9175/inquiry1.htm

Belawati, T. (2005). The impact of online tutorials on course completion rates and student achievement. *Learning, Media and Technology*, *30*(1), 15-25.

Belawati, T., & Zuhairi, A. (2007). The Practice of a Quality Assurance System in Open and Distance Learning: A case study at Universitas Terbuka Indonesia (The Indonesia Open University). *International Review of Research in Open and Distance Learning, 8*(1). Retrieved June 1, 2007 from: http://www.irrodl.org/index.php/irrodl/article/view/340/774

Bof, A. M. (2004). Distance learning for teaching training in Brazil. *International Review of Research in Open and Distance Learning*, *5*(1). Retrieved June 1, 2007 from: http://www.irrodl.org/index.php/irrodl/article/view/172/387

Broadband Initiatives: Speed it up. *The Economic Times.* (2007, April 27). Retrieved June 1, 2007 from:

http://economictimes.indiatimes.com/Opinion/Editorial/Broadband_initiatives_Speed_it_up/articleshow/1962328.cms

Burge, E. J., & Haughey, M. (Eds.). (2001). *Using Learning Technologies: International perspectives on practice.* London: RoutledgeFalmer.

Calderoni, J. (2005). Telesecundaria: Using TV to bring education to rural Mexico. *Education and Technology Technical Notes Series, 3*(2). Retrieved June 1, 2007 from: http://wbln0018.worldbank.org/HDNet/HDdocs.nsf/C11FBFF6C1B77F9985256686006DC949/1635F1703FE053B385256754006D8C3F/$FILE/telesecundaria.pdf

Carr-Chellman, A. A. (Ed.). (2005). *Global Perspectives on E-learning: Rhetoric and reality.* London: Sage Publications.

CERNET. (2007). *CERNET: China's education and research network.* Retrieved June 1, 2007 from: http://www.edu.cn/english_1369/index.shtml

China Education and Research Network (2001). *China Central Radio and TV University (III) Talent Training*. Retrieved February 12, 2008 from: http://www.edu.cn/ccrtv_1459/20060323/t20060323_3925.shtml

dela Peña-Bandalaria, M. (2007). Impact of ICTs on open and distance learning in a developing country setting: the Philippine experience. *International Review of Research in Open and Distance Learning, 8*(1). Retrieved June 1, 2007 from: http://www.irrodl.org/index.php/irrodl/article/view/334/792

Gursoy, H. (2005). A critical look at distance education in Turkey. In A. A. Carr-Chellman (Ed.), *Global Perspectives on E-learning: Rhetoric and reality* (pp. 115-126). London: Sage Publications.

Hannum, E. (1999). Political change and the urban-rural gap in education in China, 1949–1990. *Comparative Education Review, 43*(2), 193-211.

Hussain, I. (2007). A study of student's attitude towards virtual education in Pakistan. *Turkish Journal of Distance Learning, 8*(2). Retrieved June 1, 2007 from: http://tojde.anadolu.edu.tr/

Islam, M. T, Rahman, M. M., & Rahman, K. M. R. (2006). Quality and processes of Bangladesh Open University course material development. *Turkish Journal of Distance Learning, 7*(2). Retrieved June 1, 2007 from: http://tojde.anadolu.edu.tr/

Kamau, J. W. (2001). Developing Course Materials: A context of technology constraints. In E. J. Burge & M. Haughey (Eds.) *Using Learning Technologies: International perspectives on practice* (pp. 48-60). London: RoutledgeFalmer.

Kiangi, G. (1998). Computer education and human capacity for information technology in Namibia. In G. Marshall & M. Ruohonen (Eds.), *Capacity building for IT in education in developing countries* (pp. 39-48). London: Chapman & Hall.

Klees, S. McAnany, E., & Mayo, J. (1975). The Mexican Telesecundaria: A cost-effective analysis. *Instructional Science, 4*(3/4), 193-236.

Klees, S., & Mayo, J. (1974). Extending the School with Television: The case of Mexico's Telesecundaria. Paper presented at the *American Educational Research Association Meeting*, April 7, Chicago, Illinois.

Krueger, A. B., & Malecková, J. (2003). Education, Poverty and Terrorism: Is there a causal connection? *Journal of Economic Perspectives*, *17*(4), 119-144. Retrieved August 4, 2007 from: http://www.krueger.princeton.edu/terrorism2.pdf

Leary, J., & Berge, Z. L. (2006). Trends and challenges of e-learning in national and international agricultural development. *International Journal of Education and Development using ICT, 2*(2). Retrieved June 16, 2007 from: http://ijedict.dec.uwi.edu/viewarticle.php?id=179&layout=html

Lewins, K. M. (1991). Change makers and change models. In K. M. Lewins & J. S. Stuart (Eds.), *Educational Innovation in Developing Countries* (pp. 7-20). London: Macmillian.

Lewins, K. M., & Stuart, J. S. (Eds.) (1991). *Educational Innovation in Developing Countries; Case studies of change makers.* London: Macmillian.

Li, G., & Piazza, A. (2002). *The Interaction of Health, Education and Employment in Western China: A research proposal*. Retrieved August 4, 2007 from: http://china.pop.upenn.edu/gscf/documents/WBnobudget.PDF

Ma, W. J. (2004). *Education in Urban and Rural China: Project summary.* An Avery Foundation funded travel project: Research travel-blog. Retrieved August 4, 2007 from: http://www.klab.caltech.edu/~ma/chinareport.html

Mackintosh, W. (2005). Can you lead from behind? Critical reflections on the rhetoric of e-learning, open distance learning, and ICT for development in sub-Saharan Africa (SSA). In A. A. Carr-Chellman (Ed.), *Global Perspectives on E-learning: Rhetoric and reality* (pp. 222-240). London: Sage Publications.

Malik, N. A., Belawati, T., & Baggaley, J. (2005). *Framework of collaborative research and development on distance learning technology for Asia.* Paper presented at the 19th Annual Conference, Association of Asian Open Universities, Jakarta, Indonesia. Retrieved June 9, 2007 from: http://www.pandora-asia.org/downloads/05-AAOU_MalBelBag.pdf

Marrett C., & Harvey, C. (2001). Getting the Systems Right. In E. J. Burge & M. Haughey (Eds.). *Using Learning Technologies: International perspectives on practice*. London: RoutledgeFalmer.

Marshall, G., & Ruohonen, M. (Eds.) (1998). *Capacity building for IT in education in developing countries*. London: Chapman & Hall.

Moore, M. (2001). Brazil's Proformação. *20th World Conference on Open Learning and Distance Education*, April 1-5, Düsseldorf, Germany.

Mutonyi, H., & Norton, B. (2007). ICT on the Margins: Lessons from Ugandan education. *Language and Education*, *21*(3), 264-270.

Naidu, C. G. (2005) Funding and Costs in Open and Distance Education: A Case Study of India. In A. Hope & P. Guiton (Eds.) *Strategies for Sustainable Open and Distance Learning*. Commonwealth of Learning & RoutledgeFalmer. Retrieved February 12, 2008 from: http://www.col.org/colweb/webdav/site/myjahiasite/shared/docs/Ch8_CS-Naidu.pdf

The New World Economy: The balance of power will shift to the east as China and India evolve. (2005, August 22). *Business Week*. Retrieved June 1, 2007, from: http://www.businessweek.com/magazine/content/05_34/b3948401.htm

Ojo, S. & Awuah, B. (1998). Building resource capacity for IT education and training in schools – The case of Botswana. In G. Marshall & M. Ruohonen (Eds.), *Capacity building for IT in education in developing countries* (pp.27-38). London: Chapman & Hall.

Perraton, H. D. (2000). *Open and distance learning in the developing world.* London: RoutledgeFalmer.

Psacharopoulos, G. (2006). World Bank Policy on Education: A personal account. *International Journal of Educational Development*, *26*(3), 329-338.

Qiang, L. (2005, September 4). Workers pay price for China's economy. *Seattle Post Intelligencer Online*. Retrieved August 3, 2007 from: http://seattlepi.nwsource.com/opinion/239170_huvisitop.html

Rufang, W. (1997). *Chinese Network of Radio and Television Universities and the British OU: A comparative perspective.* Hagen: Zentrales Institut für Fernstudienforschung (ZIFF).

Saheb, T. (2005). ICT, education and digital divide in developing countries. *Global Media Journal*, *4*(7). Retrieved April 17, 2007 from: http://lass.calumet.purdue.edu/cca/gmj/fa05/gmj-fa05-saheb.htm.

Sharma, P. (2005). The distance in education and online technologies in India. In A. A. Carr-Chellman (Ed.), *Global Perspectives on E-learning: Rhetoric and reality* (pp. 52-66). London: Sage Publications.

Sujatha, K. (2002). Distance Education at Secondary Level in India: The national open school. A report for the *UNESCO International Institute for Educational Planning*. Retrieved May 30, 2007 from: http://unesdoc.unesco.org/images/0012/001262/126210e.pdf

Sutaria, M. C. (1990). Teaching for Maximum Learning: The Philippine experience. *International Review of Education*, *36*(2), 243-250. Retrieved August 9, 2007 from: http://www.jstor.org/view/00208566/sp060144/06x2602b/0

Syed, S.A. (2004). National ICT strategy for education sector, Pakistan. Paper presented at the *2004 UNESCO EduTec Toolkit Workshop*, Bangkok, Thailand. Retrieved August 6, 2007 from: http://www2.unescobkk.org/education/ict/resources/JFIT/policy/Pakistan.ppt

Toor, S. (2005). Hybrid model for e-learning at virtual university of Pakistan. *Electronic Journal of e-Learning 3*(1), 67-76. Retrieved August 3, 2007 from: http://www.ejel.org/volume-3/v3-i1/v3-i1-art7-toor.pdf

United Nations Development Program. (2000). *Overcoming Human Poverty: UNDP poverty report 2000.* Retrieved June 9, 2007 from: http://www.undp.org/povertyreport/chapters/chapterindex.html

UNESCO (1993). *World education report.* Paris.

UNESCO (2004). *United Nations Educational, Scientific, and Cultural Organization (UNESCO) Education Digest: Comparing education statistics across the world.* Retrieved August 3, 2007 from: http://www.ivcs.org.uk/ijrs/April2006/UNESCO%20GLOBAL%20EDUCATION%20DIGEST%202004.pdf

Usman, L. (2001). No One Will Listen to Us: Rural Fulbe women learning by radio in Nigeria. In E. J. Burge & M. Haughey (Eds.), *Using Learning Technologies: International perspectives on practice* (pp. 92-101). London: RoutledgeFalmer.

Wingfield-Hayes, R. (2006, March 7). Chinese rural millions left behind. *BBC News*. Retrieved August 3, 2007 from: http://news.bbc.co.uk/1/hi/world/asia-pacific/4782194.stm

World Bank Group. (1998). Knowledge for Africa: the African virtual university. *World Development Report 1998/1999 Background Papers*. Retrieved August 5, 2007 from: http://www.worldbank.org/wdr/wdr98/africa/bpafr9.htm

Wu, X., Li, R., & Wong, K. L. (2005). Chinese Higher Educational Trends Analysis Study: The case of ten universities. Paper presented at the *Comparative and International Education Societies' 2005 Annual Conference* at the University of British Columbia, Vancouver, BC. Retrieved August 4, 2007 from: http://www.edst.educ.ubc.ca/CIES/Abstracts.htm

Zhang, K. (2005). China's online education: rhetoric and realities. In A.A. Carr-Chellman (Ed.), *Global Perspectives on E-learning: rhetoric and reality* (pp. 21-32). London: Sage Publications.

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Using distance education and ICT to improve access, equity and the quality in rural teachers' professional development in western China

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Abstract

The goal of 'teacher quality for all' is proving difficult to achieve in many countries, especially in rural areas, yet teacher quality is a key determinant of students' participation rates and achievement levels. It also affects the attainment of social justice in terms of equity in educational quality for students. One contributor to teacher quality is professional development though limits on its availability and quality create inequity for many teachers. This paper describes how distance education and ICT improved access, equity, and quality in professional development for rural teachers in one province in western China, viewed through the lens of a 'rights-based' framework.

Keywords: Rural teachers; Information and Communication Technologies (ICT); continuing professional development; teachers' rights; EU-China Gansu Basic Education Project

Introduction

Many countries are progressing towards the goals of Education for All, but struggle to achieve 'teacher quality for all', especially in rural or remote areas in developing countries. Yet teacher quality is one of the key factors determining the participation rates of children in schooling and the quality of their education (Verspoor, 2004; OECD, 2005; Hanushek, 2005). Though indicators of teacher quality are contentious and the methodological problems in comparing their significance considerable (Vignoles, Levacic, Machin, Reynolds & Walker, 2000) there is broad consensus that it is the single most important school variable influencing student achievement (Darling-Hammond, 2000; Rivkin, Hanushek, & Kain, 2005; UNESCO, 2006). It is also an important element in promoting social justice in terms of educational quality in rural and remote areas, where teachers tend to be less qualified than their urban peers and less well resourced and supported. In recognition of its importance, support for teachers' continuing education is receiving more attention in the discourse of international and national agencies, for example:

> [I]n our fast-changing world, teachers must be engaged in life-long learning to be able to meet new challenges. It is a grave political contradiction that so much emphasis is being given to the importance of education while so little is being

> done to give teachers status, support and reward. . . The professional status of teachers should be recognised as one of the most important in society. . . It is the responsibility of policy-makers and school management to support and empower the teachers in this important role, and to work toward raising their professional status. (Thomas Hammarberg, Commissioner for Human Rights, Council of Europe, on World Teachers' Day, 5th October 2006)

Few would disagree with Hammarberg that teachers should be supported and empowered in their professional role though the means of achieving this generates diverse views. Providing an enabling environment (i.e., policy, resources, and support) where teachers have access to relevant professional learning opportunities presents governments and planners with huge challenges. 'Learning opportunity' here refers, not just to a training event, but to "an experience with an anticipated or inferred learning outcome. Such an experience may be carefully planned and purposefully structured, or it may occur naturally and informally" (Schwille, Dembélé, & Schubert 2007, p. 29). In her review of international literature on teachers' professional development, Villegas-Reimers (2003) concludes that a career long approach to it "requires the transformation of processes and policies that support teachers, their education, their work and their growth in the profession" (p. 141). In other words, it requires system-wide policies and arrangements that are fair, inclusive (open to all teachers), good quality, and affordable.

Distance education has the potential to support such policy goals, as has been demonstrated in both developing and industrialised countries (Robinson & Latchem, 2003; Perraton, Robinson & Creed, 2007). Without it, some of the improvements so far achieved in teacher quality would not have been possible, especially in developing countries. The growth of Information and Communication Technologies (ICT) has added new options for teachers' professional development (Collis & Jung, 2003; Unwin 2005; Leach, Ahmed, Makalima, & Power, 2006) as well as raised concerns about the inclusion of disadvantaged groups. But how can the use of distance education and ICT support goals of social justice in teacher education in rural and resource-poor areas? What kind of criteria should we use in judging their achievement?

This paper examines these questions in the context of the European Union (EU)-China Gansu Basic Education Project. It begins with a brief description of the project, then examines the broader issue of teachers' rights to professional development (i.e., the policy context in which any teacher education sits) and then assesses the project's outcomes using a rights-based framework (Tomarševski, 2004) drawing on research and evaluation data from the project.

The EU-China Gansu Basic Education Project (EU-CHINA GBEP)

The goal of the EU-China Gansu Basic Education Project (GBEP) was to improve quality in basic education as a means of alleviating rural poverty in the poorest 41 of Gansu Province's 86 counties.[i] The project was jointly funded by the European Union (€ 15 million) and the Chinese Government (€ two million) and implemented by Gansu Provincial Government from October 2001 until March 2007. Gansu is one of China's poorest provinces, located in the northwest. While coastal and eastern parts of China have experienced huge economic growth over the last decade, western provinces have lagged behind, leaving wide economic and social gaps between them. The rural-urban divide has widened too. To counteract this, the Chinese government has provided special funding and projects for western and rural China, using distance education and ICT as strategies for achieving development goals.

Gansu Province has a population of 26.4 million, about 75 per cent of it rural. In the north, the province borders on the Gobi Desert and in the south, the wooded mountains of Sichuan; much of the province is dry and dusty with soil erosion. The majority of the population is Han Chinese, but there are altogether 44 ethnic minority groups, the largest being Tibetan, Hui, Dongxiang, and Mongolian. The average rural income in Gansu was around US $180 in 2005. School enrolment rates have greatly improved over the last decade, and in 2006 were 98.3 per cent for primary education and 88.3 per cent for junior secondary. Most teachers are qualified according to old or new national standards (i.e., 96% of primary and 88% of junior secondary) though teaching quality varies.

The main emphasis in the project was human resource development for teachers, head-teachers, and administrators, focusing on the new national curriculum, new teaching methods, the use of ICT, and educational management. It also provided 103,550 scholarships for poor children (i.e., 59% girls and 29% from ethnic minorities) to enable them to attend school. The largest project component, and the focus of this paper, was the establishment of a system of ICT-supported Teachers' Learning Resource Centres (TLRCs) for the professional development of over 100,000 rural teachers and head-teachers.

Teachers' Learning Resource Centres (TLRCs)

In order to be as close as possible to teachers and their needs, a school-based training system was created for the 41 counties, setting up 686 TLRCs at central schools in townships. Each school provided a room suitable for housing equipment and resources and for acting as a venue for teachers' activities. A set of equipment was provided for each TLRC: two computers, a modem, laser printer, CD-player and writer, data storage items (hard disk and CD-Rom), television, satellite dish and receiving software, digital camera, and some consumables. Learning resources were provided too (a set of 231 audio and video CDs, books, and guides) together with furniture. Five modules (print-plus-video) for teachers and three for head-teachers were produced locally in Gansu with technical assistance. These were on cross-curricular themes such as participatory learning, managing classrooms, guiding and assessing children's learning and, for head-teachers, supporting teachers' learning and school management. The modules were used as a core resource for training activities throughout the project, providing a coherent approach. Each TLRC served the school it was based in as well as the cluster of schools in its district (usually between 7 and 25 schools, with around 100-200 teachers altogether).

The configuration of equipment was designed to support a range of functions relevant to teachers' learning needs: getting and storing current information on the new curriculum and teaching methods, observing and discussing lessons taught by other teachers (both in actuality within their own school and via technology, either on CD-Rom or in real-time via satellite television), learning to use computers, finding and creating educational resources to use in teaching, preparing lesson plans with colleagues, interacting with other teachers and trainers either online or in meetings and workshops. In 2004, their first year of operation, just over half the 86 pilot TLRCs were connected to Internet (mostly through low bandwidth dial-up connections) but connectivity rapidly grew in availability and affordability as the telecommunications infrastructure strengthened. By 2006, over half of all 686 TLRCs had broadband connections and 85.0 per cent could connect to Internet one way or another. China's national infrastructure, integrating satellite television with computer networks (i.e., 'skynet' and 'groundnet') afforded a number of media and technology choices to suit the local contexts and particular educational goals. This enabled the EU-China GBEP to select and combine those appropriate for rural

teachers' professional learning, for use in various ways (e.g., structured or informal learning, group or individual, face-to-face or via technology, with local or distant trainers).

The TLRCs were supported and managed through a three-level administrative structure: provincial, county, district-township. Overall planning, coordination, and monitoring was carried out by the Project Office and Provincial Education Department of Gansu. At county level, the Education Bureau officers were responsible for mobilizing, supporting and monitoring TLRCs. At the TLRC host school, the head-teacher acted as the TLRC director and there were teachers with special support roles. There was a technical support teacher who was trained to maintain the equipment, solve technical problems, assist teachers to use the equipment and manage the educational resources, and one or more learning support teachers (i.e., key teachers) who provided pedagogic leadership and assistance – one of these also received technical support training. Each TLRC had a management committee consisting of the district education director, TLRC director, head-teachers from the cluster schools, and TLRC support teachers. Training in TLRC roles was provided for personnel involved at all levels of the system and policy and guidelines were developed and communicated.

As mentioned earlier, human resource development was given a high priority in the EU-China GBEP, concentrating on the 'soft technology' of people's skills, knowledge, and understanding rather than on the 'hard technology' of equipment. This was reflected in the allocation of funds and much of the project's success was due to this emphasis. The project spent 24.0 percent of its budget on equipment and 66.0 percent on training of different kinds (i.e., on the new curriculum and teaching methods, training of trainers, materials development, management of TLRCs, the use of ICT and its integration into teaching and learning).

An evaluated pilot (2003-2004)

In the pilot phase, 86 TLRCs were set up in six counties, two of them in Tibetan (Buddhist) and Dongxiang (Muslim) ethnic minority areas. Of these, 80 TLRCs were located at rural township level and six at county level, usually in the county in-service teacher training institute. The county-level TLRC had a dual role: first to act as a teachers' centre for their own institute, and second to provide pedagogical leadership and support to township TLRCs, in a similar way that a township level TLRC served the schools in its cluster.

The pilot provided a test-bed for the overall model, the equipment and the TLRCs' organization, management, and training activities. During the pilot phase, the EU-China GEBP developed tools and procedures, researched teacher training needs, negotiated with partner institutions, revised training models, created regulations and guidelines, produced and trialed support materials, defined and refined core roles, trained key personnel, constructed monitoring and record-keeping systems, initiated work on a management information system, and conducted evaluations. At the end of the first year, a forum was held for exchange of good TLRC practice and prizes awarded for the best (which was in-line with local culture).

Moving to scale (2004-2005)

In 2004 the move to scale began, setting-up a further 600 TLRCs in the remaining 35 project counties over a large geographical area (larger than some European countries). The model and resources developed during the pilot were used together with the newly skilled human resources emerging from it (i.e., selected support teachers who had proved to be effective trainers, and

excellent head-teachers and county education officers). The specifications for TLRC equipment were revised and an electronic whiteboard for county-level TLRCs added. The scale of training was large (each category in hundreds or thousands), requiring many more trainers and workshops, and the development of more robust management and monitoring mechanisms at county and provincial level. A partner institution, *Northwest Normal University*, played a key role in providing training on a large scale. There was exchange of experience and visits between the six pilot counties and the newly-active 35 counties. At the end of 2005, a competition was again organised for the best TLRCs, where the finalists presented their TLRCs' work and the best were rewarded. By the end of this phase, over 100,000 teachers and head-teachers had participated in TLRC, county or provincial level training activities.

Consolidation and extension (2006-2007)

The European Union input finished at the end of 2005 (apart from funding evaluations of the project) but the project continued with Chinese funding until March 2007. The TLRCs consolidated and extended their activities to include community groups (i.e., yak-herders, parents, farmers, women's associations, and Communist Party trainees). Peer-to-peer coaching on the use of ICT continued strongly and teacher demand for further training grew, especially on the integration of ICT into teaching. In 2006, the TLRC approach was incorporated into provincial government policy and became the main platform for providing professional development for rural teachers. Following this, the provincial education department issued a directive to counties requiring TLRC schools to allocate at least 7.4 per cent of their (increased) annual budgets to TLRC activities. By the end of the EU-China GBEP, 105,000 teachers and head-teachers in the 41 project counties had benefited directly from the project, and 2.6 million students (primary and junior secondary) indirectly benefited as they experienced improved teaching. The project's approach, methods, and materials were then extended to some of Gansu's wealthier non-project counties, which set up their own TLRCs in 2006. The provincial government provided the five teacher training modules to 27,000 more teachers in the 46 non-project counties and 1,000 key teachers and head-teachers from them participated in workshops. Teachers trained as TLRC support staff in the 41 project counties then acted as trainers for the other 46 counties and for the national government's Modern Distance Education Project for Rural Schools.

The EU-China GBEP was rated by external and internal evaluators as very successful in achieving project goals in terms of efficiency, effectiveness, and impact. But how did it fare in terms of promoting social justice? How far was distance education and ICT able to support teachers' rights to professional learning? What rights do teachers have anyway? This last thorny but unavoidable question is the starting point for the next section.

Rights, Requirements and Responsibilities

While distance education and ICT can facilitate teachers' continuing education, their use cannot be divorced from the complex issues surrounding teachers' rights to it. A case can be made for teachers' rights to continuing professional education on two grounds: as an essential requirement for ensuring teacher quality for all (as part of children's rights to basic education) and as a teacher's own right to education. The case, however, is not straightforward. Though the right to education (for adults as well as children) is included in international declarations, its status is disputed because of the complex nature of the right, which is simultaneously a political, civil, economic, social and cultural one, straddling individual and collective rights. Because of its uncertain status, Tomarševski (2004), former United Nations Special Rapporteur on the Right to Education, describes education as a 'not-quite right'. Beiter (2006), in his detailed analysis of the

right to education and its protection by international law, argues that Article 13 of the International Covenant on Economic, Social and Cultural Rights (ICESCR)[ii] places legally binding obligations on governments to ensure that education is available, but acknowledges that this is often not reflected in national law, even for basic education.

The topic of teachers' rights receives scant attention in international declarations. A scan of websites brings up little that refers to teachers' continuing professional development. Most of the rights named refer to freedom of speech, the right to strike, terms and conditions of service or grounds for dismissal. The notion that the right to education includes teachers as well as children and that 'technical and professional education shall be made generally available' to them (Universal Declaration of Human Rights, Article 26:1) is not strongly evident in educational provision or policy. As Tomaševski (2004) concludes:

> Some universal human rights norms have been integrated into global education strategies, such as the elimination of gender discrimination; others are not widely known. There is, for example, only a brief mention of the rights of teachers in global education strategies. (p. 2)

Some policies and practices are discriminatory. For example, in Zambia, as in some other countries, uncertified teachers were excluded from professional development activities (Nkamba & Kanyika, 1998). In China, 'daike' teachers (community appointed and paid) are not recognised by the government or eligible for inclusion in professional development provision, though they may be qualified and teaching in government schools (Robinson & Yi, 2007); age discrimination against participation by qualified teachers over 40 years of age is commonly found too.

So teachers' rights to professional development are not secured, and this raises the question of who has rights, legal or moral, over their professional development. Policies stating government requirements for teachers to undertake continuing professional development appear to be more common than those expressing teachers' rights or entitlements to it. For example, teachers may be required to take refresher courses and re-license at regular intervals, or to participate in a compulsory number of training days. In the case of China, a regulation approved by the State Council in 1999 required all teachers to participate in 240 hours of professional development over a period of three years. Poor provinces and counties struggled to find resources to implement this and the device of unsupported and un-resourced 'self-learning' was used to meet the target number of hours.

Responsibilities are entailed, whether teachers' professional development is viewed as a right to be exercised by the teacher or as a requirement from government or employers. Debate revolves around the issue of whose responsibility this is and practices differ between countries. A common view is that responsibility for teachers' professional development should be shared, with employers and managers having an obligation to create conditions, as far as they can, which enable teachers to engage in professional learning, and teachers themselves having the responsibility to engage in it. Teachers, however, do not frequently articulate their rights as they see them. A (rare) example of teacher-formulated professional rights and responsibilities is provided by the Alberta Teachers' Association:

> Teachers have the right to base diagnosis, planning, methodology and evaluation on professional knowledge and skills, and have the responsibility to review constantly their own level of competence and effectiveness and to seek necessary improvements as part of a continuing process of professional development. (¶ 6.1)

Carnine (1992) adds a third party, "the educational establishment", arguing that "just like that of any other professional, teachers' efficacy is dependent on the tools at their disposal" (p. 13) and that "if teachers are to be held accountable, then the educational establishment must be held accountable for providing relevant knowledge and the viable professional tools derived from that knowledge" (p. 16).

The relevance of the above to distance education is that any distance education programme for teachers operates within a particular policy environment and is shaped by it. The nature and extent of policy-making for teacher education varies widely, as Hon-Chan and Mukherjee (2003, p. 49) observe from their experience of working in the World Bank,

> In some countries, for example China, such policies are clearly articulated. In others, they are partial or minimal . . . Some countries are slow to change or revise their policies for teacher education. In others, the policies are changed so rapidly and so frequently that those implementing them can be hard pressed to cope. (p. 49)

But whatever the policy stance may be on teachers' continuing professional development, the mechanisms and resources for enabling teachers' career-long learning commonly fall short of what they need to be. In poor areas of developing countries, local government administrators routinely need to spend over 90 per cent of their education funds on teachers' salaries, leaving little spare funds for a number of competing demands including teachers' professional development. In addition to these financial constraints, traditional conceptualizations and forms of inservice education may be strongly entrenched, not just in institutional practice but also in the structure of budgetary allocations. This limits delivery options and can result in a norm of out-of-school, off-the job, infrequent or rare learning opportunities for a selected minority of teachers at high per capita cost. In such a scenario, rural and geographically remote teachers are frequently at a disadvantage and this contributes to the rural-urban educational quality gap observable in many countries, including China. In industrialized and developing countries alike, out-migration and population decline are intensifying inequity, yet as Johnson and Strange (2006) observe from their study of US rural education, "those who are 'left behind' in such places have the same right to an education as those who leave" (p. vii).

In situations like these, distance education and ICT can bring benefits to disadvantaged groups and make educational provision more equitable. But how can we focus attention consciously, rather than incidentally, on social justice in distance education projects for teacher development? If we take a rights-based or social justice perspective, what criteria could we use? The next section offers a possible framework for this.

The 4As Framework: Availability, access, acceptability, and adaptability

Projects for teachers' professional development are most often judged in terms of efficiency, effectiveness, and its influence on teaching and learning. Leaving aside the issue of whether or not teachers have rights to professional development, what would a rights-based framework for it look like? What criteria would teachers' professional development have to meet in order to be considered rights-based or socially just? One possible answer comes from Tomaševski (2003), using criteria of availability, access, acceptability, and adaptability (i.e., the 4As). She developed this framework in relation to governmental obligations on human rights in basic education, but I have adapted it here to apply to teachers' rights to continuing professional development (see Figure 1). It gives another lens through which to view projects and in the next section, I use it to review the EU-China GBEP's achievement of the 4As.

Figure 1. Framework for teachers' rights to continuing professional development

The 4As	Guidelines for rights-based continuing professional development
Availability	• Continuing education opportunities are provided beyond initial training. • Teachers have some freedom of choice in what and how they learn. • Information about the availability of learning opportunities and professional development is freely available. • Availability extends to all teachers, no matter where they are.
Access	• Barriers (organisational, geographical, motivational, financial) to teachers' use of available learning resources and opportunities are removed, as far as possible. • Policies and practices do not exclude or discriminate unfairly against teachers. • Infrastructure is in place to make access to and engagement with professional development a real possibility, and is sustainable.Policies and monitoring are in place to support teachers' ongoing professional learning.
Acceptibility	• The provision is relevant, appropriate and current in content, based on teachers' and pupils' needs. • The provision is equitable and fair. • Standards of quality are explicit, monitored and maintained. • The provision is in accord with teachers' labour rights (according to International Labour Organisation guidelines) including rights to continued professional learning. • Teachers are adequately prepared in any use of technology required to access learning resources and opportunities.
Adaptability	• The provision responds and adapts to the needs and best interests of teachers, collectively and individually. • The provision and system takes account of local variation. • The learning resources promote core values of the teachers' role in fostering social justice (for example, the elimination of physical punishment by teachers or discrimination against disadvantaged pupils).

Availability and access

A key goal in achieving equity and social justice is the elimination of disadvantage. Through the TLRCs, rural teachers' professional development moved from being resource-poor to resource-rich in learning materials and opportunities. Before TLRCs were established there were no learning materials for teachers to use, other than school textbooks, in almost all schools. Many teachers had few or no opportunities to engage in professional learning activities beyond the boundaries of collaboration with in-school colleagues. An EU-China GBEP study (2005) of 1,820 key (senior or leading) teachers revealed that 28.0 per cent (n = 510) had received no previous in-service professional development, and training opportunities for the remaining 72.0 per cent (n = 1,310) were extremely limited, intermittent, and inadequate for their needs. As a result, there was little new information or ideas going into rural teaching, despite the government's requirement for all government-appointed teachers to engage in professional development. Among those not able to access professional development were 'daike' teachers (locally appointed and funded), who were excluded as a matter of policy. The experience of exclusion is described by a daike teacher from Xi Shang primary school in Wushan County, Gansu:

> I started working in a primary school in 1988. I have been dedicated to my teaching but my work in school cannot be recognised by society. I want to enter my name in the high-level 'excellent lesson' competition but the condition of entry is that you should have an official academic title, such as gongban (government paid) teacher or backbone (gugan) teacher. But no matter how high a level my professional work is, due to my daike teacher identity, I can't qualify for the competition and can't be accepted by the education authorities as a proper teacher … I want to be treated as a human being and I want to get equal pay with others. (Robinson & Yi, 2007, p. 13)

Even when teachers were eligible for inclusion in training, it was not easy to access it since choices and decisions about participation were not made by the teachers themselves, but by planners and administrators at higher levels. Furthermore, the provision often lacked coherence for either individual teachers or their schools.

The TLRC system removed many barriers to access and widened participation. Learning opportunities became local through the TLRCs, which covered 90 per cent of rural townships and 80 per cent of all primary and junior secondary teachers in the 41 project counties. Through a combination of distance learning, ICT and face-to-face activities, more teachers engaged in more professional learning more often than before and with more choice in what they learnt. Many TLRCs were kept open during the day and evening as well as at weekends at the teachers' request (opening hours were written into the TLRCs' annual plans). Each provided a programme of events for a minimum of 45 days a year (i.e., workshops and meetings, demonstration lessons, coaching sessions on ICT) as well as being open learning drop-in centres for teachers from the host and cluster schools. Teachers were able to access educational television channels and download programmes (e.g., from China Educational Television Channels 1 and 2, China Central Radio and Television University (CCRTVU), and 'Classroom of the Air' Kōng zhōng). They could also make use of websites, CD-Roms, teaching resources, and demonstration lessons (either as website video-clips or on CD-Roms or computer files), books and articles, official curriculum documents, teachers' reflective writings and research reports, teacher-made software, and teachers' e-folders of their work. Teachers were able to access national, provincial, and county-level teachers' websites (e.g., 38 of the 41 counties created their own) and to join in discussion groups.

As might be expected, access for the more remote teachers remained restricted by their location and more limited communications infrastructure. While most cluster schools were within easy travel distance of the TLRC, some were much further away and in a minority of cases, involved an overnight stay in the TLRC township. So although learning opportunities were hugely increased for the great majority, the provision was still not wholly equitable. Nonetheless, there was a high level of TLRC use and increased levels of interaction between teachers within a district cluster of schools. Teachers from the cluster schools joined in TLRC events and borrowed materials. Teachers from the TLRC school visited village schools to run workshops and to give and observe demonstration lessons. As the availability of connectivity grows, it will be possible to link all schools in a cluster into an e-network.

The TLRC model was judged to be sustainable in the eyes of head-teachers, teachers and local government officials. In one evaluation, 100 out of 103 (99.0%) education leaders and managers from 41 counties rated the chances of sustainability of the TLRCs as 'high' or 'very high' based on their experience of one or two years (Robinson 2006) and similar findings were echoed in other evaluations. Research on TLRC sustainability is continuing into 2008.

Acceptability and adaptability

Providing access and facilities for professional development is one thing, but teachers' use of them is another. How acceptable was the TLRC approach to teachers and head-teachers? How adaptable was it to local and individual needs within a large-scale system?

TLRC records provided evidence of a high level of use by teachers. An analysis of 1,085 questionnaires from teachers showed that, after a year's experience of using the TLRCs, 74 per cent (n = 805) said that it provided a good study and communicative environment and 81 per cent (n = 875) that it had helped them to establish new teaching ideas and approaches (EU-China GBEP 2005). The majority (87%: n = 910) judged the support teachers to be very competent in organising the training and using new teaching approaches. Other studies also showed that the TLRC approach was highly valued by teachers because it met their needs and was convenient, as illustrated in the following typical comment:

> Before, if I wanted some information for my teaching, I had to travel to the county town and try to find some there but it is a four hour journey from our village by walking and by bus and I also have farming duties . . . now I just go to the TLRC in a few minutes' and I can find what I want . . . the support teachers are able to help me and to discuss with me and now I know more things. (Teacher Mingma, Zhu Cha school, Tianzhu Tibetan Autonomous County, 17 August 2006, interview by author).

The rural teachers and head-teachers were keen to learn and valued this new facility. They described the TLRCs as '*windows on the world*', '*petrol stations for fuelling the mind*', '*resource reservoirs of information*', '*a space rocket to modern knowledge*' and '*clubs for communication*'. Some of the learning resources (television programmes and websites) were the same as those used by urban teachers, others were specially designed for local and rural relevance. The video material in the modules was filmed in rural Gansu schools (all other video available at this time showed urban schools in big cities or classes filmed in television studios elsewhere in China). Teachers identified strongly with the video material because it showed the new curriculum being implemented with, as teachers said, '*teachers like me . . . classrooms like mine*'. The content of

print and video reinforced the new curriculum's student-centred 'humanistic' approach, showing 'more democratic' relationships between teachers and children, encouraging the elimination of physical punishment and including children with learning difficulties.

The opportunity to learn to use ICT was seen by rural teachers as a big step up in achieving equity with teachers in more advanced areas of China. Many saw it as an indication that they were joining the 'modern world'. '*Now we can do all the things that a city teacher can*' was one such frequent comment. The perceived effects of ICT were lyrically described by the head-teacher of Mapo School, Yizhong County:

> Teachers' quality has been raised, their ideas have changed so much, their teaching skills have been improved, they have a good command of new teaching means and their vision has been widened. For a mountainous school like us, training in ICT is as if a long drought suddenly met a drop of sweet dew. (EU-China GBEP, 2005, p. 24)

There were many reports from different counties that the training, resources and use of ICT had changed teachers' attitudes and teaching methods, for example:

> Through using ICT, teachers have the latest knowledge of the new curriculum reform and can get guidance and support in putting it into practice . . . teachers can now provide more chances for communication, cooperation and conscious inquiry in their lessons. (Head-teacher Cheng Guang, Tumeng Junior Secondary School, EU-China GBEP 2006, p. 23)

> Old teaching methods are of passive learning orientation. Now after we employ participatory approaches in our teaching plan, from an open question start, our lessons are of such diversity and controversy as to reach the purpose of encouraging students' self-inquiry and self-discovery. (Teacher Gu Xiopo from Wenxian county, EU-China GBEP 2005, p. 21)

The combination of technologies was appropriate for the rural conditions, using a mixture of older and newer technologies at different levels (county, township and village) but with the same quality of content. All teachers and head-teachers were trained to use the technologies in workshops and in peer coaching sessions, so they developed new skills in using technology as well as learning new teaching approaches. Because, however, the TLRC system took advantage of the tradition of teachers working collaboratively in schools, a teacher was not reliant on the ICT resources alone:

> Each school has developed its own training culture in creating a humanistic learning environment in the TLRC, encouraging teachers to study together, share resources, exchange experiences and develop together. (EU-China GBEP 2006, p.9)

The TLRC approach was used on a large scale, but was also adaptable to local circumstances. It was embedded in existing structures and relationships within the education and local government system (to help its sustainability), but as TLRCs and local communities became more confident, they developed their own variations. Enterprising head-teachers and schools extended their TLRC facilities and uses, occasionally developing multi-media classrooms and adding equipment such as portable laptops and projectors for use in classrooms. In 2006, some TLRCs began developing

school networks and one county led the way in developing a county-wide e-platform for schools using *Moodle*[iii]. In Tibetan areas, teachers developed Tibetan language materials, using dynamic visuals to teach Tibetan script to primary classes and to create resources on local history and culture. Increasingly, classes for pupils were held in the TLRCs. The TLRC model was also able to combine with, and integrate other, parallel initiatives in developing ICT for rural teachers; their emphasis on the human resource side of ICT development complemented the other projects' emphasis on the technology and other projects saw the TLRC as an effective model. The project's TLRC concept and title was promoted by the Ministry of Education in Beijing for use by other provinces.

Quality and empowerment

The quality of rural teachers' continuing professional development is an issue in many countries. Rural teachers tend to be recipients of lower quality in-service training provision than their urban peers. Where cascade systems of training are the norm, the lower levels of training and resources are often poorer quality than those at the top. China has a hierarchy of training provision (national, provincial, prefectural, and county) with the provincial or national level seen as the most desirable by teachers, though only a distant possibility for most. The TLRC offered an alternative model, where good quality training opportunities were distributed more equitably across the system, either through the materials, the technology, or face-to-face sessions with trainers from all levels. There was more interaction between trainers and rural teachers, up and down the different levels of the system (i.e., provincial, county, school) as well as with teacher training institutions and peer-trainers. Teams of mobile trainers, including urban teachers, ran local workshops in the TLRCs and reported that, as a result of this new outreach, they were learning at first hand about rural schools and teachers.

The previous supply-driven provision for teachers' professional development shifted towards a demand-initiated one, partly because the variety of learning resources enabled choice and partly because of the way the TLRC system was organised. Whereas formerly, priorities and programmes had been determined by higher authorities far removed from school and village realities, the TLRC system enabled teachers and schools themselves to construct a programme of professional development based on their assessment of their own needs combined with county priorities. It was also possible for individual teachers or small groups to work together on their particular interests with the support of ICT resources. This shift raised teachers' awareness about their own role in professional development, instead of remaining passive recipients of provision:

> Rural teachers are more aware of the need to seek self-improvement in their teaching as a result of the various project activities. They are more motivated to find the methods to effect changes and adapt new ideas in their teaching. (EU-China GBEP, 2007, p.36)

Teachers' growth in confidence was evident in their written feedback, for example:

- I now really understood the difference between teaching as a job and as a profession.
- I was able to develop a plan for my professional development and to implement it step by step.
- I've become a much better learner and you can properly call me an independent learner. (Robinson, 2006)

One team of external evaluators concluded, that as a result of TLRC activity:

> Teachers in the project counties suddenly opened their eyes . . . they have come to be aware that knowledge is more construction in communication with outside than just cramming. (EU-China GBEP 2005, p. 4)

Many teachers created their own materials, in hard copy or in computer formats. These included lesson plans, simple animated courseware, *PowerPoint* lesson presentations for use in class, reflective writings, collections of downloaded resources, and small research papers. Instead of teachers' records at schools being used purely for administration purposes, they began to be portfolios of their work and learning. TLRCs shared the resources they created on county and provincial websites, and with other teachers in the district and county. Teachers entered their work in county, provincial, and national competitions and won prizes for the first time. Within a year of operation, many TLRCs had over 100 teacher-made items in their resource collections, for example, at Tangwan TLRC in 2005, 140 teachers wrote reflective papers on their experience of learning and teaching and published three newsletters. Several of the Tangwan teachers won awards for ICT teaching courseware, with a special focus on low-achieving students, in competitions organised by the county education bureau. One essential activity in any rights-based education is getting people's voices heard; in the case of the EU-China GBEP, rural teachers' voices were newly audible and visible in a number of ways, locally and more widely via Internet.

Conclusions

The use of distance education and ICT has the potential to distribute opportunities for learning more widely and equitably across the teaching force. It can also improve the quality and variety of the resources and support available to teachers, opening up new avenues to professional development. If social justice is to be achieved however, in terms of equity of educational opportunity and services, the provision needs to be planned in ways that make it available, accessible, acceptable, and adaptable to all teachers and head-teachers, empowering them to make choices in what and how they learn. It also needs enabling policies in support of these aims.

The EU-China GBEP provides a model which, in this context, was successful in making opportunities available for rural teachers' professional development on a large scale. Taking a school-based approach supported by ICT, it provided more inclusive access than the previous arrangements while at the same time extending learning opportunities beyond the boundaries of the school. It shifted the emphasis from a supply-driven provision to a demand-initiated one, giving teachers and head-teachers more ownership and choice in their professional development. The shift (which, metaphorically, can be seen as the equivalent of getting an elephant to dance within a very short time-scale) was only possible through taking a system-wide approach to rural teachers' professional development rather than just setting up ICT centres disconnected from the mainstream management of teachers' continuing education and having little impact on it. The TLRC approach was popular and acceptable to teachers and head-teachers because it met their needs and offered something new. It was also adaptable, accommodating different kinds of learning and training activities, acting as an open learning centre, varying its provision and scope according to local context while retaining a common core mission and set of activities.

Though distance education and ICT have the capacity for large-scale delivery over huge distances, the main benefit came from what happened beyond delivery, namely, the mobilisation of teachers, the generation of activities at the TLRC and local level, and the changes in

knowledge, skills, attitudes, and mindset of teachers and head-teachers. While the technology opened the way to new possibilities, the factors that contributed to its successful use were strong commitment from leaders at various levels, enabling policies, an emphasis on human resource development rather than equipment, the organisational structure at the TLRCs, good quality learning resources, rural teachers' keen motivation to learn and rewards for their participation, effective monitoring practices, and sufficient funds to carry out the activities needed. Beyond the project's life, the TLRC approach still faces some challenges. These include maintaining strong support and commitment from the leadership at provincial and local levels of government despite personnel changes, ensuring ongoing good management and leadership from head-teachers as they face competing demands on their attention and budgets, finding future funding for the replacement of ageing equipment, and providing a continuing, changing, and affordable flow of good quality, topical, and relevant learning resources to maintain teachers' motivation as they become familiar with existing content. There is also still the challenge of reaching those teachers who are the most difficult to reach.

The EU-China GBEP did not consciously or explicitly take a 'rights-based' approach to rural teacher development at the outset, though some of its values and goals coincided with the four criteria in the framework (i.e., availability, accessibility, acceptability, and adaptability). The use of the 4As framework, or a similar one, at the project's start could have made the goals for social justice clearer, more comprehensive, and more strongly focused on issues of equity (including gender) in a systematic way and with specific targets to be reached. The 4As framework given in this paper has the potential to be used as a planning and monitoring tool, and can be developed further by adding specific targets and indicators appropriate to a context. Its use could help make a rights-based perspective more explicit alongside the customary efficiency and effectiveness goals detailed in a project's logical framework plans. With only small adjustments or additions to the usual kind of project plans, a rights-based perspective could be developed and could lead to measurable gains in achieving availability, accessibility, acceptability, and adaptability in the provision of teachers' professional development. It might also lead to greater sensitivity to individual teachers' rights or wishes to participate.

References

Alberta Teachers Association (2004). *Teachers' Rights and Responsibilities. Declaration of rights and responsibilities for teachers.* Retrieved May 19, 2007 from: http://www.teachers.ab.ca/Albertas+Education+System/Teaching+in+Alberta/Teachers+Rights+and+Responsibilities/

Beiter, K. D. (2006). *The protection of the right to education by international law.* Leiden: Martinus Nijhoff Publishers.

Carnine, D. (1992) Expanding the notion of teachers' rights: Access to tools that work. *Journal of Applied Behavior Analysis, 25*(1), 13-19.

Collis, B., & Jung, I. (2003). Uses of information and communication technologies in teacher education. In B. Robinson & C. Latchem. (Eds). *Teacher education through open and distance learning* (pp. 171-192). London: RoutledgeFalmer.

Darling-Hammond, L. (2000). Teacher Quality and Student Achievement: A review of State Policy 2000. *Education Policy Analysis Archives, 8*(1). Retrieved May 24, 2006 from: http://epaa.asu.edu/epaa/v8n1/

EU-China GBEP. (2005). *External evaluation report on the Impact of ICT Training.* Lanzhou, Gansu: EU-China GBEP Project Office.

EU-China GBEP. (2005). *External evaluation report on the impact of ICT training.* Lanzhou, Gansu: EU-China GBEP Project Office.

EU-China GBEP. (2006). *Action, innovation and progress: In the footsteps of the EU-China Gansu Basic Education Project.* Lanzhou, Gansu: EU-China GBEP Project Office.

Hanushek, E. A. (2005). *Economic outcomes and school quality 2005.* Paris and Brussels: The International Institute for Educational Planning (IIEP) and International Academy of Education (IAofE).

Hon-Chan, Chai, & Mukherjee, H. (2003). Policy, planning and management of distance education for teacher education. In Robinson, B. and Latchem, C. (Eds.) *Teacher education through open and distance learning* (pp. 48-71). London:.RoutledgeFalmer.

Johnson, J., & Strange, M. (2005). *Why Rural Matters 2005: The facts about rural education in the 50 states.* Arlington, VA.: Rural School and Community Trust.

Leach, J., Ahmed, A., Makalima, S., & Power, T. (2005). *DEEP Impact: An investigation of the use of information and communication technologies for teacher education in the global south.* London: Department for International Development.

Nkamba, M., & Kanyika, J. (1998). The Quality of Education: Some policy suggestions based on a survey of schools: Zambia. *SACMEQ Policy Research: Report No. 5.* Paris: International Institute of Educational Planning, UNESCO.

OECD. (2005). *Teachers Matter: Attracting, developing and retaining effective teachers. 2005.* Paris: Organisation for Economic Cooperation and Development.

Perraton, H., Robinson, B., & Creed, C. (Eds.) (2007). *International case studies of teacher education at a distance.* Oldenburg: Bis-Verlag der Carl von Ossietsky Universität Oldenburg.

Robinson, B. (2006). *Internal evaluation report on Component 1: Basic Education Quality Support.* EU-China Gansu Basic Education Project (ALA/CHN/98/4). Lanzhou: Gansu.

Robinson, B., & Latchem, C. (Eds.) (2003). Teacher education through open and distance learning. London: RoutledgeFalmer.

Robinson. B., & Yi, Wenwu. (2008). The role and status of non-governmental ('daike') teachers in China's rural education. *International Journal of Educational Development 28*(1), 35-54.

Rivkin, S., Hanushek, E., & Kain, J. (2005). Teachers, schools, and academic achievement. *Econometrica, 73*(2), 417-458.

Schwille, J., Dembélé, M., & Schubert, J. (2007). *Global perspectives on teacher learning: Improving policy and practice. Fundamentals of Educational Planning, 84.* Paris: UNESCO.

Tomaševski, K. (2004). *Manual on Rights-based Education: Global human rights requirements made simple.* Bangkok: UNESCO Bangkok.

Tomaševski, K. (2003). *Education Denied: Costs and remedies.* London and New York: ZED Books.

UNESCO Institute for Statistics. (2006). *Teachers and Educational Quality: Monitoring global needs for 2015.* Montreal: UNESCO, International Institute for Educational Planning.

United Nations (1976). The International Covenant on Economic, Social and Cultural Rights. ICESCR. *Twenty-First Session of the Committee on Economic, Social and Cultural Rights: The right to education.* Retrieved February 19, 2008 from: http://www.unhchr.ch/tbs/doc.nsf/(symbol)/E.C.12.1999.10.En?OpenDocument

Unwin, T. (2005). Towards a framework for the use of ICT in teacher training in Africa. *Open Learning, 20*(2), 113-129.

Verspoor, A. (2004). *The Challenge of Learning: Improving the quality of basic education in sub-Saharan Africa.* Paris: Association for the Development of Education in Africa (ADEA).

Vignoles, A., Levacic, R., Machin, S. Reynolds, D., & Walker, J. (2000). *The Relationship Between Resource Allocation and Pupil Attainment: A review.* DfEE Research Report No. 228, London: DfEE.

Villegas-Reimers, E. (2003). *Teacher Professional Development: An international review of the literature.* Paris: UNESCO, International Institute for Educational Planning.

[1] Local government administration consists of the following levels: province, prefecture (groups of counties), county, township and village. A township is a rural population centre and an administrative unit.

[2] 'Education is both a human right in itself and an indispensable means of realising other human rights. As an empowerment right, education is the primary vehicle by which economically and socially marginalised adults and children can lift themselves out of poverty and obtain the means to particulate fully in their communities.: The right to education' (Article. 13, The right to education. The International Covenant on Economic, Social and Cultural Rights (ICESCR). Twenty-First Session, 1999, of the Committee on Economic, Social and Cultural Rights: UN Doc E/2000/22 ICESR UN 2000).

[3] Moodle is a free, Open Source software package , a course management system to help educators create effective online learning communities (available at http://moodle.org/)

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The Role of Open and Distance Learning in the Implementation of the Right to Education in Zambia

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Abstract

As a member of the United Nations, Zambia is committed to the observance of human rights enshrined in the Universal Declaration of Human Rights of 1948. This is evidenced, among others, by the fact that Zambia is a signatory to the Convention on the Rights of the Child and the African Charter on the Rights and Welfare of the Child. Zambia has a permanent Human Rights Commission that includes a subcommittee on child rights whose focus is on child abuse and education. Zambia also has a National Child Policy and National Youth Policy whose main objectives are to holistically address problems affecting children and youth. This paper focuses on the progress and challenges currently facing Zambia and the role of open and distance learning in addressing those challenges.

Keywords: open and distance learning; policy; human rights; teacher training; basic education

Introduction

As a member of the United Nations, Zambia is committed to the observance of human rights enshrined in the Universal Declaration of Human Rights of 1948. This is evidenced, among others, by the fact that it is a signatory to the Convention on the Rights of the Child and the African Charter on the Rights and Welfare of the Child. The country has a permanent Human Rights Commission, which has a subcommittee on child rights, and whose main concerns focus on child abuse and education. Zambia also has a National Child Policy and National Youth Policy whose main objectives are to holistically address problems affecting children and youth.
In this context, the Zambian Government recognizes education as a basic human right that is vital for personal and societal development, in general, and for achieving the Education for All targets and the Millennium Development Goals, in particular. The National Policy on Education: *Educating Our Future* and other policy documents reaffirm the Zambian Government's commitment to providing education as a human right and its conviction that education and training are necessary pre-conditions for human and economic development (Government of Zambia, 1996; Ministry of Education, 1996).

The implementation of the right to education necessarily requires a firm policy framework. One of Zambia's key educational policy objectives is to provide free basic education to all children,

which is responsive to girls, rural children, children with special educational needs, orphans, and other vulnerable groups (Ministry of Education, 1996).

Accordingly, various strategies and institutional structures have been developed to ensure that access to, and participation and benefit in, the education system is available to all. This article describes and analyzes policies that promote provision of schooling at sustainable levels of quality and gender balance for children and young people (up to 18 years) in accordance with the convention on the Rights of Children. It discusses achievements and challenges in educational provision, in general, and in the use of open and distance learning in particular. It ends with an assessment of the future role of open and distance learning in increasing access to education and improving quality within the context of socio-economic development policies, and as a means of implementing the right to education in Zambia.

Policy Context

The National Policy on Education, *Educating Our Future*, which sets the principles for the development of education in Zambia, states that education in Zambia is intended to serve individual, social, and economic well-being, and to enhance the quality of life for all (Ministry of Education, 1996). Noting that the long standing goal of education in Zambia has been that every child who enters school in Grade 1, should be able to complete Grade 9, the national policy on education proposes structural changes in the formal school system that aim to upgrade every primary school to complete basic school status and to offer the full range of basic education from Grade 1 to Grade 9 (primary and junior secondary cycle).

The targets which the Ministry of Education has set for achieving universal primary education were 100 percent of 7-13 year-olds to be in Grades 1-7; 50 percent of Grade 7 pupils (14 year-olds) to progress to Grade 8 by 2005; and 100 percent of 7-15 year-olds to be in Grades 1-9 by 2015.

The policy also provides for the expansion of high school education, and pays special attention to establishing additional facilities for girls (Ministry of Education, 1996). In addition, the policy document proposes strategies for strengthening and expanding higher education and that “the Ministry will promote open learning, lifelong education, and a wide variety of mechanisms for continuing and distance education” (Ministry of Education, 1996, p. 80). One of the strategies in the National Policy on Education is to integrate the provision of continuing and distance education into the mainstream of the Ministry of Education planning processes.

Zambia’s National Policy on Education also recognizes the urgent need for a great increase in the number of trained teachers for lower and middle basic classes. One of the proposed strategies for bringing about this increase is providing initial teacher preparation through distance education programmes (Ministry of Education, 1996). The policy further emphasizes the need to provide in-service training opportunities, some of which should be school-based, and states in this regard that “a suitable arrangement would be the integration of decentralized college-based development of materials into the framework of a national programme of distance education for serving teachers” (Ministry of Education, 1996, p. 117).

The Poverty Reduction Strategy Paper (2002 – 2004) provided for the expansion of educational provision at all levels of the Zambian education system. One of its strategies was to promote and integrate the use of Information and Communication Technologies (ICT) at all levels and in all modes of the education delivery systems. It emphasizes the need to use distance learning

strategies and other modes of delivery, such as ICT, to increase access for out-of-school youths and adults, and for improving quality and increasing access to high school education.

In the context of the National Policy on Education and the Poverty Reduction Strategy Paper, the Ministry of Education developed a *Strategic Plan: 2002–2007.* The main priorities of this strategic plan includes improved access, gender equity, and quality in basic education (Grades 1-9); improved quality and efficiency in high schools and tertiary education; development of relevant skills and enhanced learning achievement by all learners; and management/ mitigation of HIV/AIDS.

Clearly, the policy documents cited above are very closely related to, and in line with, the Education For All targets and the Millennium Development Goals, and are evidence of the Government's commitment to implementing the right to education.

Consequently, strategies and mechanisms have been developed to increase school places for orphans and vulnerable children, to address the effect of poverty, to serve children with special educational needs, and to mitigate HIV/AIDS. In addition, the policy of free education was introduced in 2002 (Ministry of Education, 2003).

Largely as a result of these measures educational provision, particularly at basic education level, has improved markedly during the last five years, as evidenced by the following (see Government of Zambia, 2006, Ministry of Education, 2006a).

- Enrolments in Grades 1-7 and Grades 8-9 have increased at an average of 9 percent annually since 2000. At the primary school level, lower and middle basic (Grades 1-7), the net enrolment ratio was 95.58 (95.28 percent for male and 95.88 percent for female) in 2005. The net enrolment ratio for Grades 1-9 was 93.46 percent in the same year.

- Since 2000, enrolments at high school/ secondary level averaged 10 percent per year. In 2005, the net enrolment ratio at this level was 21.54 percent at national level.

- In 2005 completion rates for Grade 7 increased by 13.3 percent, while at the Grade 9 level it increased by 11.9 percent. For Grades 1-7 (primary) the national completion rate was 81.6 percent in that year. In the same year the national completion rate for Grade 9 was 43.1 percent.

- Drop out rates have declined over the years. At the basic education level, the drop out rate went down from 4.6 percent in 2000 to 2.5 percent in 2005. At the high school level, it remained at the same level, approximately 2 percent, from 2000 to 2005.

- The retention rates have been fluctuating for Grade 5, but in general have been above 70 percent.

- In 2005, completion rates for Grade 7 increased by 13.3 percent, while at the Grade 9 level it increased by 11.9 percent. For Grades 1-7 (primary) the national completion rate was 81.6 percent in 2005. In the same year, the national completion rate for Grade 9 was 43.1 percent.

Nonetheless, despite the above improvements, the effects of the past inadequacy of educational provision, due to the negative effect of the economic decline of the 1980s and 1990s, are still evident:

- An estimated 22 percent of the population has had no formal education.
- Of the total population, only 25 percent have completed lower primary, 27 percent upper primary, 13 percent junior secondary, and 11 percent senior secondary.
- Only 2 percent of Zambia's population has completed a Bachelor's degree or above.
- Twenty-four percent of females never had any formal education, compared to 20 percent for males.
- More males attained secondary school level or above than the females (Government of Zambia, 2006b).

Against this background, the Government of Zambia has to address some challenges in order to ensure that the right to education is fully implemented.

Issues and Challenges

Zambia has a bottom-heavy demographic structure, in which an estimated 46.5 percent of the population is below the age of 15. In 2006, young people aged 25 years and less accounted for 68 percent of the estimated total population of 11.7 million, with an annual population growth rate of 2.9 percent (Government of Zambia, 2006). Zambia, therefore, faces a challenge of expanding education and training provision to respond to the needs of the growing number of children and large numbers of young people.

The formal education system is characterized by a pyramidal structure, with selection hurdles at various levels, which tend to limit access to higher levels. Although the progression rates have improved in recent years, they are comparatively low. For example, in 2005 the overall transition rate for Grades 7-8 was 56.33 percent, and 41.20 percent for Grades 9-10 (Ministry of Education, 2006).

The comparatively high levels of poverty, estimated at 68 percent of the population (and much higher in rural areas), along with HIV/AIDS, have had a negative impact on the provision of education. It is estimated that the national prevalence rate of HIV/AIDS is about 16 percent of the 15-49 years age group. About 8 percent of boys and 17 percent of girls age 15 – 24 are living with HIV (Government of Zambia, 2006). As a result, there are large and increasing numbers of orphaned and vulnerable children, a large proportion of which have no access to education. It was recently estimated that the number of orphans in Zambia ranges from 750,000 to 1.2 million, of which 75 percent are HIV orphans (Government of Zambia, 2006).

The negative effects of poverty and HIV/AIDS include high dropout rates, poor performance, poor attendance (because children are engaged in income-generating activities to supplement family income or tending to sick family members), and the inability of learners to achieve their full potential because they are malnourished (Ministry of Finance and National Planning, 2002).

The Government of Zambia, therefore, faces the challenge of increasing access to vulnerable children; improving the retention rate for girls and ensuring they complete the education system and actually benefit from it; and increasing school places for the 7 year old age group. It also must address the issues surrounding the shortage of qualified teachers, the challenge of improving the quality, relevance, and delivery of the curriculum; and the provision of more teaching and learning materials to match the increased enrolment. The enormity of the task necessarily requires a diversification of modes of educational delivery such as open and distance learning.

The Role of Open and Distance Learning

The role of open and distance learning in the implementation of the right to education is being described and analyzed in the context of the United Nations Convention on the Rights of the child (UNCRC) partly because the Revised National Child Policy in Zambia defines a 'child' as any person aged 18 years and under. Therefore, the article describes the use of open and distance learning at basic and high school levels. Reference will also be made to the role of open and distance learning in widening access to education to the 18 – 24 year age group. This is because one of the greatest challenges facing the Government of Zambia faces is that it must respond to educational needs of the children and the youth who constitute the majority of the Zambian population.

The article also describes the role of open and distance learning in teacher training. This is because of the symbiotic relationship between expanding learning opportunities and the demand and supply of teachers. This relationship is summed up in Eastern Washington University's (2005) presentation of 'Children's Educational Rights':

- I have the right to an education that meets my needs as a whole person – not merely the needs of society or the economy.
- I have the right to a school building in good condition, to a safe learning environment, and to adequate books and supplies.
- I have a right to teachers who know how to teach kids – not just programs.
- I have a right to teachers with the knowledge, authority, and responsibility to meet my needs as an individual learner.
- I have the right to be motivated and challenged to become a lifelong learner (see http://www.ewu.edu/x14913.xml).

Since its political independence in 1964, open and distance learning in Zambia has been used to increase access to and improve the quality of education at all levels of the education system.

(a) Open and distance learning for basic education: The Directorate of Open and Distance Education of Zambia's Ministry of Education has developed alternative basic education programmes at lower basic (Grades 1-4), middle basic (Grades 5-7), and upper basic (Grade 8) levels. The alternative lower and middle basic education programmes are delivered to learners countrywide using Interactive Radio Instruction in community supported learning centres.

The programme aims to reach out-of-school children who have no basic education, nor the ability to access the formal school system due to inadequate provision or insufficient facilities, poverty, distance to the nearest formal/ government school, increasing parental disinterest in school education, and the impact of HIV/AIDS.

The Interactive Radio Instruction (IRI) programme was launched in July 2000 as a pilot project catering for Grade 1 learners at 22 IRI learning centres. There are currently two main types of IRI schools: pure or original type of centres, which depend entirely on radio lessons and mentors, and community schools using IRI methodology wherein children learn by following a radio lesson under the supervision of a mentor.

Community schools are more like conventional schools established; they are owned, financed, and operated by communities for their own children, particularly children in special need such as orphans (above all, girl-orphans). Nearly all community schools are small, working according to their own curriculum and responding flexibly to the needs of poor, by-passed, and disadvantaged children (Kelly, 1998).

Table 1 shows the number of learners the majority of whom are in Grade 1. It has been noted that this has been the trend since 2000 when the programme was launched.

Table 1. Distribution of Learners by Age and Grade 2006

Learners (Grade and age)	Total	%	Grade specific age	Below recommended	Above recommended	Missing
G1 (7 yrs)	35,633	44%	33%	19%	46%	2%
G2 (8 yrs)	18,184	22%	22%	11%	64%	3%
G3 (9 yrs)	12,036	15%	14%	7%	76%	3%
G4 (10 yrs)	7,760	10%	14%	8%	73%	5%
G5 (11 yrs)	4,834	6%	11%	8%	78%	3%
G6 (12yrs)	2870	4%	10%	7%	78%	5%

Source: 2006 IRI Statistical Report (Ministry of Education, 2006b)

Table 1 shows that many learners in every grade are over the recommended age. This implies that there could be learners who had left school or had no opportunity to enter school when they were of the right age.

The creation of IRI schools is a partnership between the Ministry of Education and the community, and IRI centres and community schools depend on the community and parents and other external sources for mentors or teachers, materials, and learning venues (Ministry of Education, 2006b).

The major supporting organizations of the IRI centres are community members (29%), local community-based organizations (6%), international non-governmental organizations (24%), churches (12%) and the government (13%). The rest are individuals and affiliate organizations (Ministry of Education, 2006b).

The programme has been expanding rapidly since its inception as evidenced by the increase in the number of schools using IRI radio broadcasts from 893 in 2005 to 1,058 in 2006, and the number of community schools adopting IRI methodology, which increased from 338 in 2005 to 497 in

2006. The number of learners (out-of-school children) also increased from 56,233 in 2005 to 81,324 in 2006, reflecting a 44 percent increase (Ministry of Education, 2006b, p. 12).

The IRI programme has contributed to the implementation of the Zambian's 'right to education' and addresses some of the educational challenges:

- In 2005 the IRI centres constituted 12.30 percent of the number of schools offering basic education – i.e., 893 IRI centres out of a total 7,256 schools offering basic education. This is a significant contribution when one considers the fact that a number of the 2,318 community schools in that same year used IRI radio broadcasts.

- IRI radio broadcasts have helped to improve the quality of education in community schools. A study conducted in 2006 "indicates that community schools adopt IRI . . . to supplement the teaching materials and that IRI assists untrained teachers in the community schools to manage their lessons adequately" (Ministry of Education, 2006b, p. 12).

- The IRI programme is promoting equity and equality in educational provision. Since its launch in 2000, there are more IRI schools in rural areas as compared to urban areas. Between 2005 and 2006, nearly 70 percent of IRI schools were located in rural areas. The remainder are located in urban and peri-urban areas. There is a balanced gender distribution between boys and girls, which was 50.2 percent and 49.8 percent respectively in 2006 (Ministry of Education, 2006b). Equally important is that the number of both single and double orphans accessing basic education through the IRI programmes increased from 18,880 (36%) in 2005 to 27,481 (35%) in 2006 (Ministry of Education, 2006b).

- It is contributing to the overall increase in enrolments at basic education level.

- It enables learners to initiate and restart basic education, giving learners a second chance to pursue basic education. The 2006 data indicate that 93 percent of the children enrolled were between 5-15 years. The remainder were either adult learners or under age learners (Ministry of Education, 2006b).

- It has provided a model for building partnerships in the provision of basic education, in general, and in the area of open and distance learning in particular.

The success of the IRI programme has been conditioned by a number of factors. First, it targets children that are not in government schools for various reasons. Though government school education is free, there are other 'hidden costs' involved that tend to inhibit the children from enrolling in these schools (i.e., the cost of exercise books, pens, and travel to school). The IRI programme appears to be the best alternative for children that are very vulnerable, especially the orphans (Ministry of Education, 2006b).

Second, the programme is receiving support from communities. In 2006, for example, many centres and community schools benefited from local communities in terms of construction of better permanent shelters.

Third, there is support from Community Radio Stations. In 2006, six Community Radio Stations in Zambia promoted and broadcast the IRI programme.

Although the IRI programme has, in recent years, become more visible and widespread, the use of open and distance learning at secondary school level has a longer history, dating back to independence, in 1964.

(b) Secondary level distance education: In the early1970s, the Zambia College of Distance Education (ZACODE) (formerly National Correspondence College) began offering two variants of open and distance learning:

- Directly enrolled adult students studying for junior secondary or General Certificate of Education (GCE) "O" levels (senior secondary school equivalent). In the early 1990s, there were 30,000 such students enrolled.

- Recent primary school leavers in "Open Secondary Classes," who studied in supervised groups at various centres through out Zambia. In the mid 1990s, approximately 19,000 students were enrolled in these study groups at over 250 centres.

The programme virtually ground to a halt in the 1990s, however, due to a number of problems that affected ZACODE, including inadequate funding, which resulted in materials production difficulties and shortages of learning materials and equipment. Other problems were costly postage, large class sizes in open secondary centres, lack of qualified staff and cumbersome administration systems (Tate, 1990).

Zambia's Ministry of Education, through its Directorate of Open and Distance Education has now revived the distance secondary education programme. Print–based self-instructional materials and learner support systems have been developed for the Alternative Upper Basic (equivalent to junior secondary) and Alternative High School (senior secondary) Programmes.

The programmes are targeting potential learners of all age groups who cannot access upper basic or high school education through the conventional school system. The programmes will initially comprise Grades 8 (first grade of junior secondary) and Grade 10 (first grade of senior secondary) due to the high demand at these levels.

The programmes are designed to make efficient use of the existing education infrastructure and to partner with the private sector in the use of technologies. The Alternative Upper Basic Education Programme, launched in March 2006 on a pilot basis, will be conducted in established basic schools, schools for continuing education, and other suitable institutions that may be used in the afternoons for tutorial sessions, which will support the printed materials. The pilot phase has targeted 3,000 learners in 60 learning centres across Zambia. Learning materials, registration forms, and other learner support documents and records, have been distributed to all pilot centres. Registration of learners took place between February and March 2006.

The Alternative High School Programme will be conducted in existing learning centres, such as high schools and other education facilities where learners will learn independently using high quality, interactive teaching and learning materials and may benefit from the offerings broadcasted on digital satellite television and include mathematics, commerce, English, history, and geography. Multichoice SchoolNet Africa, in collaboration with Zambia's Directorate of Open and Distance Education, aims to supply digital satellite television decoders and videocassette recorders to all the high schools in the country.

ZACODE is responsible for the development of materials, which are being piloted in Zambia's nine provinces. The Curriculum Development Centre has reviewed the materials. The pilot phase (beginning with Grade 10) targets 1,000 learners in 20 learning centres.

(c) Open and distance learning opportunities for high school leavers: The University of Zambia offers degree programmes to both working adults and high school leavers. During the 2006 academic year, young people ages 18–24 constituted approximately 10 percent of the total distance education enrollment at the university. This is significant when one considers that in the recent past university policy restricted distance learning programmes to people of 25 years and above.

In theory, therefore, it is possible for a child to complete most of their education by open and distance learning. The system also makes it possible for learners to move from one mode of learning to the other, that is, from the conventional system to distance learning and vice versa.

(d) Open and distance learning for teacher upgrading: In accordance with the provisions of various policy documents, in 2001 the Ministry of Education launched the 'Primary Teachers' Diploma in Distance Learning' (PTDDL) which is being delivered by the In-service Teachers' College.

The introduction of the diploma in distance learning was in response to the Ministry of Education's desire to retain highly motivated schoolteachers by upgrading their qualification and which subsequently improves the quality of basic education as provided for in the national policy on education.

Most current primary teachers hold a Primary Teacher's Certificate. Before the introduction of the PTDDL programme, the most common way for teachers to upgrade their status was to earn a secondary diploma, which allowed them to teach Grades 8 and 9. As a result, Grade 1-7 teachers who were committed to professional development were leaving the Grade 1-7 classes as they improved their status. The PTDDL programme allowed teachers to obtain the same status as those who earn the secondary diploma, while they continue to use their talents in Grades 1-7.

At the same time that the Ministry of Education saw the need to retain highly motivated Grade 1-7 teachers, it was rolling out new curricula. The PTDDL programme was seen as a way of providing teachers with a deeper understanding of new content and methodologies.

In 2002, a total of 1,973 learners graduated from the pilot phase. The PTDDL programme was extended to cover all districts in all provinces across Zambia. The second intake of 4,036 students (under the expanded programme) was enrolled in 2003, the majority of which successfully completed the programme. The third cohort of 4,420 students, was enrolled in 2006 (Siaciwena, Trewby, & Anderson, 2005; Swazi, 2006).
Open and distance learning was chosen to capture as many teachers as possible, because offering the programme as a residential course would have been counterproductive. First, the colleges of education would not have been able to accommodate large numbers of teachers. Indeed, even if the colleges had the capacity, residential education would have removed teachers from their classrooms for extended periods.

The PTDDL programme is contributing a great deal to the upgrading of teachers at primary school level. More than three quarters (76.8%) of those who enrolled in the programme in 2003 have successfully completed it.

An Assessment of the Future Role of Open and Distance Learning in Implementing the Right to Education

The rising demand for education at all levels of the education system necessitates expansion of open and distance learning provision. The Government of Zambia has committed itself to the development of open and distance learning in its policies within the context of which structures, systems and human capacity development programs to improve the planning and development and delivery of open and distance learning have been developed.

However, a number of studies (see Tate, 1990; Siaciwena, et al., 2005; Commonwealth of Learning, 2005) have identified a number of constraints on the development of this mode of educational delivery the main ones being the following:

(a) Political support and legitimacy: Many educational policy-makers, planners, and parents reported to be skeptical about the legitimacy and quality of open and distance learning provisions on grounds that it does not and cannot offer the same quality as conventional, on-campus education.

(b) Policy issues: Despite some policy provisions in various government documents, Zambia lacks a national policy on open and distance learning to guide the development and implementation of programmes at national and institutional levels.

(c) Inadequate human capacity: Lack of infrastructure and professional competence in open and distance learning is a significant barrier. There is a shortage of qualified staff required for guiding and influencing the development of distance education policies, and for planning, developing, managing, and evaluating distance education programs.

***(d) Inadequate funding*:** Partly because of inadequate political support open and distance learning institutions in Zambia lacks financial resources. For example, in 2006 the Directorate of Distance and Open learning, which administers all open and distance learning activities in the Ministry of Education, received 0.2 percent of the total Ministry budget.

(e) Course design and development: Due to a shortage of skilled or trained staff, open and distance learning institutions lack systematic and needs-based design and development of course materials.

(f) Delivery media: There is a limited range of media used in open and distance learning. Most programs use predominantly print-based or radio-based materials without any support media or materials.

(g)ICT infrastructure: Zambia has an underdeveloped information and communication infrastructure. Consequently, open and distance learning institutions lack effective delivery and support services and systems. Currently, open and distance learning programmes are predominantly print-based or radio based, and help remediate this situation.

(h) Learner support: Most of the institutions do not have well-designed learner support systems for their open and distance learning programmes. Instead, they depend heavily

on face-to-face teaching during residential school sessions without any institutionalized learner support systems.

(i) Quality assurance: Almost invariably open and distance learning institutions lack effective quality assurance systems. They do not have adequate monitoring, research and evaluation base that is needed to support informed policy choices. Therefore, there is insufficient information on the performance of programmes and this raises doubts about their quality and tends to reinforce negative attitudes towards open and distance learning.

(j) Sustainability: Some open and distance learning programmes have been heavily depended on donor funding and are not sufficiently integrated into the mainstream education systems. For example, the IRI is seen as a project with financial and technical support from USAID, through the educational development centre. This raises questions about sustainability. ZACODE virtually stopped offering secondary distance learning courses when the Germany Adult Education Association (DVV) technical and financial assistance program expired in the early 1990s.

Conclusion

The rising demand for education at all levels of Zambia's education system necessitates expansion of its open and distance learning provision. The Government of Zambia has committed to the development of open and distance learning in its policies within the context of which structures, systems, and human capacity development programs, to improve the planning and development and delivery of open and distance learning have been developed teacher upgrading.

Its development, however, is constrained by a variety of factors. In general, the design of distance programmes does not sufficiently provide for effective operational systems such as administrative support, course development, delivery, and student support, assessment, monitoring, and evaluation. There is an urgent need to, among other things:

- Provide training in all aspects of open and distance learning through short courses and degree programmes.
- Develop human and infrastructure resource capacity to plan, design, develop, manage, and evaluate open and distance learning systems and programmes.
- Periodically evaluate open and distance learning programmes to improve their quality and ensure that they are responsive to emerging needs.
- Continually review the organizational arrangement and management of open and distance learning programmes in educational institutions to improve coordination, inter-institutional collaboration, operational efficiency and effectiveness.
- Develop quality assurance framework and strategies for open and distance learning.
- Establish and maintain relationships and partnerships with relevant private and public non-educational institutions involved in open and distance learning and information and communication technology development.

- Develop human resource and institutional capacity to develop and produce quality open and distance learning materials.

- Establish a national consortium for joint course development and sharing of the national open and distance learning networks and facilitating organization of open and distance learning programs countrywide (Commonwealth of Learning, 2005).

References

Commonwealth of Learning (2005). *Zambia Teacher Education Strategy: Final report.* Vancouver: Commonwealth of Learning.

Government of Zambia (1996). *Investing in Our People: Integrated Education Sector Investment Programme (ESIP) policy framework.* Lusaka: Government of Zambia.

Government of Zambia (2006). *Fifth National Development Plan 2006-2010.* Lusaka: Government of Zambia.

Kelly, M. J. (1998). *Primary Education in a Heavily Indebted Poor Country: The case of Zambia in the 1990s.* Unpublished Report for OXFAM and UNICEF, October, 1998.

Eastern Washington University (2005). *Children's Educational Rights.* Eastern Washington University website. Retrieved January 29, 2008 from: http:www.ewu.edu/x14913.xml

Ministry of Education (1996, May). *Educating Our Future: National Policy on Education.* Lusaka: Ministry of Education.

Ministry of Education (2003). *Strategic Plan: 2003-2007.* Lusaka: Ministry of Education.

Ministry of Education (2006a). *Educational Statistical Bulletin.* Lusaka: Ministry of Education.

Ministry of Education (2006b). *2006 IRI Statistical Report.* Lusaka: Ministry of Education.

Ministry of Finance and National Planning (2002). *Poverty reduction strategy paper (2002 – 2204).* Lusaka: Ministry of Finance and National Planning.

Siaciwena, R., Trewby, R., & Anderson, D (2005). *Evaluation of the Primary Teachers' Diploma by Distance Learning.* Unpublished Report prepared for Zambia's Ministry of Education. Lusaka: Ministry of Education.

Swazi, H. (2006). *Report to the National Coordinating Committee of the Primary Teachers' Diploma by Distance Learning*, May 22, 2002. Lusaka: Ministry of Education.

Tate, O. (1990). *Distance Education in Zambia.* Vancouver: Commonwealth of Learning.

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Exploring the Role of Distance Education in Fostering Equitable University Access for First Generation Students: A phenomenological survey

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Abstract

Using a qualitative study of distance education (DE) learners whose parents have not accessed post-secondary education (PSE), this paper proposes themes for further research in the study of first-generation students (FGS). This survey asked a number of open-ended questions about parental influences on university enrollment, and respondents' reasons for choosing university in general and DE in particular. Findings were consistent with current research in many areas focusing on debt aversion, lower parental guidance, older starting age, and difficulty separating from familial roles. Differences were noted, including lower parental valuation of PSE and an increased emphasis on non-educational priorities, such as family and work. The limitations of the current study are discussed, as well as suggestions for future FGS research in DE.

Keywords: distance education; first generation students; education equity; post-secondary education

Introduction

Recent data has shown that a Canadian university focusing on distance and open education draws a much higher proportion of first generation students (FGS)—those whose parents have not completed post-secondary education—than do traditional universities in Canada. Nationally, about 51 percent of the student population in Canadian universities have parents who have not completed university (Drolet, 2005), while at Athabasca University, an open Canadian university specializing in distance education (DE), 72 percent of students have parents who have not completed university (Athabasca University, 2006).

When we began to investigate reasons for the higher proportion of FGS accessing distance education at Athabasca University, we found no comprehensive studies specifically aimed at explaining why DE populations might have a higher proportion of FGS. Therefore, a small qualitative study of FGS accessing distance education at a variety of universities was performed to gain insight into the reasons that FGS are selecting distance and open education, and to provide direction for future studies. Our goal was to begin to understand how DE influences enrollment of first generation students.

Studies in this area are limited, so two primary objectives were identified: 1) to determine potential factors that may explain why a higher proportion of FGS are choosing DE, and 2) to

identify potential areas for future, detailed study. A qualitative, phenomenological approach was chosen to explore the lived experience of FGS enrolled in a distance learning environment.

FGS have been recognized as an underserved group in the Canadian post-secondary system. Statistics Canada has confirmed a strong correlation between parental education levels and participation in post-secondary education (Drolet, 2005). Though financial considerations are a major factor limiting university access for FGS, Drolet concludes that university participation is more strongly correlated with the level of education achieved by parents. Drolet's survey of 2001 university participation levels showed that only 16.6 percent of children with parents who had high school education or less attended university, compared with 27.8 percent of children whose parents had attended college, and 49.6 percent of children whose parents had completed university.

Several explanations for this inequity have been noted, including differences in how FGS and continuing generation students (CGS) – students whose parents have previously attended university – prepare for university. Parents of FGS are generally less involved in helping their children apply for university study because they are less informed about available programs and options, application processes, and the importance of early preparation (Astin & Oseguera, 2004; Ceja, 2006; Hahs-Vaughn, 2004; McCarron & Inkelas, 2006; Pascarella, Pierson, Wolniak & Terenzini, 2004). This lack of input is a particular disadvantage to FGS who select traditional enrollment (full-time study, direct-entry from high school, etc.) (Hahs-Vaughn, 2004) or apply to highly selective institutions (Astin & Oseguera, 2004). Aston and Oseguera (2004) found that students from highly educated families are three times more likely to attend a highly selective institution than students from families with a middle education level, and five times more likely than FGS.

Further, compared to CGS, FGS may experience higher anxiety about leaving home to study (London, 1989), changing family role assignments (Lohfink & Paulsen, 2005; London, 1989) and incurring debt (Lohfink & Paulsen, 2005). Cofer, Somers and Woodhouse (2004) reported that FGS are particularly debt averse, possibly due to limited knowledge of the student loan system. FGS may also experience incongruence between their family backgrounds and the social role of a post-secondary student; this highlights the importance of the home culture in preparing students for the adjustment to higher learning institutions (Hsiao, 1992; McCarron & Inkelas, 2006).

Because FGS may delay entrance to university and take longer to complete a degree, they may also have to balance study with additional commitments, such as children (Hahs-Vaughn, 2004; McCarron & Inkelas, 2006). In general, FGS work more hours while studying, and complete fewer credit hours per year of study (Hahs-Vaughn, 2004; Lohfink & Paulsen, 2005; Pascarella et al., 2004). These factors, combined with the culture shock experienced by FGS entering the academic environment (Choy, 2001; Lohfink & Paulsen, 2005; Pascarella, Wolniak, Pierson, & Terenzini, 2003) and the lack of preparation for transitioning to university study (Hahs-Vaughn, 2004; McCarron & Inkelas, 2006), may lead to the demonstrated higher attrition rates of FGS (Lohfink & Paulsen, 2005; Choy, 2001; McCarron & Inkelas, 2006). Choy (2001) found that the first year attrition rate for FGS was double that for CGS, which is of particular importance when paired with the observation that after the first year, the disadvantages affecting the school performance of FGS have less influence (Hahs-Vaughn, 2004).

Since FGS often delay their entry into the post-secondary system or suspend their studies for as long as several years (McCarron & Inkelas, 2006), when they return to study, these FGS enter as adult learners with special needs that may not be addressed by a system designed for younger

students. To better serve these students, McCarron and Inkelas (2006) suggest that universities provide supports for adult learners, which include part-time study options, enhanced counseling services, online course delivery, accelerated study options, and day care for children. All but the last of these are immediately addressed in most distance education environments. Additionally, Hahs-Vaughn (2004) notes that FGS are less likely than CGS to attend a college that is far from home (see also Lohfink & Paulsen, 2005); this highlights the importance of accessibility for these learners.

Research Methods

Participants

For this study, FGS were defined as post-secondary distance education students or alumni whose parents had never attended a post-secondary institution or completed a post-secondary course or program. In addition, participants were of the age of majority for their geographic region; able to use and access email; fluent in English; and enrolled in or finished a post-secondary course or program delivered via DE. Research was not limited to students of any particular university. A survey was favoured over an interview format to ensure that the study could include students in all countries within budget and time constraints.

Advertising for the survey was placed in student discussion forums and publications with an emphasis on DE. In total, 15 individuals responded to the call for participants, of whom four did not return the preliminary eligibility questionnaire, and two were deemed ineligible because their parents had prior post-secondary experience. The remaining nine were provided with the full survey, of whom seven replied and were included in our sample. The sample was comprised of a self-selected group that had enrolled in, or completed courses or programs from, various universities via distance education. Five of the seven participants had accessed distance education at more than one university.

Due to the lack of any standard definition of the ideal sample size for qualitative research, we used as a guideline the theoretical saturation paradigm defined by Guest, Bunce and Johnson, whose 2006 study, “How Many Interviews Are Enough,” attempted to establish a standard for determining when theoretical saturation has occurred. Building on Morse’s (1995) observation that “saturation is the key to excellent qualitative work” (cited in Guest, Bunce & Johnson, 2006, p. 60), the team aimed to determine ideal sample sizes for qualitative studies. The researchers noted that while probabilistic sampling is the ideal method of performing research, “it is virtually impossible to do so in the field (Bernard 1995; Trotter & Schensul 1998) . . . especially . . . for hard-to-reach, stigmatized, or hidden populations” (p. 61). Additionally, Romney, Weller and Batchelder (1986) applied a mathematical test to show that in anthropological studies of discrete communities, sample sizes as small as four can be sufficient to provide reliable results.

Building on these guidelines, as well as Neilsen and Landauer’s (1993) mathematical saturation model based on the results of six qualitative studies (cited in Guest, Bunce & Johnson, 2006, p. 78), Morse’s contribution to the *Handbook for Qualitative Research*

(Denzin & Lincoln, 1994), and the team's own experiment, Guest, Bunce and Johnson concluded that theoretical saturation generally occurs in as few as twelve interviews, and that for "high-level, overarching themes . . . a sample of six interviews may [be] sufficient to enable development of meaningful themes and useful interpretations" (p. 78).

Our study attempted to discover and evaluate a hidden population for the purpose of isolating major themes for possible future research; therefore, our sample of seven participants was deemed appropriate and in keeping with the guidelines for high-level qualitative research. To encourage participation, a cash prize of $150 was offered and awarded to a participant selected by random draw.

Materials

An eligibility questionnaire and a 24-question, self-response survey were developed for this study. The survey included four sections: 1) general demographic information; 2) family educational history; 3) respondents' educational environment; and 4) personal feelings about distance education. Survey questions were designed to be open-ended where possible, and to elicit the description of personal feelings and experiences. The surveys were sent and returned via email and required the participant to have access to a computer, email, and an MS Word-compatible word processor.

Procedure

Potential participants were asked to contact the researchers via email to obtain an eligibility questionnaire to be returned by email one week prior to receiving the final survey. The eligibility questionnaires were screened, and ineligible individuals (those whose parents had prior post-secondary experience) were removed from the study. The final survey, including a detailed information sheet, was sent to participants with a deadline for submission set for three weeks following receipt of the survey. The information sheet notified participants that submission of the completed survey would grant consent to use the results, and that all submitted information would remain confidential. Returned surveys remained unopened until all responses were collected.

Each researcher received a copy of all surveys, without information identifying the participants, and individually analyzed the content of each survey to isolate common experiences and attitudes. Following this, the researchers discussed their impressions and developed theme groupings based on the responses. The researchers met a third time to review and revise the thematic groupings, with reference to the original surveys, to ensure that the themes remained consistent with participant responses. Finally, the themes were reviewed alongside relevant research to identify areas of congruence and new themes arising from the survey results.

Thematic Analysis

The findings that follow are separated into four sections based on themed groupings identified from the survey responses. The first examines similarities in starting age and life commitments common to our respondents. The second examines the factors of parental assistance with university application, pre-conceived notions about university study, and debt aversion. The third focuses on work ethic, individuality, and discouragement. The fourth and final section considers the influence of social roles and expectations. Where these themes are congruent with available research, we have noted this. We have also noted several factors that require more study to determine if they are affecting enrollment and persistence for FGS.

Starting Age and Commitments

One result that was consistent on all responses related to starting age: all of the respondents had been out of high school for at least two years, and in some cases a decade or more, before beginning DE study. All who had entered the post-secondary system within two years of leaving high school had suspended their studies for several years before returning to serious study. All but one of our respondents had children and cited childcare responsibilities as among the factors leading to their choice of DE. One noted that DE allowed her to fulfill both academic and parental roles:

> "I don't have to give anything up to be a distance education student. I can study when my kids are at school, and put my books away when they come home. I can take a day to do housework or yardwork without missing a class or a deadline."

Four of our participants also cited a reluctance to relinquish paid work to return to school, one noting that, "distance education gives me the opportunity to continue with my educational goals while continuing to work." All respondents indicated a strong desire to complete their education, and many noted that study was enjoyable, a luxury. Indeed, one student said he was "mad keen" on attending university.

If these findings hold true for a significant portion of the FGS selecting DE to complete university, it would suggest that, in general, FGS start university later and that their status as adult students with additional responsibilities is a significant factor in their choice of DE. McCarron and Inkelas's (2006) findings show not only that FGS often delay the start of their education, but also that many FGS do not complete their degrees within eight years of completing or leaving high school. Findings on attrition rates for FGS (Choy, 2001; Lohfink & Paulsen, 2005; McCarron & Inkelas, 2006) support our finding of the delayed completion of studies. What surprised us was the consistency of this finding, with no respondents beginning DE post-secondary study before the age of 20.

The supposition that a later starting age correlates with a higher level of life commitments, and that these commitments are a significant factor leading to the choice of

DE, is not directly supported. It follows from McCarron and Inkelas's (2006) recommendation, however, that universities can best serve adult learners by providing opportunities for part-time study, child care, and evening contact hours. While their recommendations referred only to traditional university, DE can address all of these issues by allowing parents to stay at home and employed students to arrange study around their work schedules. Indeed, this desire to balance study with other life commitments was noted by many of our respondents, such as the mother of a child with health problems who commented: "When my son is hospitalized, I know that the quiz I wanted to write can wait until next week and it alleviates [the stress] I'd have at a brick and mortar school." All but one of the respondents stated that they would not be completing their degrees without access to DE. The remaining respondent noted that if DE were not an available option, she would have attended university much later because she had a young family.

Parental Assistance, Education Stigma, and Debt Aversion

As expected from the literature review (Ceja, 2006; McCarron & Inkelas, 2006), our cohort noted a distinct lack of parental guidance through the process of applying for university. Specifically, respondents noted that their parents were not versed in the processes of university application, program selection, and obtaining funding. A typical response to the question about parental guidance was that, "neither of them had any experience in that area. I think they were even more confused by the calendars than I was."

Similarly, our survey also indicated a significant level of debt aversion as suggested by the literature (Cofer, Somers & Woodhouse, 2004; Lohfink & Paulsen, 2005). One respondent indicated:

> "Distance education gives me the opportunity to continue with my educational goals while continuing to work. This enables me to pay for all my courses without any financial support . . . [from] outside sources, which means I will not have a large dept [*sic*] load like some of my friends."

Other respondents also indicated that they chose DE so that they could continue to work while they studied.

Against our expectations, no respondents indicated a negative initial opinion of DE, nor did they feel their parents were disapproving of DE. Instead, both parents and students were generally more concerned with degree completion. One respondent indicated that DE would be better received by her family than traditional post-secondary education: "I knew that they'd react favourably toward distance education because it allowed me to take care of my son." Another stated that her parents had "no comment about my attending university via distance education, they were just happy I attended." While our

experience is that many students still consider DE to be unusual or non-traditional, it is possible that parents who lack university experience are less likely to pass on this stigma.

For the FGS accessing distance education, comments such as, "my parents never really expected me to pursue any post-secondary education," and "they neither encouraged nor discouraged me from post-secondary education, it was kind of left up to me to pursue or not," were common. Conversely, Ceja (2006) noted that the parents of his participants, who were all American Chicana students attending traditional university, had a feeling that post-secondary education was a necessity for their children. This contrasts with the general theme we found in our survey, which was that parents were generally supportive of the pursuit of post-secondary education, but not committed to ensuring that their children would pursue it.

Work Ethic, Individuality, and Discouragement

Four of our respondents demonstrated a strong work ethic and a perception that full-time, traditional study is self-indulgent. Many said it was critical that they support themselves through school. A single mother selected DE so she could be home with a sick child, but also stated:

> "I learned a great deal about work ethic from my mother . . . it makes it difficult for me to NOT work. I think if my son's [health improved], I'd have a hard time allowing myself to stay in school instead of going back to work. It almost feels indulgent of me to pursue this education."

She also indicated a reluctance to rely on welfare. Moreover, other respondents echoed her commitment to self-support, with one commenting "we were encouraged . . . but only if we could do it on our own financially." One individual stated that people unable to fund their own education should get jobs instead, while another rejected the option of part-time study at a traditional university to care for her child and study full-time via DE simultaneously.

This commitment to balancing education with other obligations may stem from values instilled by the parents of FGS. In addition to the respondent who said her parents would approve of DE because it allows her to care for her son while studying, another was offered assistance by her father, but refused, "unwilling to have him compromise his life for mine." All respondents had high standards for work and scholastic achievement.

A related, but less prominent, theme is a preference for independent study. The two students who stated this most explicitly had parents with the least education of our cohort; in both cases, the parents had not completed primary school. The first of these, whose father was illiterate until shortly before retirement, recalled her experiences "as a young child having to find my own solutions to school problems because [my parents] did not have any education to help me." She decided as a young child that she would eventually pursue post-secondary education. The other of these respondents noted that

DE "suits my style of learning. Sitting in lectures taking notes all day was wasted time for me. I do not learn by listening and writing. I learn my reading and I prefer to do it on my own." She also noted a preference for working at her own pace.

Others noted a desire to accommodate learning to their lifestyle and to work on their "own terms." One likened DE to "a truly personal solo sailing trip around the world . . . a one-on-one encounter with the course materials gives me a more 'intimate,' less filtered comprehension of the subject matter." Independence also appeared as factor encouraging a return to study, as one participant noted, "I didn't want to be someone's assistant anymore. I'm done working to put money in other people's wallets."

One returning student said that her parents "did not see the need for [post-secondary]" and "never provided me any help emotionally, financially, or otherwise." Her mother believed she should stay home with the children, and she was also discouraged by her husband. Another respondent said her parents undermined her study plans:

> "My father filled out all my high school forms, refused to fill out OSAP forms and . . . effectively controlled me right out of a shot at university . . . [if my parents knew I was in university I] suspect that they would see it as a waste of time and money."

For our participants, enrolling in university seems to be an act of empowerment, yet their continued commitments to parenthood and fiscal responsibility suggest that they have internalized the values instilled by their parents, but not the limitations. The aforementioned respondent characterizes her return to post-secondary, more than 20 years after completing high school:

> "I want a degree. I want to know I can do it . . . doing higher education now is my way of shaking their negative influence . . . Their lack of education defined their world. My education will help to redefine my world."

While some studies of the larger population of FGS indicate that parents of FGS are often emphatic about their children pursuing university (Ceja, 2006), in our cohort only one participant indicated strong parental support. This may suggest that a subset of FGS who have been discouraged from attending post-secondary may be accessing DE for its distinction from traditional learning. Further, probabilistic research is needed to determine if such a pattern exists.

Social Roles and Expectations

Social roles and expectations consistently appeared to have a significant influence on the respondents' choices of post-secondary institution. These roles consisted primarily of parental expectations, but were coupled with self-expectations that may have stemmed in part from the respondents' upbringing and parental influences. It is important to note,

however, that these social expectations were the perception of the individual respondents and do not imply any formal definition of class structure.

The first significant social expectation expressed by five of our participants was the prioritization of the family role over educational goals. One respondent said that while her parents did not overtly dissuade her from attending university, she was expected to prioritize her parental role:

> "When I decided to begin post-secondary education my mother had asked me what the purpose was and she did not like it when I said I wanted more than just minimum wage jobs in my life, I wanted a career. She believed that I should stay home with my children. I did when they were younger and continued to study as well."

Accordingly, she chose a distance learning model that enabled her to maintain both roles, thereby fulfilling educational goals while meeting parental expectations.

A second social expectation was a perception, real or perceived, of class boundaries and the notion that obtaining a university degree could propel one into a separate social "class." In one respondent's words, ". . . they felt to go for university was to reach above one's station. I think their attitude justified my staying in my place for so very long." This implies that the parental expectation to maintain a social "station" was a factor that delayed entry into the post-secondary environment. In addition, consistent with McCarron and Inkelas (2006), the respondent acquired additional responsibilities prior to her return to post-secondary learning, and the DE environment allowed her study without sacrificing family obligations. Another respondent noted that as a result of his higher education and new interests in art and politics, he and his parents have grown apart.

These results are consistent with London's (1989) finding that as young adults move toward increased independence; they also come into conflict with their established family roles. This dynamic leads to a complex interplay between the desire for personal growth through education, and the fear of losing the role in the family unit (London, 1989). Based upon the responses to our study, it appears that, for our cohort, this conflict is largely resolved through adopting a method of education that allows the student to compromise and develop multiple roles simultaneously.

Limitations

Due to the nature of phenomenological research, this study has several inherent limitations, particularly for the interpretation and application of our results to a larger FGS population. First, the number of participants was small and self-selected, and to date there has been very little research on the population characteristics of FGS DE students. Given this, it is important to reemphasize that this thematic analysis is intended to identify potential areas for future study, not to imply cause-and-effect relationships. Second, our analysis is subject to researcher interpretation, which is influenced by our

personal distance learning experiences. To minimize the effect of individual bias, the researchers conducted individual thematic analyses prior to compiling the results. Themes that were not supported across multiple surveys, or that provided ambiguous interpretations, were discarded.

Additionally, our study did not differentiate between different modes of DE delivery. It is possible that these themes may or may not demonstrate a stronger association with one or more specific delivery options, such as correspondence learning, online learning, independent study, group or paced learning, and so on. Therefore, a multivariate analysis investigating FGS attitudes toward various delivery modes may help to clarify this issue. This study did not seek to identify the influence of cultural differences and, as a result, participation was limited culturally only by the respondents' ability to communicate fluently in English. Given that all but one respondent was located in Canada, with the exception that one respondent resided in Australia, it is prudent to assume that these results reflect a Western bias. Finally, our research does not attempt to compare FGS DE learners with DE learners as a whole. It is possible that the characteristics found in our population are common to the larger DE population. Further research to compare the common attitudes of DE learners with those of FGS DE learners specifically would be beneficial.

Conclusion

The one consistent factor revealed by our research was that the surveyed FGS are beginning university study at a later age than expected, and that they often suspend or delay their studies for long periods. Because current research does not follow these students throughout their lifetimes – McCarron and Inkelas (2006) report on rates of university completion only within eight years of the end of high school – it is not clear how many FGS are eventually completing their degrees, nor do we understand the factors that bring them back to school after a long delay.

Also while parental guidance for transitioning into post-secondary education was frequently cited as limited in our study, respondents did not provide sufficient information to explain how this parental limitation influenced their selection of DE. It is important, however, to note that none of the respondents indicated that their parents had pre-conceptions regarding DE, nor did they strongly encourage a specific delivery mode. Therefore, another potential area for research is whether parental bias, or lack thereof, regarding post-secondary delivery modes influences students' choices. Such a study might ask if parents who have attended a traditional university bias their children toward that delivery mode. In addition, the strong debt aversion cited by respondents who chose DE to remain self-supporting warrants additional study and raises questions about parental influence, lack of understanding of the student finance system, or a potential youth bias in the student loan system.

The independent learning style highlighted by some of our respondents may also provide insight into their selection of DE, given DE's emphasis on self-directed learning. The

respondents were emphatic that DE provided the only option for them to incorporate university into their busy lifestyles, with all respondents indicating that they would be unlikely to complete their degrees without the option of distance delivery. Whether this individuality is unique to the study participants or a direct result of their FGS status is unknown, however. Therefore, it seems important to study how parents of FGS students may have influenced their development and attitudes, and whether a strong work ethic and individual learning style are correlated with familial influence and DE selection. Finally, we must determine if this ethic discourages FGS from leaving work to attend university.

The final theme, the influence of social role expectations, raised questions as to whether FGS are subject to unique social expectations that are correlated with traits such as adopting multiple commitments early in life, starting education at a later age, valuing a strong work ethic, and experiencing guilt when choosing to emphasize education over perceived social roles and responsibilities. As most respondents indicated a strong reluctance to let their education diminish their other roles, it seems important to determine if this relationship is correlated with FGS status and DE selection, or if it is common to post-secondary students.

References

Astin, A. W., & Oseguera, L. (2004). The Declining "Equity" of American Higher Education. *The Review of Higher Education, 27*(3), 321-341.

Athabasca University. (2006). *Report of Comparative Results of the Alberta Post-secondary Graduate Outcomes Survey: Class of 2003/ 2004*. Institutional Studies. Retrieved June 13, 2007, from: http://intra.athabascau.ca/ois/grad_outcomes_2006.doc

Ceja, M. (2006). Understanding the Role of Parents and Siblings as Information Sources in the College Choice Process of Chicana Students. *Journal of College Student Development, 47*(1), 87-104.

Choy, S. (2001). *U.S. Department of Education, National Center for Education Statistics, Students Whose Parents Did Not Go to College: Postsecondary access, persistence, and attainment.* NCES 2001–126, Washington, DC.

Cofer, J., Somers, P., & Woodhouse, S. (2004). Pushing the Boulder Uphill: The persistence of first-generation college Students. *NASPA Journal, 41*(3) 418-435. Retrieved June 10, 2007, from: http://publications.naspa.org/cgi/viewcontent.cgi?article=1353&context=naspajournal

Denzin, N. K., & Lincoln, Y. S. (1994) *Handbook of Qualitative Research.* Thousand Oaks, CA.: Sage Publications.

Drolet, M. (2005). *Participation in Post-secondary Education in Canada: Has the role of parental income and education changed over the 1990s?* Statistics Canada: Ottawa. Retrieved June 10, 2007, from: http://www.statcan.ca/english/research/11F0019MIE/11F0019MIE2005243.pdf

Guest, G., Bunce, A., & Johnson, L. (2006). How Many Interviews Are Enough? An experiment with data saturation. *Field Methods, 18*(1), 58-82.

Hahs-Vaughn, D. (2004). The Impact of Parents' Education Level on College Students: An analysis using the beginning postsecondary students longitudinal study 1990-92/94. *Journal of College Student Development, 45*(5), 483-500.

Hsiao, K. P. (1992). *First-generation college students (Report No. EDO-JC-00-04).* Washington, DC.: Office of Education Research and Improvement. (ERIC Document Reproduction Service No. ED351079).

Lohfink, M. M., & Paulsen, M. B. (2005). Comparing the Determinants of Persistence for First-Generation and Continuing-Generation Students. *Journal of College Student Development, 46*(4), 409-428.

London, H. B. (1989). Breaking Away: A study of first-generation college students and their families. *American Journal of Education, 97*(2), 144-170.

McCarron, G. P., & Inkelas, K. K. (2006). The Gap between Educational Aspirations and Attainment for First-Generation College Students and the Role of Parental Involvement. *Journal of College Student Development, 47*(5), 534-549.

Pascarella, E. T., Pierson, C. T., Wolniak, G. C., & Terenzini, P. T. (2004). First Generation College Students: Additional evidence on college experiences and outcomes. *Journal of Higher Education, 75*(3), 249-284.

Pascarella, E. T., Wolniak, G. C., Pierson, C. T., & Terenzini, P. T. (2003). Experiences and Outcomes of First-Generation Students in Community Colleges. *Journal of College Student Development, 44*(3), 420-429.

Romney, A. K., Weller, S. C., & Batchelder, W. H. (1986). Culture as Consensus: A theory of culture and informant accuracy. *American Anthropologist, 88*(2), 313-338.

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Book Review – De la educación a distancia a la educación virtual

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Reviewed by: Peter S. Cookson, Director Académico, El Consorcio Clavijero, Mexico

Editor's Note: This book is published in Spanish only.

This book comprises the reflections of knowledgeable and seasoned distance education practitioners on the paradigm shift from (fourth generation) distance education to (fifth generation) virtual education. The authors are seasoned and prominent academics at the Distance Education University (UNED) of Spain. Lorenzo García Aretio is the Unesco Distance Education Chair and Dean, Marta Ruiz Ruiz is a professor and Vice-Dean, and Daniel Domínguez Figaredo is a faculty member and researcher in the Department of Educational Theory and Social Education.

For the benefit of English language readers, in this review I will present an overview of some of the numerous insights presented by the authors.

The worldwide boom in the digital technologies has created the information society. As people seek to grapple with the tsunami of information sources, the technologies of information and communication have become readily available, rendering irrelevant location and timing of access to sources of knowledge. The information society sets the stage for the knowledge society that enables learners to employ the technologies to construct their own knowledge, making possible the learning society. The evolution in recent years of interactive and collaborative technologies makes possible student-centered learning with continuous interaction among the participants in the process. Time and space constraints disappear entirely, making way to a new concept of 'virtuality' that is revolutionizing all forms of education.

García, Ruiz and Dominguez explain that, given the advent of digital technologies, distance education has progressed through five generations of development. The first generation, until 1965, was marked by reliance on printed media distributed mainly through postal services. The second generation, from 1965 to 1985, was marked by the emergence of radio and television technologies. The third generation, from 1985 to 1995, was marked by the integration of computer-assisted instruction and inception of technologies of information and communication (TICs). The fourth generation, virtual education, from 1995 to the present, saw the convergence on the Web of all of the elements of the previous generations. The massive adoption of home- and business-based PCs and affordable and broadband connections to the Internet, learning management systems, computer conferencing, learning communities, the offer of Internet-based

courses and degrees by both small and large universities worldwide and, even in the poor non-industrialized countries the emergence of publicly funded 'telecenters' and cybercafés, are all innovations that have characterized this fourth generation that continues to this day. To the fourth generation the authors of this book point to a fifth generation that they call 'e-learning.' In addition to many of the features of previous generations, this fifth generation is centered on constructivist approaches to learning. Students cease to be receptors of the learning selected and delivered by their instructors. Instead, capitalizing on the use of technologies based on the Internet, they share with their teachers responsibility for selecting *the what* and *the how* of their own learning. In light of the requirements of this fifth generation of distance education and the need for students to be engaged in a constant process of learning and unlearning throughout life, García, Ruiz and Domínguez contend that training for self-learning must be a priority in every teaching-learning process.

Besides enabling attainment of specific learning objectives, the focus of all education programs is development of learners to participate actively in the economic, social, and cultural life as well as to adapt to changing conditions in the context of the knowledge society in which they live. Given such developments as network bandwidth and speed, fiber optics, wireless connections, mobile Internet, reduced connection costs, improved navigation tools in virtual learning, and collaborative technologies, distance and virtual forms of education now provide enriched teaching learning contexts, ideally suited to enable effective lifelong education. Distance education is no longer regarded solely as a way for individuals to compensate for lost opportunities to participate in classroom-based learning. Because conventional face-to-face education cannot meet the demands of lifelong education in contemporary society, distance education is increasingly perceived as a viable educational alternative for the majority of the population. The worldwide resurgence of interest and involvement in distance education, at least in industrialized countries, is making the opportunity of access to lifelong education a reality for all segments of the population. As more and more face-to-face educational institutions progressively offer more distance programs, the boundaries between face-to-face and distance instruction are dissolving.

According to García, Ruiz and Domínguez, teaching in virtual education involves,

> . . . the processes of orientation that respond to the tasks of attending individually to each student, guiding and mediating their learning, helping them to promote their interests, tackling positively different difficulties that occur throughout their learning. Nobody questions the necessity of the task of guiding and orientation, both group and personal, of motivation, individualized help in the whole process of learning, being, if it fits, more necessary in distance education for effective learning in flexible environments in which to promote self-directed learning. The ICTs provide, in this sense, great possibilities of interaction between the learners and the educator, and a continuous and dynamic interrelationship among all of them, outside of all of the spatiotemporal coordinates. (p. 180)

The authors advance the view that despite the advancement of the TICs, the educator remains the fundamental agent in interaction with the learner who remains the chief protagonist. Without the interaction between these two and the guidance, help, and mediation of the educator, education would not be possible. While pre-Internet forms of distance education have been criticized for the lack of two-way interaction between these two, this is no longer true.

Although teachers in virtual education continue to transmit information, they also plan and manage the information in such a way that students, more than mere passive readers of pages, may construct their own information structures and then convert them to knowledge. This implies

a new relationship between new learning practices and knowledge, underscoring the importance of creating flexible learning environments. Any process of education is clearly insufficient if based exclusively on the knowledge of a teacher or a specific study manual. In virtual education, learners, by employing a diversity of technologies and channels of communication, are active users of flexible and self-directed learning.

With added interactivity, hyper-textuality, and multimedia in virtual education environments, teachers no longer serve as mere transmitters of information. Their teaching functions and roles have become more complex and subdivided among a team of professionals who input knowledge, communications, and technologies to facilitate flexible learning. These professionals assume different roles: planners, course designers, materials and media, content experts, educational technologists, specialists, and technicians who produce didactic materials; supervise, plan, and coordinate diverse activities; consult, counsel, advise students, and evaluate various program aspects.

Lending credence and coherence to all of these functions, the teacher continues to be responsible as initiator of mediated learning in virtual environments. To ensure quality education, besides in-depth knowledge of their own discipline, virtual educators must also possess the following attributes:

- Greater knowledge of teaching, psychology, sociology, and technology
- Knowledge of distance education
- Competencies, skills, abilities, attitudes, values, and knowledge of how to learn and to access and discriminate among information sources
- Ability to empower others to exercise control over their own learning
- Knowledge of how to respond to such aspects of social change as plurality, globalization, interdependence among groups, conflict resolution
- Mastery of technological culture

Previous generations of distance education did not require the direct involvement of teams of education specialists. Although first generation distance education involved specialists, these were not directly involved in pedagogical development. In second generation distance education, from 1960 to 1985, radio and television technicians merely carried out the decisions of pedagogues. In third generation distance education, from 1985 to 1995, involving applications of TICs, teachers could not do everything and thus worked as a team with other specialists. In fourth generation digital distance education, the technology revolution took off and brought with it the advent of collaborative technologies, learning centered on students, interaction among actors, disappearance of spatiotemporal limitations and ‘virtuality’ revolutionizing all education. This radical transformation of education practice makes possible and necessary student self-directed learning, as well as collaboration and cooperation among teachers and students.

Numerous technological developments have also accompanied the rise of the Internet. Mobile phones are becoming a vehicle for education for people constantly on the move. Standards are being developed for design of learning materials and tools. Technologies for voice recognition and conversion of text to voice offer possibilities for improved vertical and horizontal interaction, simulation, and models and tools for visualization. Virtual learning guides are being developed. Study programs are increasingly aimed at citizens of different countries. Communication technologies offer learning possibilities for students with physical handicaps, development of virtual learning guides, and a plethora of international study programs for people in different countries.

While both pre- and post-Internet forms of distance education create learning opportunities characterized by flexibility, accessibility, socialization, interactivity, individualization, and motivation, distance education with ICT adds such features as interactivity, collaboration, macro information, recuperation of intelligence, greater ease of interactivity, greater access, diversity of approaches, immediacy, access to information independent of spatial and temporal considerations, multiple formats, multi-directionality, tele-ubiquity, freedom to generate and disseminate ideas, and inter-disciplinarity.

These post-Internet innovations have contributed to the emergence of different models of distance education. Institutional models include uni-modal institutions and dual- or bi-modal institutions. Organizational models reflect synchronous or asynchronous or both patterns of relations between teachers and students. Pedagogical models encompass traditionally conservative and authoritarian, participative, behaviorist, and constructivist pedagogical orientations. Other models center their focus on such aspects of the learning-teaching process as the teacher, the student, technology, interaction, or comprise integrative models. Courses differ in how they relate to content: content with support, wrap around, and integrative courses that provide flexible content with support and collaboration. Some courses are conducted exclusively at a distance; while other *mixed* courses are conducted primarily via distance instruction combined with some face-to-face instruction.

Ruiz and Domínguez describe six types of distance education that correspond to six technological models of utilization of the media. (1) The classical or correspondence study model consists of print-based study materials. (2) The multimedia model draws on multiple media such as radio and television. (3) The computer supported model combines multimedia and consists of computer-assisted instruction and computer-managed instruction. (4) The Internet-based model includes computer mediated communication and computer-based multimedia, combined with a Web-based learning management system; the result is referred to as *e-learning.* (5) *Mobile* or *m-learning* refers to mobile learning from the Internet via cellular phones and wireless networks, “maximizing portability, interactivity and connectivity” (p. 82), particularly for people on the move. (6) *Blended learning*¸ or *semi face-to-face learning*, sometimes referred to as *hybrid learning*, combines face-to-face and distance learning.

Digital teaching-learning systems adapted to the needs of students have progressed through three stages of development: (1) virtual campuses established by educational institutions; (2) digital platforms that permit adaptation of technological tools and creation of closed spaces for the development of specific educational programs; and (3) cyberspace characterized by a constructivist model of learning that calls for students to practice and communicate among themselves and their teachers within the open spaces of the Web.

The educational strategies employed for the first two stages imitate those that occur in formal face-to-face classroom settings in which professors teach groups of students. These include word processing, virtual forms and synchronous chat in order to provide a learning environment analogous to a face-to-face class. In contrast to the closed spaces of the first two stages of distance education, the third stage builds on a set of applications under the name of *Web 2.0* that corresponds to a unique philosophy that permits users to take charge of what happens on the Internet. They are empowered to access and produce diverse content without the intervention of others. Because it is no longer necessary to know programming languages to disseminate and access information on the Internet, anyone can interact with the help of applications, many of which are freely available. All of these developments open the door to the democratization of the network, to its opening up to society, and to a reduction of the digital gap whereby only advanced

users could enjoy the most interactive applications (pp. 99-100). What Ruiz and Domínguez refer to as *E-learning 2.0*,

> . . . centers its interest in the learning community and in the capacity of learners to produce knowledge that results from their social participation in a rich and stimulating setting, with a high amount of interactivity and freedom to receive and produce educational content. (p. 100)

A key theme repeated throughout the book is that in *Web 2.0*, users are more than passive readers of pages. For that reason teachers must plan and manage the instructional process in such a way that students construct their own knowledge and thus play a significant role in determining the processes that occur in the spaces that they 'inhabit.' The authors even recommend that in creating course content, teachers leave some content incomplete so that students themselves may identify additional resources. Following this recommendation would mean that students can gain competence in searching, analyzing, interpreting, and selecting information that becomes the teaching-learning content.

To understand how social relations influence both individual and group behaviors in learning communities, it is important to understand the social dynamics of cyberspace. In their discussion of learning communities in virtual settings, the authors address such topics as interaction and communication via the Internet, morphology of virtual relationships, identity and communication on the Internet, social participation in cyberspace, Internet culture, learning communities in cyberspace, the value of the community, socio-educative practice contexts, and facilitating knowledge.

Focusing on how the Internet combines the distribution of information with social interaction, the authors explain,

> Cyberspace specifically provides social relations produced in a virtual, rather than a Euclidean setting. The unique characteristics of extraterritoriality and disembodiment of cyberspace gives place to human sociability that does not require physical contact or corporal presence in order to establish stable contacts and linkage. Consolidation of these relational linkages in cyberspace permits the formation of personal learning communities that enable their members to access, share, co-generate and co-construct knowledge that stems from their interrelationships and communication interchanges." (p. 129)

The new educational scenarios not only involve technological support for innovation, but also transform the ways to create, accumulate, store, and transfer information. When planning distance education activities, it is essential first to determine what educational objectives are sought and what content is intended to be learned (p. 144). Educational objectives are relevant as points of reference for all members of the multidisciplinary teams responsible for educational interventions and for the students.

Educational objectives are relevant for all members of the multidisciplinary teams who intervene for students in distance education activities. They provide coordinates for making decisions in the planning and implementation of every distance education action. For students, they serve a double purpose. First, they enable determination of the previous knowledge necessary to gain the final objectives, in terms of content, competencies, abilities and skills, attitudes and values, and equally in terms of the end of activity, they permit evaluation of the learning results acquired (p. 145). Second, they provide students with the information necessary about what is intended, thus contributing to their motivation.

Within a constructive perspective of e-learning, learning objects, digital learning resources have also gained importance in recent years. With digitization, creation of repositories, learning management systems, learning objects have become an important component of e-learning. Ruiz and Domínguez point out how such digital learning resources that are reused in multiple educational settings can be guided by such psychological orientations as behaviorism, cognitivism, and constructivism. One view of teaching is as an industrial process, centered in the minimization of expenses (materials, staff, return or unit cost). Another view is as an open and flexible process, centered on the subject and processes of learning.

The authors point out that the ideal outcome of all education is to enable learners to *learn how to learn*, *learn to be*, *learn to do*, and/ or *learn to live together with others*. In reaching these outcomes, objectives provide coordinates for making decisions regarding the planning and implementation of the set of learning of activities that comprise the online course, objectives enable identification of competencies, skills, attitudes, and values that learners should possess when beginning a distance education course, as well as those that they should achieve at the end of the course; they are thus instrumental to the formation of motivation. They also orient members of the multidisciplinary teams responsible for creating the courses.

Analyzing the role of professors and trainers in digital teaching and learning systems, García, Ruiz and Dominguez explain that, despite the advancement of the TICs, the educator remains the fundamental agent in the interaction with the learner who remains the chief protagonist. Without that interaction between these two and the guidance, help, and mediation of the educator, education would not be possible. While pre-Internet forms of distance education have been criticized for the lack of two-way interaction, this is no longer true. Given the plethora of information sources now available on the Internet, the educator is no longer the principal transmitter of knowledge.

According to the authors,

> Training for self-education should be the priority objective for every teaching-learning process. In order to acquire the specific competencies, knowledge and attitudes for whenever and wherever needed, students should be engaged in a lifelong process of learning and unlearning that is necessary to face the continuous changes of reality in which they are inserted. Thus the necessity of mastery of strategies for search, assessment, selection, processing, integration and evaluation of existing information on the networks, more than of strategies of copying texts and summaries that are developed and transmitted as fundamental elements of learning. (p. 145)

The ICTs create opportunities for continuous dynamic interrelationships among learners and educators. With regard to the qualifications of instructors in digital environments, García, Ruiz and Domínguez include the following considerations:

- Knowledge of one's discipline as well as of teaching, psychology, sociology, and technology for quality of education

- Because of their complexity, it is not possible to master occupational roles with initial education alone; initial and continuous education is essential

- Within the context of an ever changing society, learning must be focused on competencies, skills, abilities, attitudes, and values rather than on knowledge alone. There is no longer only one place for learning

- Competence in the use of TICs essential to continuous dynamic interrelationships among learners and educators

- The pedagogical aspects of planning, managing, and teaching via distance and virtual education

The authors point to the conditions (i.e., the "global variables") that signal the radical transformation of educational practice from previous forms of distance education to virtual education:

- Transformation of teaching as a profession that now requires knowledge of such areas as one's discipline, teaching, psychology, sociology, and technology.

- It is no longer possible to master the complexity of occupation and professional tasks with mere initial education. It is now possible to pursue both initial education and continuous education via virtual education environments.

- The need for continuous preparation for an ever changing society, focusing on competencies, skills, abilities, attitudes, and values, rather than on knowledge alone. There is no longer only one place for learning, as informational sources have multiplied, and educational scenes and agents have diversified and multiplied, and individuals are now endowed with control over their own learning.

- Social change attendant to twenty-first century society is marked by pluralism, globalization, and interdependence among groups, along with multiculturalism and a consequent need for personal development within an ever more multicultural context.

- Current society is influenced by digital conditions of technological culture from which education cannot be aloof.

García, Ruiz and Dominguez assert that in the digital era every professional needs to have a basic mastery of these global variables.

To solve problems and situations in real contexts, distance educators need to have highly developed competencies of reading comprehension, writing ability, mastery of digital and iconic reading, use of software, and mastery of communication channels. In addition, they need to have the ability to participate on interdisciplinary teams and traits of initiative, responsible work, flexibility, the capability to unlearn and learn, as well as to stay up-to-date with the evolution of TICs.

Such a plan permits the design of specific instructional projects that, in turn, comprise specific educational programs.

Garcia, Ruiz and Dominguez approach the topic of instructional design within the context of educational planning. They conceptualize planning as a shared and systematic vision that anticipates the future. Planning, as an overall rational strategy, permits the formation of an

education action plan. To guide the development of a specific plan, the authors introduce key questions: questions concerning the nature of the project are what, why, and for what; questions regarding temporal and spatial location are where and when; questions regarding the actors involved are to whom and who; questions regarding organization and programming are how much, how, and with what. Once a plan of action for a three-year period is in place, specific projects, and programs within projects, can then be designed.

Consonant with the institutional context in terms of needs, possibilities, and ideas, such a plan enables avoidance of both routine and improvisation. Paralleling the phases of the ADDIE (i.e., analysis, design, development, implementation, and evaluation) model of instructional design, the process they describe calls for identification of specific objectives and educational priorities, and procedures for actions.

Their descriptions of each of the planning and design steps provide useful guidance to both novice and experienced content experts and instructional designers. They offer valuable guidance for grounding education plans, offering useful points of reference for designing educational programs.

The authors do not distinguish between education that enables people to resolve specific problems and education that is designed to enable learners to attain mastery of specific subjects. The planning process they propose, however, can apply to the creation of virtual higher education courses if those who are responsible for 'writing' the courses assume a problem-based or competency-based approach to their course design.

The final chapter of this 'treasure trove' is a valuable guide to the world of virtual education. It is full of information and insights about how to determine whether one's virtual education program meets standards of excellence. After defining quality in terms of the dimensions of functionality, effectiveness, efficiency, availability, information, and innovation, they turn their attention to the quality of instructional materials. Anyone interested in measurement and appraisal of the quality of particular virtual education programs will find it useful to apply this quality assurance scheme based on these six dimensions of context, goals, inputs, processes, results, and improvements.

García, Ruiz and Domínguez report that the emphasis on quantitative standards in the 1960s and 1970s gave way to the tendency to examine the coherence among different educational objectives in the 1970s and 1980s; that, in turn, gave way in the 1990s to systems of values and social expectations. That emphasis has now been superseded by criteria, standards, indicators, evaluation, accreditation, etc., as evidenced by the European Foundation for Quality Management (EFQM) and the National Distance Education University (UNED) of Spain, which promote quality assurance in higher education in general, and in higher distance education in particular. The authors report parallel efforts by such organizations as the US-based Institute for Higher Education Policy and the Virtual Center for the Development of Quality Standards for Higher Distance Education in Latin America and the Caribbean.

The numerous lists of components, qualities, or criteria of different aspects of the distance education enterprise are some of the most useful features of this book. Such lists can provide added value to such professional development activities as assigned readings, checklists for weighing the relative strengths of our own distance learning programs, prompts for online discussions with students of the discipline of distance education, or as training materials for educators who need to acquire competence in creating or teaching courses in virtual education settings. The authors provide abundant criteria for evaluating the quality of materials as well as the performance of different specialists of multidisciplinary teams.

In their review of the multiple aspects of distance and virtual education, the authors discuss in detail valuable insights based on distance education theory, research, and practice. Such insights to be gleaned from this work can be especially valuable for those who are responsible for the training and/ or education of others to participate in these tasks. As the academic director of a higher distance education consortium in a developing country, many of the authors' points enrich the training for both subject matter experts who create as well as the academics who teach our online courses.

For its comprehensive and encyclopedic scope as well as its detailed analytical review of the distance education literature published in both English and Spanish, I highly recommend this book as a source of meaningful and useful concepts and ideas for anyone seeking to increase their competence as a practitioner of distance and virtual education. If this book were available in English, I would regard it as a 'must have' for the professional library of every distance educator, as well as 'required reading' for anyone completing graduate studies related to distance education and/ or educational technology. It would be particularly helpful to those who are responsible for the training and education of teachers to design, develop, and/ or implement any form of virtual education. In my own case, many of the principles and practices that the authors review reinforce the professional development that my organization conducts for both subject matter experts who create and professors who teach online courses. It is a rich source of concepts and ideas for anyone seeking to become a more knowledgeable and competent practitioner of distance and virtual education.

Even for native readers of Spanish, the reflections that comprise this book are deep. They do not make for a quick read. They merit profound interactive dialogue in order to capitalize fully on the implications for one's own distance/ virtual education practice. With their encyclopedic perspective and drawing on the sources available in both English and Spanish, Garcia, Ruiz and Dominguez' analysis of familiar elements of distance and virtual education experience provides insights that support conscientious and knowledgeable distance education practice. At least for Spanish language readers, this book constitutes a significant contribution to the field of distance education. Unfortunately, I know of no similar book that has been written for English language readers.