Challenges in the adoption and use of OpenCourseWare: experience of the United Nations University

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This paper provides insights on the adoption or use of OpenCourseWare (OCW) to support broader research, training and institutional capacity development goals, based on the experience of the United Nations University. Specifically, it explains the strategic context for the use of OCW in the university through its related efforts in the area of Virtual and Open Learning, and how OCW fits these requirements. Finally, the paper presents the current status, and discusses challenges and future directions of the OCW project at the United Nations University.

Keywords: OpenCourseWare; virtual and open learning; United Nations; information society

Introduction

In the late 1990s, many higher education institutions began to experiment with online learning as a means to extend educational programmes beyond their physical campus (D'Antoni, 2006). In some instances, as time progressed, campus-less universities were set up that used the Internet as their main delivery mode (Foster, 2000). These developments were mirrored by the rapid growth of private-sector activity through corporate universities and in the production of educational content, authoring software and learning management systems (Middlehurst, 2006). In all of these ventures, whether new commercially oriented online universities or new learning management suites, there have been both outstanding successes and noticeable failures (Keegan et al., 2007). Concerns were voiced, however, about the ensuing commodification of higher education. This is perhaps best elaborated in Shumar's (1997) work entitled *College for Sale*, exploring the impacts of the new market orientation on higher education institutions.

According to Shumar, through commodification, knowledge becomes a product and education is a saleable item. He argues that degrees have a price tag, students become customers, professors are labourers in a production line and, what is more, sales and marketing drive the university rather than faculty. In response, Shumar calls for a return to the ideals of higher education and the re-establishment of the trappings of academe as a community of scholars in the pursuit of knowledge. It may have been these ideals that were at the heart of the Massachusetts Institute of Technology's (MIT) decision in 2001 to make the materials for nearly all its courses freely available on the Internet. According to Charles Vest, then President of MIT:

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> OpenCourseWare looks counter-intuitive in a market driven world. It goes against the grain of current material values. But it really is consistent with what I believe is the best about MIT. It is innovative. It expresses our belief in the way education can be advanced – by constantly widening access to information and by inspiring others to participate. (MIT News, 2001)

The United Nations University (UNU) has always been outside the market-driven model of higher education. Established in 1973, the UNU functions as a think-tank for the United Nations. In 2001, at the time that Charles Vest was introducing Open-CourseWare (OCW) to the world, the UNU was providing training on short courses to around 3400 individuals, mainly from developing countries, and in 2007 this had increased to 4511 individuals.

In order to further enhance these capacity-building programmes, the UNU began work in the area of virtual learning in 1996 through a programme set up by the UNU-Institute of Advanced Studies. Subsequently, in 2002 the UNU launched a number of online learning projects, including the Global Virtual University, Asia-Pacific Initiative and the United Nations Water Virtual Learning Centre. While participating in the World Summit on the Information Society in 2003 and 2005, the UNU began to actively promote the notion of an open information society, with the specific aim of facilitating the sharing of knowledge on pressing global issues. Subsequently, in February 2008 the UNU announced the launch of an OCW portal.

With the arrival of Rector Konrad Osterwalder in September 2007, the UNU's strategy has evolved further to place greater emphasis on the high quality in teaching and research, with new university alliances and joint degree programmes. During his 12 years as Rector of the Swiss Federal Institute of Technology, Professor Osterwalder signed the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities. Openness remains central to this strategy. Rector Oster-walder's vision is that the UNU, in collaboration with the world's top universities, should offer educational opportunities that provide students with access to the work-ings of the United Nations. Online learning and the use of information technologies will support these new educational opportunities. Furthermore, he has proposed that every UNU Institute identify a 'twin institute' in a developing country. In essence, these moves would ensure a more systematic approach whereby OCW becomes fully integrated into the research and educational programmes initiated by the UNU over the coming years.

Efforts of the UNU in virtual and open learning

Initially, in the late-1990s UNU's online learning activities focused on building a common software platform for the sharing of teaching/learning resources in virtual communities. This was supported by the development of several prototype multimedia tools for content creation (Chong & Sakauchi, 2000). The broader strategic objective was to assist the transformation of educational institutions in developing countries in the emerging information society. At this time, UNU researchers raised concerns that 'one…issue that inhibits broader access to knowledge is the set of intellectual property laws and other means for allocating and restricting the access to information' (Tschang & Della Senta, 2001, p. 406). This reflected similar debates, as presented elsewhere in this issue, which culminated in MIT's decision to open up all its courseware for anyone, anywhere. Shortly thereafter, the term Open Educational Resources (OER) was coined (UNESCO, 2002).

While the ongoing conversation on the importance of OER was taking place globally, the UNU was working with various partners to develop new online learning programmes. For instance, the Global Virtual University involved running an online masters degree programme with the main priority of supporting universities and students in Africa. To address the need of capacity-building in Integrated Water Resources Management, the UNU International Network on Water, Environment and Health developed the United Nations Water Virtual Learning Centre as a series of linked regional centres hosted by universities, each of which is responsible for customisation of courses for that region and delivery of the programme through CD-ROMs or over the Internet (Grover et al., 2005). The Asia-Pacific Initiative, launched in 2002, has evolved over time to include a network of universities across the region from Honolulu to New Delhi, running semester-based courses incorporating synchronous classes using video conference and supported via an open source learning management system (Barrett & Higa, 2006). In line with the UNU Charter, these online programmes were designed in part 'to alleviate the intellectual isolation of persons…in the developing countries which might otherwise become a reason for their moving to developed countries' (United Nations, 1973).

Another central goal of the UNU's work is to 'disseminate the knowledge gained in its activities to the United Nations and its agencies, to scholars and to the public, in order to increase dynamic interaction in the world-wide community of learning and research' (United Nations, 1973). Engagement with the World Summit on the Information Society stimulated considerable reflection within the UNU about how to do this and was an opportunity to take stock with respect to the direction of existing educational projects. After reviewing ongoing activities, 'openness' was identified as the key aspect characterising the university's work in this area. In a plenary address at the Second Phase of the World Summit on the Information Society, 2005 in Tunis, the UNU took this a step further by boldly calling for an 'Information Society Open to All' (UNU, 2005). The central argument was that the maintenance of an open information society is conducive to the sharing of benefits between both developing and developed countries. Ideally, this would be facilitated by measures designed to keep network infrastructure open (net-neutrality and multiple-uses of academic networks) and to provide access to the poorer connected parts of the world (with a particular focus on Africa). This would also involve support for open source software and the promotion of OER.

Why promote OER?

OER advance knowledge by unlocking information for the benefit of all (OECD, 2007). As mentioned above, this aligns with the charter and mandate of the UNU. OER also provide open access to high-quality educational content to educators and learners, particularly those in the developing world, for whom the materials can make the most difference (Bett, 2005; Keats, 2003). The UNU has long been involved in the development of courseware through a large number of degree programmes and capacity-building exercises. However, there was no easily accessible portal for these educational materials. In considering the adoption of OCW, it was concluded by the UNU senior management that there would be significant institutional benefits, such as:

- Global awareness of the UNU's unique educational approach and curriculum;

- Improvement in recruitment of graduate students by helping the learners find the appropriate programmes at the UNU; and
- Provision of a resource for UNU constituents, faculty and alumni that supports learning and collaboration.

Moreover, it was recognised that an OCW portal for the UNU would function as an excellent means to raise the profile of the university's capacity-building work and as a marketing tool to channel more people to each educational programme and training course.

The example of the MIT OCW helped convince the UNU leadership to follow this path. In May 2006 the UNU became a member of the OCW Consortium, joining 150 universities from around the globe (http://www.ocwconsortium.org/). As a consequence of joining this consortium, the UNU committed to the development of a pilot web site comprising at least 10 courses in an OCW consistent format. This objective was met in February 2008 with the launch of UNU OCW (http://ocw.unu.edu) utilising the open source software portal, eduCommons, developed by Utah State University.

Challenges faced

In developing the UNU OCW portal, seven main challenges needed to be overcome. These can be summarised as follows:

(1) *Organising content within the portal* – the UNU OCW portal currently presents course materials by institute rather than according to different needs of users/learners. Arguably, thematic organisation of content would be more appropriate, but this requires considerably more investment in organising and presenting the courses.

(2) *Internal organisation* – another challenge relates to the most effective method for organising and governing an OCW project in a university. There are really no guidelines available at the moment and most OCW knowledge is tacit (i.e. documentation is lacking) and toolkits are only just being developed to address these needs. For the UNU, in order to facilitate the adoption of OCW, a steering group was established with representatives from an initial core group of research institutes based in Canada, the Netherlands and Macau, and at the UNU Centre in Tokyo. For UNU OCW to succeed it was recognised that this core group of faculty would have to stand squarely behind the effort and serve as champions for the idea.

(3) *Incentives* – there are no clear incentives to promote engagement from different departments in a university (and in the UNU's case from different Research and Training Centres/Programmes [RTC/Ps]) with OCW development, amid their current initiatives and pressures. In the case of the UNU, a proposal was developed by the core team and submitted to the UNU Innovative Capacity Development Fund in March 2007. The team received US$75,000 in support, with a requirement that this funding be matched by resources from each institute. This modest financial support proved important but, at the same time, is not sustainable.

(4) *Quality* – for the UNU, it proved very difficult to achieve synergy of OCW content in the face of the diverse thematic areas of research and training,

and the different approaches and modes of operations, represented by each RTC/P. It is not clear how other universities promoting OCW have been able to successfully present content from diverse subject areas and still ensure high quality. In terms of the actual content to be included in the UNU OCW portal, this was explored in detail at a small workshop organised in Tokyo on 31 August and 1 September 2007. At this workshop, after reviewing the courses at other OCW sites, it was agreed that each course would, where possible, include the following:

- Planning materials – syllabus, calendar, pedagogical statement, and/or faculty introductions.
- Subject matter content – lecture notes, reading lists, full-text readings, video and/or audio lectures.
- Learning activities – problem sets, essay assignments and quizzes.

However, the UNU recognises that going forward it is essential to set up a review and quality assessment system for UNU OCW.

(5) *Best practice* – lack of good practice models to follow can make adoption difficult, with high risk of failure. Other than existing OCW websites, there is limited documentation on good and bad practice related to OCW, which requires each university to either simply copy what has been done by others or re-invent the wheel. Neither option is entirely satisfactory.

(6) *Resource constraints* – all universities have to work in a resource-constrained and financially-constrained environment. In this context, in order to reduce costs, the UNU adopted the eduCommons system developed by Utah State University (http://cosl.usu.edu/projects/educommons/) rather than developing or purchasing a content management system. eduCommons is an OCW management system built around a workflow process that guides users through the process of publishing materials in an openly accessible format. This includes uploading materials into the repository, dealing with copyright, reassembling materials into courses, providing quality assurance, and publication of materials. In eduCommons content, objects have states and people have roles. This allows content and courses to be pushed through a workflow that ensures quality assurance and tracks intellectual property issues. Content can also be tagged with metadata for search and reuse. Overall, the UNU's experience of using eduCommons was positive, although customisation of the portal interface to fit with the design of the UNU main homepage proved to be a challenge.

(7) *Intellectual property* – coping with intellectual property and copyright is a major challenge. It appears that most universities only adopt open licences for their OCW web sites, while all other university-generated knowledge is covered by more rigid intellectual property controls. This is the same for the UNU. It was agreed that the UNU OCW site would be designed to publish course materials created by faculty to support teaching and learning. The materials should be intellectual property-cleared, meaning that the UNU has the rights to make the materials available under open terms and that nothing in the materials infringes the copyrights of others. Partner institutions and individual academics working with the UNU would need to give their consent before their educational materials could be made accessible via the

portal. Furthermore, the materials should be offered free of charge for non-commercial use and the UNU should permit others to use, reuse, adapt (derivative works), translate, and redistribute the materials. While it was agreed that Creative Commons licences would be adopted for the content on the portal (attribution, share alike and non-commercial), it was decided that each UNU institute could determine the specific conditions they wished to adopt. Within the UNU, although there is an overall intellectual property policy, there is considerable flexibility at the institute level with respect to copyright ownership and publication rights of materials created by faculty, staff or students. For example, some Institutes have already adopted Creative Commons for policy briefs. However, no attempt has been made to change the intellectual property policy of the entire UNU.

Lessons learned

OCW and OER have not yet become mainstream activities for universities across the globe. Compared with the total number of universities, the proportion that has adopted OCW is still relatively small. In this context, many academics do not yet fully subscribe to the notion of 'openness' in the use of educational materials. The evidence on this is anecdotal, since there is very limited research to either support or refute this contention. In the experience of the UNU, however, it was clear that only a small group inside the university appeared to fully endorse the notion of 'open courseware' but this was sufficient to facilitate the development of an OCW portal. The central question then becomes how best to mainstream OCW within a university, especially in the absence of the large grants that other similar initiatives have received, particularly in the United States? The UNU's approach has been to take small steps incurring minimum cost, and to try to learn from each step. The first lesson, therefore, from UNU experience is that the proponents of OCW should not expect this initiative to transform the university overnight, but should anticipate a long journey with many obstacles.

The second lesson relates to the fact that there is some confusion with respect to the actual terminology in use. Some commentators prefer to use 'open courseware', others 'open educational resources' – and then there is the much broader idea of open content. This is further compounded by the use of different copyright licensing schemes, and then even within each scheme by divergent preferences from each academic institution on the types of conditions imposed on the user. The proponents of OCW at the UNU found this issue to be particularly complex, and within the group some would have preferred to adopt the Creative Commons Attribution licence, since this allows other downstream remixes to remain open and free. However, most OCW projects appear to use the Creative Commons Attribution–Noncommercial-ShareAlike licence, which is more restrictive. So, clearly, openness is a very relative concept and the UNU in the end adopted the more conservative licence.

Finally, the third lesson relates to sustainability, and this is a concern for all OCW projects around the world. In general, OCW does not generate a revenue stream and, unlike an on-campus library, for instance, which also incurs costs rather than generates funds, the main beneficiaries are meant to be people outside the university. Hence, the motivation for university leaders to invest in OCW is unclear. This suggests that it may be difficult to maintain a budget line for OCW in the regular university budget and that when times are hard OCW represents a soft target for cuts. To date,

there are no examples of OCW projects being closed down at any universities, which is a good sign. However, the lesson that the UNU team has learnt from experience to date may disappoint many readers because the fact is there are no simple answers to this question. No university appears to have found a way of ensuring long-term sustainability.

Future directions

The launch of the UNU OCW website was positively received in the media and the international OCW community. To date, three of the UNU's 14 RTC/Ps have contributed courses to the OCW portal. This initial group plans to add further to the portal and to improve the quality of existing courses. However, in the next phase the UNU plans to double the number of RTC/Ps contributing courses and to double the number of courses in the portal. In addition, there is a clear need for a starter pack for faculty seeking to put their courses online for the first time, as well as a blueprint that eases the adoption of open courseware by all UNU RCT/Ps.

Another future direction might include efforts in translating current courses to a number of languages and a process through which new courses will be translated as soon as they are published. This will increase the usage of published courses and drive more traffic to the UNU OCW portal.

Finally, as with all OCW initiatives around the world, the UNU recognises the need to develop a sustainable model for this programme, requiring both a systematic approach and the mainstreaming of OCW within the entire UNU system. The end result should be that OCW is integrated seamlessly with existing research and training activities of the UNU, rather than as an add-on.

The long-term goal is for the UNU to become known as an important source of high-quality OCW content, particularly in the areas related to the work of the United Nations (environment, peace, governance, disaster management, health, etc.). One essential measure of success in this context would be more widespread adoption and localisation of UNU OCW in teaching and training activities by institutions particularly in the developing world, as well as increased use of UNU OCW by self-learners. These are very early days for OCW and the UNU has made the first tentative steps by setting up a portal and populating it with courseware. There have already been a number of benefits that have resulted from this activity, including increased collaboration between researchers and educators within the UNU and its network of partners. More importantly, these efforts are very much in line with the Cape Town Open Education Declaration and contribute to 'creating a world where each and every person on earth can access and contribute to the sum of all human knowledge' (Cape Town Open Education Declaration, 2008).

References

Barrett, B.F.D., & Higa, C. (2006, October 13–18). *Evaluation of a multi-institution pilot distance learning course of the Asia Pacific Initiative: An advanced seminar in international environmental studies.* Paper presented at E-Learn 2006, World Conference on E-Learning in Corporate, Government, Healthcare and Higher Education, Honolulu, HI.

Bett, B.K. (2005). *Final report on the AVU-MIT OpenCourseWare pilot project.* Nairobi: African Virtual University.

Cape Town Open Education Declaration. (2008). *Cape Town Open Education Declaration.* Retrieved June 2, 2008, from www.capetowndeclaration. org/read-the-declaration

Chong, N.S.T., & Sakauchi, M. (2000, July). *Classroom anywhere: An initiative of the United Nations University.* Paper presented at INET 2000, Yohokama, Japan.

D'Antoni, S. (2006). Introduction. In S. D'Antoni (Ed.), *The virtual university: Models and messages – lessons from case studies* (pp. 19–33). Paris: UNESCO Publishing.

Foster, J. (2000). Virtual universities – institutional issues for information professionals. *Ariadne,* 25. Retrieved June 6, 2008, from www.ariadne.ac.uk/issue25/foster/intro.html

Grover, V.I., Mayfield, C.I., Daley, R.J., Babel, M.S., Kahsai, K., & Ofori-Danson, P.K. (2005, June 8–10). *Integrated water resources management – its development and water virtual learning centres.* Paper presented at MTERM International Conference, Bangkok, Thailand.

Keats, D. (2003). Collaborative development of open content: A process model to unlock the potential of African universities. *First Monday, 8*(2). Retrieved June 6, 2008, from http://firstmonday. org/issues/issue8_2/keats/index.html

Keegan, D., Lossenko, J., Mazar, I., Michels, P.F., Paulsen, M.F., Rekkedal, T., et al. (2007). *E-learning initiatives that did not reach targeted goals.* Bekkestua: NKI Publishing House.

Middlehurst, R. (2006). A world of borderless higher education: impact and implications. In S. D'Antoni (Ed.), *The virtual university: Models and messages – lessons from case studies* (pp. 71–88). Paris: UNESCO Publishing.

MIT News. (2001, April 4). *MIT to make nearly all course materials free on the World Wide Web.* Retrieved June 12, 2008, from http://web.mit.edu/newsoffice/2001/ocw.html

OECD. (2007). *Giving knowledge for free: The emergence of open educational resources.* Paris: OECD.

Shumar, W. (1997). *College for sale: A critique of the commodification of higher education.* London: Falmer Press.

Tschang, F.T., & Della Senta, T. (2001). *Access to knowledge: New information technologies and the emergence of the virtual university.* Amsterdam & London: IAU Press & Pergamon.

UNESCO. (2002). *Forum on the impact of open courseware for higher education in developing countries: Final report.* Retrieved June 12, 2008, from www.wcet.info/resources/publications/unescofinalreport.pdf

United Nations. (1973). *Charter of the United Nations University* (Adopted and proclaimed by General Assembly Resolution 3081 (XXVIII) of 6 December 1973). New York: United Nations.

United Nations University. (2005, November 16–18). *An information society open to all.* Statement from the United Nations University during the first plenary meeting, Second Phase of the World Summit on the Information Society, Tunis, Tunisia. Retrieved June 16, 2008, from www.itu.int/wsis/tunis/statements/docs/io-unu/1.pdf