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Curriculum, intellectual property rights and open educational resources in British universities -- and beyond

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Abstract

Is the curriculum in British universities being influenced by decisions about ownership of intellectual property rights (IPR) in 'open educational resources' (OERs) that are available online under Creative Commons licenses, free of charge?

This paper provides the context for, describes and analyses three significant examples in British higher education where OERs are being created for use by academics and learners on campus or at a distance. OpenLearn and iTunes U, two of the British examples, are drawn from the Open University of the United Kingdom, which teaches over 200,000 undergraduate and graduate students almost entirely at a distance. The third example, OTTER, is at the University of Leicester, a campus university in England with about 7,000 distance learners. Both universities depend on government funding, student fees, research and entrepreneurial income. All three examples are funded indirectly by the British government, though OpenLearn has received substantial US foundation support as well.

In presenting these examples, the questions arise of whether the projects are supply- or demand-driven, and of whether they are altruistic or not. Debate over intellectual property rights has influenced creation of the OERs and vice versa, but from these three examples it seems doubtful whether, as yet, OERs and IPR have significantly influenced British universities' curriculum. The paper ends with discussion of how OERs created in British universities are influencing teaching and learning in other countries, as globalisation advances.

Keywords: British universities, curriculum, intellectual property rights, open educational resources,

Open University, University of Leicester, Beyond Distance Research Alliance

Introduction

Is the curriculum (what is taught and how) in British universities being influenced by decisions about ownership of intellectual property rights (IPR) and the creation of 'open educational resources' (OERs) released online under Creative Commons licensess, free of charge to all?

Even 20 years ago, certainly 40 years ago, the curriculum in British universities was tied to creation of knowledge products by academics (faculty) – and, if they wished, they sold the IPR. The curriculum was to a large extent determined by professors' decisions regarding the materials their students should use. There was no national curriculum and no national examination. Indeed, that is still so in many countries.

To match the current curriculum or even to create it, Professor X would write a standard textbook or laboratory manual in his or her field, for publication by a well-known academic publisher, and would receive royalties for many years. He or she might update the text every few years, regarding that task as an academic duty to be

carried out in the university's time.

Universities are now setting out to create OERs. The ownership of IPR in the teaching and learning materials that go to make up OERs is complex, but most British academics (faculty members) previously held the IPR, as creators of teaching material: they were entitled to a financial return if the materials were published and sold. Matters in some universities have been brought to a head. Many now require their academics to agree that the IPR in material they create will belong to the university.

Is there evidence that creating OERs changes the curriculum, with content and delivery being variously determined by academics, administrators or commercial entrepreneurs?

An American example: MIT

At the Massachusetts Institute of Technology (MIT), for example, curriculum has become related to decisions about ownership of intellectual property rights. MIT academics have allowed their employer to 'give away' much of their teaching material: since 1999 it has been turned into OpenCourseWare (OCW).

The challenges in the OCW project were not in overcoming faculty resistance, however, but in determining ownership, obtaining permission to publish intellectual property embedded in the materials and converting them to an online format. Copyright in the OCW material remains with MIT, members of its faculty, or even in some cases its students. Today, under the heading 'Unlocking knowledge,

empowering minds', MIT claims to have 1900 courses, almost its whole curriculum, available worldwide as OCW (http://ocw.mit.edu/).

MIT does not charge for its OCW, which is free, not sold. The online material for each course may include the syllabus, lecture notes, problem and answer sets, laboratory notes, readings and reading lists, videoed lectures and other items. There are provisos for those who wish to use the material: nobody can get a degree or certificate from MIT by using it, nor obtain access to MIT's staff. Those benefits can only be obtained via registration as a student and payment of MIT's very substantial fees.

MIT offers translations of selected OCW courses into several languages. Its reach is global. MIT academics benefit from the favorable publicity that has followed the creation of the OCW.

Rice University's Connexions (http://cnx.rice.edu/) is another example, among a hundred or more in the United States, according to OECD (2007). In 2010 it offers over 16,000 online modules, created by its academics.

Open CourseWare (OCW) and Open Educational Resources (OERs)

In 2002, at a UNESCO Forum on the Impact of Open Courseware for Higher Education in Developing Countries, funded by The William and Flora Hewlett Foundation, the term 'open educational resources' (OERs) was defined as 'technology-enabled, open provision of educational resources for consultation, use and adaption [sic] by a community of users for non-commercial purposes'

(http://learn.creativecommons.org/wp-content/uploads/2008/03/forumreportwcet.pdf). Projects to develop OERs subsequently went ahead in many industrialized countries, though not specifically to supply them to developing countries. According to OECD (2007), open courseware from more than 3,000 open access courses was available from over 300 universities worldwide. Universities of the China Open Resources for Education (CORE) consortium offer materials from over 750 courses, and resources from hundreds more are available from universities of the Japanese OCW Consortium (http://www.jocw.jp/). In France, resources from around 100 teaching units are available from universities in the ParisTech OCW project (http://graduateschool.paristech.org/). Notably, in 2009 President Barack Obama announced a proposed $50 million fund for a 10-year program supporting the development of OCW or OERs for US community colleges, within the American Graduation Initiative.

OERs, curriculum and intellectual property

The long-term significance of OERs was perceived some 10 years ago, but at that time there could be little more than speculation about their impact on the curriculum or intellectual property rights. Finkelstein et al. (2000) warned that:

> "There will be serious issues regarding the ownership of intellectual property; the resolution of these issues has the potential to fundamentally alter the relationship between faculty and their institutions. Thus, for example, to the extent that institutions become owners of intellectual property, some faculty will relinquish their claims to disciplinary expertise and probably lose the primary

> foundation for advancing their claims to a role in institutional governance. To the extent that faculty themselves becomes the owners of intellectual property, they will take on the characteristics of entrepreneurial product developers rather than service providers. This may mean the loosening of institutional ties and the emergence of a transinstitutional class of academic entrepreneurs." (Finkelstein et al. 2000, p. 317)

Their comments were addressed to a US audience. It seems that their warning has been ignored, to judge by the proliferation of OCW and OERs in the US (Atkins, Brown and Hammond 2007).

British government policy re Open Educational Resources

In British universities, the broader term open educational resources (OERs) has been adopted rather than open courseware or open content, although a recent British government report (Department of Business, Innovation and Skills 2009) on UK higher education emphasised e-learning without referring to OERs. The drive to generate OERs has come through central government-funded agencies such as the Higher Education Funding Council for England (HEFCE), the Higher Education Academy (HEA) and the Joint Information Systems Committee (JISC). The latter's official mission is to provide leadership in the innovative use of information and communications technology to support education and research. JISC's objectives in investing in OERs are to promote the sharing and re-use of learning resources, and to strengthen the reputation of UK higher education through high quality learning resources becoming available worldwide. Recruitment of overseas students is expected to rise as a consequence of OERs coming on stream.

A joint JISC/HEA one-year pilot program was designed to support institutions, consortia and individuals in releasing OER for use and repurposing worldwide. It focussed on development of OER policies and processes as an integral part of the learning material creation workflow. The pilot helped JISC and the HEA to understand how best to support this development and was followed by a longer program to promote embedding of these policies and processes across institutions. OER production challenges current models of academic knowledge production, as well as the institution's role in supporting student learning.

These programs led JISC to issue guidelines regarding licensess suitable for OERs (Korn et al. 2008). Korn and her colleagues critically reviewed types of license available at that time, and their broad advice was to use an existing type. The CASPER project (http://jisc-casper.org/) provided guidance on clearing background intellectual property rights, letter templates and licenses. The Web2rights project (http://www.web2rights.org.uk/) created an interactive toolkit for use where Web 2.0 resources are involved. In parallel with its projects, JISC offers legal guidance on intellectual property rights (http://www.jisclegal.ac.uk/ipr/IntellectualProperty.htm), and JISC's website (http://www.jisc.ac.uk/whatwedo/projects/ipr.aspx) contains valuable advice for novices as well as experts.

Examples of OER use in British universities

This paper provides the context for, describes and examines three significant examples in British higher education where 'open educational resources', available free of charge online to anyone under Creative Commons licenses, have been and are

being created for use by academics and learners on campus or at a distance, in the UK and beyond. In each case, has curriculum been influenced by creating OERs? What are the relationships between this policy, OERs and intellectual property rights?

Example 1: OpenLearn

The Open University of the United Kingdom was established in 1969 to provide distance learners with a route to degrees and other qualifications similar to those in other British universities. Unusually, it has an open admissions policy, therefore learners wishing to move from informal learning to graduation are able to do so relatively easily: their motivation and ability determine their progress, which the university's systems support. The university comes to the learner, any time, anywhere, rather than requiring the learner to come to it. To date the OU has served more than two million students including more than 100,000 overseas.

OpenLearn (http://www.open.ac.uk/openlearn) started as an experiment. In 2006, the OU had a very large 'reservoir' of high quality multi-media digitised learning materials produced by its academic-led course teams for use by its registered undergraduate and postgraduate students. The materials included digitised print, audio and video recordings, television and radio broadcast recordings, CDs and DVDs. The OU had pioneered the use of computers and communications technology by its students and most of their courses required them to use the university web site and virtual learning environment.

The OU was in a particularly favorable position to make use of this huge resource. Notably, its staff members, including all academics, agree on appointment to the

university that the OU will own the rights to any learning material they produce during their work for the OU. Moreover, from the start of course production in 1969 the university has gone to considerable trouble to identify, observe and where necessary pay for the rights of third parties whose material is used in its courses.

In October 2006 the OU entered into collaboration with The William and Flora Hewlett Foundation to offer, via the web, free university-level content as OERs (OpenLearn, The Open University 2007). The Foundation's financial support enabled the university to act faster and on a larger scale, with greater impact, than would otherwise have been possible. The OU agreed to publish selections from its materials in its web-based environment under the Creative Commons licenses, thus switching from a model of protecting content to one of promoting the possibilities of its re-use. OpenLearn offers learners, wherever they are and whether or not they are registered students 'a hybrid of a repository, structured assets, a community, course-based tools and personal learning tools' (McAndrew et al. 2009). However, as at MIT, learners cannot obtain tutorial support or academic credit for their work unless they register as students and pay tuition fees to the OU.

Since OpenLearn's launch in 2007, its web site has had well over 10 million visits (8 million unique visitors). Started with 900 hours of learning material, the project's OERs rose to 5,400 hours by the end of the pilot and is still growing. The available study units are drawn from more than 40% of the OU's courses. OpenLearn is an online media hub, community-focused with interactive content.

In 2010, a new Support Centre for Open Resources in Education (SCORE) began sharing the OU's OER expertise with other universities. The OU is leading collaborations aimed at creating new resources and services, and at lowering course development costs. With Carnegie Mellon University (again funded by The William and Flora Hewlett Foundation), it is studying open learning networks (http://olnet.org/) and is working alongside JISC's OER program. It is also using its links with other members of the Open CourseWare Consortium, such as MIT.

It is hard to say whether the OU's curriculum has been directly influenced by OpenLearn. Indirectly, it has, because OU course teams setting out to prepare new material are now well aware of OpenLearn and may consider whether their material will 'transform' well into OERs. The primary audience for the courses remains the OU's registered fee-paying students, however, whereas OERs are expected to reach those learners seeking informal education.

Example 2: The Open University and iTunes U

Cambridge, Harvard, MIT, Oxford, Princeton, Stanford, Yale and UCLA are well-known universities among more than 175 organisations that now provide educational content, mostly audio-recorded lectures, for Apple's iTunes U, launched in May 2007. By early 2010 universities in Australia, Canada, France, the Netherlands and New Zealand had joined, and there had been more than 100 million downloads.

In 2008 the OU launched its own site (http://www.open.ac.uk/itunes). The university's course teams had already created a vast amount of high quality audio and video content over the years, across a wide range of academic disciplines, for the

OU's multi-media courses aimed at its 200,000 distance learners. From this content thousands of clips have been selected for creating iTunes U 'albums'. This re-working process continues and new content is also being created that can serve double duty in courses and on iTunes U. Students and others, worldwide, can download free of charge any album, with a choice from 120 OU courses. New material is uploaded continually.

In 2009, the OU marked the 200th anniversary of Charles Darwin's birth and 150 years since the publication of his book *The Origin of Species* by adding to iTunes U the *Darwin Now* set of albums. Among these is *Charles Darwin – the Man* in which Ruth Padel, a direct descendant offers insights into Darwin as son, husband and father. Similar iTunes U albums appeared recently about the Large Hadron Collider beneath the Franco-Swiss border, the Internet at 40 and Handel's 250th Anniversary.

Early in 2010, the OU started commissioning audio and video material solely for iTunes U. For example, registered undergraduates in the course *Understanding Global Heritage* can privately download the albums each week onto their MP3 or MP4 players (or iPhones) via the OU's Virtual Learning Environment, as an alternative to using the DVD in the course package. For them, the OU makes studying as flexible as possible.

Each and every clip is processed very carefully to conform to the OU's legal obligations. Once the content has been selected, copyright must be cleared. Although the OU owns the copyright in material generated by its own staff, academic and technical, the rights of other contributors must be respected as well. In some cases,

rights for the original material were cleared only for use by OU students, or without global coverage. For many albums, the OU seeks and if necessary pays for permission to use digitised text, audio, music, graphics and video material belonging to third parties.

Users of iTunes U albums from the OU are licensed to listen and/or watch them under a Creative Commons license, but cannot exploit them commercially. If they wish to derive a new work from the recording they can do so, but must distribute the new album under a similar license.

For up-to-date details of the OU's impact via iTunes U, see http://projects.kmi.open.ac.uk/itunesu/impact/. Measured in downloads, iTunes U has been phenomenally successful for the OU, with users downloading over 700,000 albums each month in 2010. About 20 per cent are for learning languages. As at MIT, the full course materials, tutorial support and examinations are only available to registered fee-paying students.

Discussions continue at the OU about whether the huge number of downloads should be free to its general worldwide public, as at present, or monetised in some way. As for OpenLearn, the OU and its academics continue to benefit through the enormous favorable publicity generated by the albums: most are downloaded by people new to the OU. Indeed, nearly half are in North America, and nearly 90 per cent are outside the United Kingdom. About one in six of them go on from iTunes U to the OU web site. Many OU staff think that by offering the albums for free the OU is fulfilling part of its mission to educate. Many see iTunes U as a golden brand-building opportunity.

But some say the university is 'selling the family silver', meaning that its intellectual capital is being squandered by meeting such an enormous demand without charging for the products.

Has the OU's curriculum been directly influenced by iTunes U at the OU? Probably not, so far. Almost all the albums to date are a spin-off from existing material, although making new specially-commissioned ones is already starting to happen.

Example 3: OTTER

United States readers of this journal may well see the Open University as a peculiarly British institution the like of which does not exist in their country. They are more accustomed to campus universities, both private and state funded, with students studying at a distance. The University of Leicester is a state-funded campus university in the UK with about 7,000 distance learners in addition to its 16,000 campus students.

The OTTER (**O**pen, **T**ransferable and **T**echnology-enabled **E**ducational **R**esources) project (http://www.le.ac.uk/otter & http://www.le.ac.uk/oer), at the University of Leicester (UoL), ran from May 2009 to April 2010. Funded by JISC and the HEA, it was one of several 'institutional strand' projects in the UK OER program, which was aimed at making a significant amount of educational material freely available on the web under open licenses. The OTTER team included a dedicated copyright administrator (seconded from the Library), an OER evaluator, two learning technologists and a coordinator. Materials for OERs were gathered from 12 departments within the institution as diverse as Genetics, Politics and International

Relations, and Student Support and Development Services, and one international partner, the South African Institute for Distance Education. All materials were authored by UoL staff members or associates, and all were released under Creative Commons licenses in both the university's own repository and JorumOpen (http://open.jorum.ac.uk), JISC's national repository.

As the funders required, all the OERs were created out of existing teaching material, rather than being developed from scratch, on the assumption that materials that were already in use had been through some form of reality checking and quality enhancement. The OTTER process, inspired by an approach used at the Open University (Lane 2006), included an extra stage to enhance further the quality of the final OERs. The OER evaluator assessed whether changes were needed in the learning design, whether each OER could be enhanced by additional media, perhaps by adding a podcast to print-based materials. When appropriate, this part of the process also involved organising the materials into sections with subheadings, correcting typographical errors in the text, and removing sections that made no sense in the absence of the rest of the course materials.

The various 'transformation' activities carried out were as follows:

- Decoupling: removing or amending aspects of the content that were only available to students inside the VLE.
- Scaffolding: making changes, where necessary, to ensure that learning goals, learning activities and learning outcomes were properly aligned.

- Meshing: adding or replacing images, audio files or tables to make the content more engaging. Meshing also involved checking that embedded links were active.
- Sequencing: making changes to the relative position or order of the content for easy navigation. Sequencing was also designed to support user transition from one topic to another.
- Editing: removing or explaining inappropriate words, jargon, and acronyms. Editing also involved checking that all the references provided were correct.

Altogether, OTTER released over 400 credits' worth of OERs (where credits are considered to be equivalent to 7.5 notional learning hours). A large amount of supporting documentation was also produced, including a workflow framework for creating and evaluating OERs, Put-Up and Take-Down Guidelines, a draft OER policy for the university, a list of FAQs for academics who were considering offering their teaching materials as OERs, a research report reflecting the views of academics, senior management and students on OERs, and a range of dissemination materials from conference and seminar presentations. Release of OERs is continuing post-OTTER, on a slimmed-down scale, through the use of existing channels such as the Library. UoL's recent signing of a contract with iTunes U has led to plans for developing brand new high quality multimedia materials as OERs, and the release of resources for this work.

OTTER, intellectual property and copyright

OTTER used a centralised model of copyright clearance whereby the project team were responsible for ensuring that any material released was cleared in terms of the authors' intellectual property and the inclusion of any third party material. This approach appeared the most compatible to a one year project because, as MIT (2004) noted, "IP clearance is a time-consuming process and ....it is one of the biggest barriers to faculty participation". There was also an underlying ethos in OTTER to create a mature copyright and intellectual property management policy, aimed at ensuring the sustainability of the resources and the adoption of an OER institutional policy. To facilitate this, OTTER set aside for the clearance of rights £20,000 (about $30,000), judged to be a sufficient sum to engage large organisations and publishers in negotiations to allow the incorporation and release of their content under a Creative Commons license.

UoL retains the intellectual property to teaching material created by academic staff during their employment. This helped greatly in OTTER as a formal contract dealing with the assignation of rights from specific individuals was not required. OTTER did, however, create a 'Partner Agreement' asking contributing authors to confirm that they understood and agreed with what the project would be aiming to achieve with their materials. OTTER staff felt this was important because, as Stacey (2007) points out "IP and copyright are emotional issues that tend to get people riled up". In a few cases, however, gaining this agreement was not as straightforward as expected. One external tutor had published materials in a book, thereby assigning the rights to reproduce the work to a publisher, whereas another author of teaching material was found to be deceased, but appeared to have used substantial parts of the text in published articles. In the first case, OTTER was unable to proceed with using these

materials, but was more successful in the second, by negotiating a compromise with the publisher of the articles.

Much of the teaching matter contained clearly defined third party copyright material, and this is where OTTER planned to use the money set aside in the project budget, because, as Bissell (2009, p99) notes, “copyright exceptions and limitations cannot be relied upon for opening up educational materials”. OTTER staff expected that whilst some rights owners would allow the inclusion of their material subject to correct acknowledgement, others would be more inclined to request a financial incentive before agreeing to do so. As Bissell (2009, p97) explains, “it can be challenging for copyright holders to balance the desire for increased access, translation and customisation against the desire to prevent abuses and to control their work”. OTTER hoped to achieve this balance by offering to pay a fee.

OTTER also expected that the response rate to requests for clearance of third party materials would range from the very quick (1-2 days), to the slow: the larger publishers tend to have an average turnaround time for ‘normal’ educational (closed access use) requests of between 6-8 weeks. Indeed, this is what happened, but about halfway through the project staff noted a distinct polarisation in responses, those that were quick tended to be positive, whereas those who were slow exhibited a distinct lack of understanding of the nature of the request and the purpose of the project, and ultimately said no. It became clear that large publishers and organisations would simply not consider allowing the re-use and potential re-purposing of even limited amounts of their materials, for any fee.

The outcome of the rights clearance process was that whilst some organisations were extremely aware of and happy to have their materials released under a Creative Commons license, this was in no way universal. As Bissell et al. (2008) stated in their CC Learn report to The William and Flora Hewlett Foundation 'copyright-related barriers to open education are a serious problem'. Indeed, during much of the dialogue with large organisations, they were keen to tie OTTER into license agreements which were not compatible with the open Creative Commons license the project was using as they were non-transferable and limited licenses, which meant that whilst OTTER could re-use the material, no-one else could without their permission.

OTTER's findings are contrary to those from OpenLearn, whose staff (OpenLearn, The Open University 2007) have stated that "thanks to the support of rights holders and the efforts of our clearance team, we have successfully cleared over 99% of all third party content offered and kept within our budget". This may be due in large part to the high profile the Open University has in the UK, and most UK HE institutions probably would not have the same degree of success.

OTTER's experience led to a recommendation to similar projects to allocate little or no money to pay publishers for re-use of their materials, as they are likely to either grant permission for free, or simply say no, but, as Tsiavos (2009) points out, "securing permissions from IPR owners, in particular, has costs that are difficult to estimate in advance, as it is not always clear who the rights-owners are and how long the negotiation process will last".

Supply- or demand-driven?

Are these and other OER projects supply- or demand-driven? Universities that create OERs despite lack of evidence in advance that learners will use and benefit from them are supply-driven. Those that create them to meet known demand are demand-driven. Classifying universities in this way is not quite so simple, however, because they can also be divided into those creating OERs for altruistic reasons, perhaps in aid of informal adult education, and those creating them for non-altruistic reasons such as for indirect financial profit through recruiting more fee-paying students.

Fig. 1 shows the two dimensions or axes. Positioning any single project in this figure proves quite difficult, however: for example, the teaching units available from universities in the ParisTech OCW Project may be meeting known demand or not, but the web site states clearly that the project has altruistic goals while at the same time offering assistance to students studying for degrees. If there is a non-altruistic motive, perhaps it lies in hoping to attract more fee-paying students through enhancing the universities' status. Were MIT's motives similar? And Rice University's?

OpenLearn is similar to OTTER but demand for (downloading of) its OERs has been considerable, so is it more demand-driven? TESSA, the altruistic OER program for teacher education in Africa (see below), leans towards being demand-driven as the governments of the countries involved have all asked for the OERs to be available to their students, including serving teachers, for upgrading their education.

[Take in Fig. 1 about here.]

Fig. 1 Two dimensions or axes of OERs, showing where TESSA and OTTER might be placed

OERs' influence on curriculum

Is curriculum influenced by the creation of OERs and how is it related to academics' intellectual property rights (IPR)? Fig. 2 shows important aspects of their relationships. Academics, in protecting their IPR, may restrict the curriculum; they may also limit those OERs that may become part of the curriculum in their university and beyond. Individual authors may have the power to include their books and articles in the curriculum, or to exclude them.

[Take in Fig. 2 about here.]

Fig. 2 Relationships between curriculum, OERs and IPR

Yet creating OERs is a process that can weaken or challenge the authors by asking them to sign a Creative Commons license that allows learners and other universities to use the OER materials for nothing. It is also true that creating OERs can potentially inform and enhance the curriculum in other universities, perhaps even in the originating one through reflection on the transformed materials. Certainly that is an intention behind the general OER movement, but there is little evidence yet that it is happening. OER creation can challenge IPR, too, as debates rage about ownership.

The JISC model for OER release is undoubtedly supply-driven but towards the non-altruistic end: the government's rationale includes the international marketing of UK higher education. In British universities that offer 'taster' materials, not whole courses, the focus is on showcasing the institution. How good the OERs look has

become important, perhaps without as much attention being paid to how they support learning. The sharing of knowledge and resources can seem limited and superficial.

The impact of OERs on learning in the UK – and beyond

Attempts to measure the impact of OERs have run into obstacles. Of course, the best criterion of their value would be the added learning of those who use them, but relevant achievement data from most learners who have used OERs have not been available or even collected to date. Because OERs are 'open', the users do not have to register, pay or report their re-use or adaptation of the materials. They are hard to track down. Soon, however, OERs will be used by students in universities other than those in which they were created, and their impact may be measured.

In an age of globalisation, cross-border data flows are a commonplace, yet criticisms of educational exports such as OERs still focus on cultural imperialism and 'information imperialism' (Commonwealth of Learning 2009). It is true that OERs are usually developed from material originally intended for a very specific audience, a body of students belonging to the originating institution. Thus US universities make little or no allowance in their OERs for potential users in, say, Latin America or African countries. Asian universities make none for potential users in Australian universities, and so on. Yet globalisation continues and OERs are being offered globally. Surprisingly, OER users in programs like OpenLearn and TESSA complain about limited access to the internet rather than Eurocentrism in the materials.

In OpenLearn, there is a deliberate attempt to adapt the original materials to make

them more suitable for web-based learning. This re-designing for open content is in line with the OU's intention to promote re-use of its materials both in the UK and abroad. As OERs, they contain fewer words than the originals, more graphics and greater interactivity, and are more grounded in a resource-based pedagogy.

If there is adaptation of OERs to suit learners in other cultures, it is often through translation into other languages: for example, the TESSA (Teacher Education in Sub-Saharan Africa) consortium, including nine African countries, is creating multilingual OERs to be used by half a million teachers, of whom 300,000 were expected to be involved during 2010. The OER authors are mainly Anglophone and Francophone academics in Africa, and the materials have been published under Creative Commons licenses, with due attention paid to third party rights. To quote the web site, www.tessafrica.net:

> "TESSA has produced a large bank of materials directly aimed at enhancing and improving access to, and the quality of, local school based education and training for teachers. These materials (including audio and other media) are modular in format. They focus on classroom practice in the key areas of literacy, numeracy, science, social studies and the arts and life skills. All the materials are available through this web site in a variety of different formats and languages."

OERAfrica (http://www.oerafrica.org/), another project funded by The William and Flora Hewlett Foundation and based at the South African Institute for Distance Education, is trying to find or produce OERs to meet specific needs or demands in

African countries. Is it demand-driven?

So far, little research has been undertaken into take-up of OERs by developing countries, but Hatakka's (2009) small-scale study throws a little light on factors that may inhibit their re-use. He used interviews, questionnaires and observations in three universities in Bangladesh and one in Sri Lanka to record the views of academics and content developers, as well as those of users of UNESCO's Open Training Platform (http://opentraining.unesco-ci.org), a repository created for developing countries. He identified in the literature six main inhibiting factors: language, relevance, access to suitable resources, technical and infrastructure problems, quality of content and IPR. His respondents told him that rules and restrictions in their education systems, often at a national level, were even more important than these six. For example, some said theirs was a textbook-dependent culture. They did say, however, that language was an inhibiting factor. Under relevance, they listed the OERs' level of difficulty, fit to the course being taught, granularity and match to their students' context. Under access, they said they had difficulty in finding suitable OERs but also complained about being given too much choice! They raised technical issues ranging from access to a computer and the internet to connectivity problems and unreliable infrastructure. They found it hard to assess the quality of OERs, they expressed some concern about IPR and saw OERs as possibly inhibiting their own development as teachers.

University teachers' reluctance to use OERs because they were 'not invented here' is not confined to developing countries. In industrialised countries it seems likely that the same six factors identified by Hatakka (2009) inhibit re-use and adaptation of OERs, though perhaps not to the same degree as in developing countries. Statistics

from OpenLearn and the OU's iTunes U indicate that most downloads are by individuals and institutions in North America, Europe and English-speaking countries elsewhere, though very substantial numbers are in Asia too.

Conclusion

The enormous take-up of the OU's iTunes U materials as well as its OpenLearn OERs brings home to British academics that change is actually happening. 'Academic entrepreneurs' of a kind have been created, without doubt, whether for teaching students on campus or those at a distance, but Finkelstein et al. (2000) were mistaken in expecting that individuals would become sole owners of the intellectual property in OERs. While they and their institutions retain some rights, it is the institutions that are giving away online much of the academics' work. So far, there are no signs that these changes are changing British universities' curricula, however, and any fears that OERs may lead to a national online curriculum are unfounded.

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References

Atkins, D.E., Brown, J. Seely, Hammond, A.L. (2007). A Review of the Open Educational Resources (OER) Movement: Achievements, Challenges, and New Opportunities. Report to The William and Flora Hewlett Foundation. http://learn.creativecommons.org/wp-content/uploads/2008/03/areviewoftheopeneducationalresourcesoermovement_bloglink.pdf. Accessed 26 May 2010.

Bissell, A., Park, J., Brooks, A. (2008) What status for "open"? An examination of the licensing policies of open educational organizations and projects, Report from CC Learn to The William and Flora Hewlett Foundation. http://creativecommons.org/weblog/entry/11700. Accessed 28 May 2010.

Bissell, A.N. (2009) 'Permission granted: open licensing for educational resources' Open Learning: The Journal of Open and Distance Learning, 24(1), 97-106.

Commonwealth of Learning (2009) OERs: the promise and the pitfalls. Connections: Learning for Development, 14(3), 8-9.

Department of Business, Innovation and Skills (2009) Higher Ambitions: The future of universities in a knowledge economy. http://www.bis.gov.uk/assets/biscore/corporate/docs/h/09-1447-higher-ambitions.pdf. Accessed 22 May 2010.

Finkelstein, M.J., Frances C., Jewett, F.I., & Scholz, B.W. (2000). Dollars, Distance, and Online Education: The new economics of college teaching and learning. Phoenix, AZ: Oryx Press.

Hatakka, M. (2009) 'Build it and they will come? Inhibiting factors for re-use of open content in developing countries', Electronic Journal on Information Systems in Developing Countries (http://www.ejisdc.org), 37(5), 1-16.

Korn, N., Oppenheim, C., Duncan, C. (2008). Open content licences: JISC guidance November 2008. http://www.jisc.ac.uk/media/documents/funding/project_management/open_content_licences_jiscguidancenov2008.doc. Accessed 24 May 2010.

Lane, A. (2006). From Pillar to Post: exploring the issues involved in repurposing distance learning materials for use as Open Educational Resources. http://kn.open.ac.uk/public/document.cfm?docid=9724. Accessed 22 October 2009.

McAndrew, P., dos Santos, A.I., Lane, A., Godwin, S., Okada, A., Wilson, T., Connolly, T., Ferreira, G., Buckingham Shum, S., Bretts, J., Webb, R. (2009). OpenLearn: Research report 2006-2008. The Open University, Milton Keynes.

MIT (2004). OpenCourseWare Story. http://www.bb.ustc.edu.cn/ocw/NR/rdonlyres/1118F4F3-AA41-4CB4-B71F-F6E058AD22AA/0/MIT_OCW_Approach_10_5_04.pdf. Accessed 28 May 2010

OECD (2007) Giving Knowledge for Free: The emergence of open educational resources. Education and Skills, 2007 (3), 1-153. http://puck.sourceoecd.org/vl=5684928/cl=18/nw=1/rpsv/~6670/v2007n3/s1/p1l. Accessed 28 May 2010.

OpenLearn, The Open University (2007). http://oerwiki.iiep-unesco.org/index.php?title=OER_stories:OpenLearn%2C_The_Open_University. Accessed 28 May 2010.

Stacey, P. (2007). BC Campus. http://oerwiki.iiep-unesco.org/index.php?title=OER_stories:_BCcampus. Accessed 28 May 2010.

Tsiavos, P. (2009). Case studies mapping the flows of content, value and rights across the public sector. http://www.jisc.ac.uk/media/documents/publications/scaiprcasestudiesv2.pdf. Accessed 24 Mar 2010.