DEVELOPING INNOVATIVE SYSTEMS FOR SUPPORTIVE OPEN TEACHING PRACTICES IN HIGHER EDUCATION

Abstract

Openness has become a key feature in the discourse and practice of higher education in recent years as has its potential to drive innovation in teaching and learning practices. More often this discourse refers to the processes involved in learning such as in the phrase open and distance learning. Much less attention has been paid to the processes in teaching. The advent of the internet and its capabilities for enabling the publishing and sharing of digital content, the extraordinary growth in online, educationally-focussed content and the introduction of open licensing for such content have all combined to create new ways of developing and delivering teaching materials and systems, both amongst teachers and institutions. This paper reviews the factors involved in the more open systems for teaching that is resulting from this potential for innovation and discusses the implications of those factors and these innovations for educational systems in general.

Keywords

Teaching practices, Open education, Open Educational Resources, Open and Distance Learning, Collaboration, Team-based development, Open innovation

Introduction

Formal higher education is a process that generally involves learners, teachers and sets of educational resources, all arranged in some structured way (Lane, 2008a). It is a purposeful human activity where education is the main purpose and teachers and learners are the main actors involved and the educational resources serve as mediating artefacts between the two. At one level the teachers do the teaching and the learners do the learning. At another level teachers can both learn about their teaching through reflecting upon feedback from the learners while learners may act as teachers to fellow learners. Learning can also occur in non-educational settings when it is better described as a purposive activity where it is useful to describe it as educational even though that may not be the primary purpose of that activity (variously referred to as being part of lifelong learning or more colloquially the University of Life) although the emergence of work based learning has extended the notion of what is an educational setting. In such non-educational settings there are learners but no obvious teachers or planned educational resources as the learners draw upon many different people and things in their social or working environments from which to learn (the learning within social settings advocated amongst others by Wenger in his writings about communities of practice [Wenger, 1998]). Thus educational experiences may be organised by higher educational institutions (HEIs) for the benefit of learners with the help of professional teachers or be self-organised by individuals or groups for their own benefit, where they have do their own 'teaching'.

I set out these thumbnail sketches of systems for describing educational experiences to pose the question: what are the main properties of the components of such systems and the practices expected of people involved in them when we put the adjective open in front of them? What do we mean by the terms open education, open learning, open teaching and open educational resources and how does that openness influence the relationships and activities involved, particularly teaching? And how does such openness drive innovation in those relationships and activities involved in teaching?

The philosophy behind openness in higher education

Open education has had a lot of attention in recent years with the series of Open Education conferences[1], the Cape Town Declaration on Open Education[2] and recent books such as Opening Up Education edited by Ilyoshi and Kumar (2008). As stated on the FAQ section of the Cape Town Declaration website:

> *'The term "open education" has been used in several contexts historically. [...] What all of these terms share is a greater focus on the learner as an arbiter of his or her*

---

[1] The 7th conference is being held in October 2011 – see http://openedconference.org/2011/
[2] See http://www.capetowndeclaration.org/read-the-declaration

educational needs and desires. In addition, the openness that is promoted necessarily leads to a need for more responsive and adaptive teaching tools in order to accommodate the diversity of learning styles and motivations, both in and out of formal educational contexts.'

Other authors (Attwell, 2010; Lane, 2008b, 2009) have argued that while openness has many dimensions to it open education is fundamentally about removing barriers to education and widening participation in higher education by those who have traditionally not had such access. This is about more than the Cape Town declaration's rider that:

With the advent of the internet, the term "open" has also come to mean "freely accessible'.

It is also about recognising that open education pre-dates the internet and involves a number of freedoms and not just the freedom of access (Lane, 2009).

The phrase open education also implies that traditional higher education must be closed and taken out of the traditional classroom setting. To some degree this discussion is returning to the issues outlined many years earlier by Ivan Illich in De-Schooling Society (Illich, 1971) where he argued:

A good educational system should have three purposes: it should provide all who want to learn with access to available resources at any time in their lives; empower all who want to share what they know to find those who want to learn it from them; and, finally, furnish all who want to present an issue to the public with the opportunity to make their challenge known. (Chapter 6)

Illich was also arguing for the de-institutionalisation of society and education within it and yet he and the authors of the Cape Town declaration were perhaps ignorant of other approaches to open education in the last 40 years provided by open and distance learning (ODL) institutions. In particular, the discourse around the role of openness in higher education can be said to have seriously started with the inception of The Open University in the United Kingdom (OUUK) in 1969. While the use of distance teaching methodologies in higher education predates this event by a century (notably the University of London's External degree programme) and was widely used by a number of institutions in the Soviet Union and by UNISA in South Africa in the early 20th Century, it was the OUUK that was first named an 'Open University' (Tait, 2008). While the choice of the title was a collective one it was the OUUK's first Chancellor, Lord Crowther, who first gave meaning to what openness might mean for the OUUK (and possibly other open universities) when he said it would be *'open as to people, places, methods and ideas'* in his inaugural speech (The Open University, 2011a). This is still reflected in the OUUK's mission (The Open University, 2011b), although how these four 'opens' and openness in general is interpreted in practice has changed and is changing further with, for example, the advent of open educational resources (Gourley and Lane, 2009).

The plurality of possible meanings for openness implied in this one institutional case is still reflected today across the wider ODL movement (Anderson, 2009), with many attempts to define the essential characteristics of open learning, open schooling or open education (but rarely it seems open teaching). In many cases ODL institutions are found wanting on many aspects of openness as defined by different authors.

Interestingly, while the ideals of openness in higher education have often been focused around the open universities, the latter have been very much state led interventions as described in some detail by Tait (2008). Many of these state led interventions have been intended to fit within the prevailing social and higher education systems in their respective countries, often raising particular issues of 'comparability' with campus based educational institutions

While ideas of openness in higher education were largely centred on ODL institutions in the latter half of the 20th Century, since the beginning of the 21st century we have had the rise to prominence of new forms of 'openness'. So, whereas in the past 40 years names such as open learning, distance learning, e-learning, and lifelong learning have been used in different ways to describe certain facets of the act of learning in higher education (but noting once again that distance teaching has been the only term used for that side of the process); in the past 10 years new names have been added to the educational lexicon such as open content (Wiley and Gurrell, 2009), open

courseware (Carson, 2009) and open educational resources (Casserly and Smith, 2008; Caswell, Henson, Jensen and Wiley 2008), all based upon open licensing (Bissell, 2009) and driven by the emergence and spread of digital information and communication technologies. And in contrast to open universities, these open movements have mostly not been state interventions but have arisen through the acts of educational institutions themselves and wider communities sponsored by philanthropic Foundations, although some governments are beginning to take note of these movements (Kumar, 2009).

This diversity of old and new names involving openness in higher education reflects the diversity of provision and modes of study that are emerging and at times debates solely about such names and definitions can become sterile. What is more important is to understand both the *principles* upon which a more open educational provision might be based and also the *practicalities* of providing more open systems, as addressed by the many authors in Ilyoshi and Kumar (2008), and in particular teaching practices given that teachers do most of the designing and delivery of educational experiences. However, of all these developments it is possibly open educational resources (OER) that offer most opportunities for driving innovation in higher education (Lane and McAndrew, 2010). Therefore the next section discusses the key features of OER before exploring in the subsequent sections the implications for teaching practices of individuals and institutions of the openness they afford.

Open educational resources: a new paradigm for innovation in higher education?

The word paradigm can invoke many meanings but the one I wish to use in this paper is that of a dominant worldview – a set of experiences, beliefs and values – by which individuals, institutions and societies understand and act. If open educational resources (OER) are to create a paradigm shift we need to examine first what the current paradigm appears to be.

Much of higher education is based upon the primacy of a teacher as an expert teacher, if not subject specialist, who normally engages with a relatively small cohort of students, with the size of cohort largely determined by the size of the classrooms or lecture theatres which can accommodate the cohort but also by the amount of time and effort that the teacher can apply to the assessment and support of that cohort. Whereas performing to a large audience can be stimulating and uplifting, marking hundreds of essays in a short space of time can be very demanding and dispiriting.

Consider also how universities make educational resources available to learners. In a traditional, campus-based, or 'closed' university, the educational resources are only available to registered students within the perceived walls of the University, and yet most learners are outside these walls, and only available to a few of these learners in the university's hinterland served by extra mural activities. Universities also limit the number of students they enrol, and determine the students' entry through selection methods such as previous educational achievement. Students are largely registered on whole programmes and not individual modules. Further, most universities serve full-time students. Part-time students must structure their time around the institution's schedule, which can be difficult for those who work or have family and other commitments. The students must come to the campus to participate in the educational experience. The methods of teaching used are also very limited (and limiting): Students attend professors' lectures, along with some seminars, workshops, and laboratory, or other practical activities. Educational resources are housed in a physical library or bookstore. Moreover, learning is assessed primarily through examinations and similar means.

This picture may be extreme for effect, but in brief, the experience of a traditional university is of an individualised process where individual lecturers and professors devise, specify, and deliver the courses studied by individual students even though present as cohorts or groups in a classroom. The students are therefore largely guided by the views of a single source even though they may read the views of others in assigned texts.

In contrast open universities have sought to open up higher education to greater numbers and teach and support students in a greater diversity of ways. What is clear is that learning in classrooms with a teacher at the front is now a small part of the complete picture and that individuals will be undertaking a wider range of learning opportunities, both formal and informal, throughout their lives, by themselves, in groups, at home and at work, to name but a few modes.

Nevertheless, the physical nature of much educational provision – tied to a particular place, bound up in a particular medium – text or audiovisual assets – and available only at pre-defined times – meant that the locus of control was much more with the providers of learning opportunities – the universities and their teachers - than the users – the learners.

The advent of digital technologies and the internet in particular is changing this dynamic because it helps remove some of these barriers, making digital content much more accessible, available and affordable and enabling new forms of instantaneous communication between people in different places and times. Even more significant than these hard or commercial technologies, however, has been the emergence of soft or social technologies in new forms of licensing for (largely) digital content. This 'some rights reserved open licensing', for example the Creative Commons licences[3], placed on new and previously 'all rights reserved' copyrighted content enables the free copying, sharing, reuse and remixing of that content within pre-defined guidelines. This development has been central to the emergence of OER which goes well beyond just the issue of open access where someone can still try to control all uses of the material. The philosophy of OER is that you want people to take it away and do things with it. In principle this gives learners and teachers even more freedoms as they can decide when to access it, whether they want to alter it, or how they learn from it because of the potentially non-destructive, replicable and recorded nature of the original material and all versions they make of it.

As noted earlier much current provision in higher education is still based upon a teacher-centred model. New technologies can give greater freedoms to make the learning more learner-centred. However, the experience of ODL institutions is that self-organised learning opportunities are fine for individuals but that most group-based opportunities need to be mediated or facilitated by key individuals or organisations. The corollary to a good mediator is good content. The proliferation of material accessible on the web means that there need to be new quality assurance mechanisms for helping identify effective educational resources based on a mix of professional, peer and user reviews. Such learner-centred quality frameworks for formal educational materials are emerging and need to be built on if materials are to be successfully used in both informal and formal settings.

The teaching practices afforded by openness in higher education

There have been a significant number of publications discussing OER in recent years but little of that discussion has been about the implications for teaching practices. The OECD report 'Giving Knowledge for Free' (Hylen, 2007) and the OLCOS Roadmap 2012 (Geser, 2007) both talk about the policies needed to encourage OER creation and re-use but not the specific practices, although they do recognise that such practices can be at both the institutional and individual teacher level. Many other authors do discuss the barriers and technical solutions to enable OER publication and re-use per se to foster a sharing community but offer little detail on what this openness will mean for most higher education teachers and higher education institutions.

So what might constitute open teaching as a corollary to open learning? Is it about creating teaching experiences that eliminate barriers to students taking part in those experiences (as exemplified by Massive Open Online Courses as described in Parry, 2010); or is it about publishing and (re)using OER that are available to all (Wiley, 2009); or the ways in which institutions can collaborate in some aspects of their teaching (Wolfenden, 2008); or the ways in which education systems are openly organised and the technology used to support teaching is openly implemented (Laurillard, 2008)? Almost certainly it involves all of these but I think it more valuable to think about how openness changes the basic praxis of teaching from an essentially individual activity to a shared activity, whether that is the activity of individual teachers or individual institutions. Stereotypically most teachers work alone in constructing and delivering their teaching experiences. They may draw upon others' similar work in this process and they may involve their students in the co-creation or delivery of the experiences, but fundamentally they alone decide on a chosen path or lay out a new route map of resources and activities that constitute the educational experience. Similarly most institutions invest, through their staff, in the development of very similar educational resources to those developed in hundreds of other such institutions or have teachers teaching a subject that is not their main

---

[3] See http://creativecommons.org/

specialism as it costs more to hire ever more specialised teaching staff, especially for less popular subjects. However, the arrival of OER has meant in principle that both teachers and students are able to view in greater depth the teaching (and learning) experiences of others to inform their own praxis. They are also able to 'teach' more easily (and effectively?) around someone else's resources and maybe activities, drawing upon others' specialist expertise without having to directly hire them. But even more than that, it is becoming possible to rework other people's material and to even co-create such material with colleagues around the world, making a virtue out of bringing together specialist expertise from different countries and cultures.

Openness and the teacher as content developer

The co-creation of educational resources and courses is a major feature of ODL institutions where teams of academics (supported by media professionals) develop and deliver the teaching and learning experiences, including tutors or Associate Lecturers who do 'teach' around the main, carefully crafted, proscribed educational materials. At the OUUK there may be as many as a dozen academics writing for and commenting on other's work in the same course team to develop these carefully crafted educational materials and associated activities. This is 'team-based teaching' that can seriously challenge your thinking and has encompassed some of the most heated academic discussions I have ever witnessed both on pedagogy and subject based matters! But it does produce high quality materials, albeit at high cost and in a clear institutional framework.

Due to this high investment cost in educational materials and courses many ODL institutions, either as a general policy or as part of establishing themselves when new, will license and use the material or courses already developed by another ODL institution. Often the license will allow for some adaptation and modification and occasionally there have been collaborative efforts at co-creating materials or courses but these often prove difficult to manage for contractual, organisational and cultural reasons. There is not an extensive literature on the processes that make up good collaborative development of curriculum or educational materials in particular compared to the vast literature on team based working in industry in general. Higgins et al, 1999) do provide an overview of collaborative course development through distance learning aimed mainly at colleagues; Hawkes and Coldeway (2002) compare team vs. single faculty development of online courses; while Chao et al (2010) and Xu and Morris (2007) look at how quality standards and face to face teaching methods respectively influence the collaborative development of online courses. Indeed the recent increase in the uses of information and communication technologies has led to general studies on how virtual teams might operate as effectively as non-virtual or distributed teams (Hertel et al, 2011). Hixon (2008) provides a good overview of possible collaboration models and makes these recommendations for good team-based working for course development:

- *ensure that everyone on the team fully understands their own role and expectations as well as the roles and expectations of all members of the team*

- *ensure that everyone on the team has a clear understanding of the collaboration model and how communication should occur*

- *designate someone in the team as a "project manager" and ensure that individual has sufficient time to dedicate to the project*

- *allow for flexibility within the collaboration model, but think through the possible long term effects of any modifications*

- *ensure that faculty have a prominent role in the collaboration and maintain control of instructional decisions*

- *ensure that there is frequent and inclusive communication consistent with the collaboration model.*

Such recommendations follow best practice in the general literature on organised team working but do they apply in situations where there is community-led involvement in the co-creation of educational materials as is encouraged by open educational resources? So far two models of collaboration appear to be developing in these more open communities. The first is one where a website acts as the arena in which such activity can happen such as with Curriki (Kurshan, 2008) and that activities are carefully structured to meet the need of a particular community of practice

(in this case mainly school teachers) although the scale and nature of collaborative effort in material rather than collective knowledge sharing is not always clear. The second is also focussed on a community of practice, in this case volunteers translating existing English language OER into Chinese (Lee *at al*, 2007), in which again it was collective knowledge sharing rather than collaborative development that dominated activities. Although attempts have been made at community led collaborative co-creation e.g. Wikiversity[4] there has not yet been much evidence of a model of collective development of educational resources to match the communities that operate around open source software or seen with knowledge based sites such as Wikipedia.

While supportive team teaching in terms of materials development can occur within and institutions, can such synchronous collaboration and co-operation occur between institutions and across borders and will (open) teaching become more of a collective than an individual activity in future? This is a bigger step than the expected asynchronous and sequential 'improvement' of OER that is expected i.e. teacher or institution X takes content developed by teacher or institution Y and adapts it for their own use and purposes without much, or any need for, communication or collaboration between the two. This is typical re-use or re-purposing and while still not as common as many would like, is growing in scale internationally as individuals and institutions learn how best to do so. A good example of such sequential adaptation can be seen in the case of UnisulVirtual adapting OUUK content[5] on the latter's OpenLearn platform (Mendonca et al, 2011) or the adoption and use of OpenLearn technologies and practices by 3 English universities through the POCKET project (McAndrew and Wilson, 2008).

Despite the lack of detailed evidence on successful collaboration around OER development there are a number of emerging initiatives and projects that are beginning to demonstrate the advantages and disadvantages of such a model of supportive open teaching. One of the most successful and analysed examples is the TESSA project (Wolfenden, 2008). This consortium has involved over 15 organisations in 9 countries and some key features of the TESSA collaborative model that have made it work are:

- Having a very specific purpose and need in mind

- An agreed template for structuring the OER

- Agreed modes of working when drafting and reviewing the OER

- Allowing for local adaptation of the way and form in which the OER are used in practice (enabled by the open licensing)

- Developing an inclusive governance structure

This model has many of the planned features of good team working and distributed working that can be found in many successful multi-institutional projects, as noted earlier, with the main innovation being the ways that open licensing frees up the thinking and practices of the participants in relation to the educational content they develop (Lane and McAndrew, 2010).

In addition, at the time of writing, a number of other organised projects are testing out similar or different models of cross institutional and collaborative co-creation of educational resources. The Virtual University of the Small States of the Commonwealth[6] has separately developed many of the same attributes as TESSA in structuring how it is co-developing content amongst institutions scattered all through the world (West and Daniel, 2009). In contrast, the LECHe project[7] began with collaborative development of Masters level material by a number of European distance-teaching and presence-based teaching HEIs on living with climate change. As with TESSA, they have developed the materials first before making them available as OER. The OpenEd 2.0 project [8] is a fully free and open course that has been put together from existing OER by a consortium of European Universities (see also below). It is notable that much of the course development was done in the open and was freely visible on their website. Similarly there are a number of

[4] www.wikiversity.org
[5] http://labspace.open.ac.uk/course/view.php?id=3194 and http://cloudworks.ac.uk/cloud/view/3617
[6] http://www.col.org/progServ/programmes/Pages/VUSSC.aspx
[7] http://www.leche.open.ac.uk/
[8] http://www.open-ed.eu/

community–led initiatives trying to do similar things such as the Peer-To-Peer University[9] and WikiEducator[10] where there are opportunities to co-create content, to teach or support learning or do both.

Of course there are many barriers to open teaching or any changes in teaching practice as discussed by Harley (2008), not least the lack of recognition of teaching compared to research in promotion and tenure in HEIs. Nevertheless, just as much research has steadily moved from individual to team efforts and still been accounted for largely through peer review by their community of practice, open, collective teaching can be accounted for in similar ways. The openly published nature of the resources means that such scholarship is as evident as any research publication and the more open nature of the reviews of the resources and associated experiences means there is potentially more feedback than for most research and more ways to assess impact and contribution. In other words the very openness of teaching makes it more accountable than much research, it is just that we have to work out the ways that citation (e.g. numbers of reuse, numbers of reworking. etc) peer and user reviews can be factored into the rewards and recognition that academics receive. (Such recognition and reward for teaching is practiced in the OUUK because teaching success can be measured by peer review of the scholarship in authored materials and user reviews of its effectiveness and impact with learners and others).

Openness and the teacher as learning facilitator

The co-creation of educational resources whether in the open or not is only one aspect of teaching. Most teaching happens through the facilitation of learning, sometimes mediated through particular educational resources. This form of open team-based teaching is even less well developed than the co-creation of resources but as noted above there are some innovative developments in this area as exemplified by OpenEd 2.0 project and the P2PU and MOOC initiatives. All of these projects try to operate fully in the open while some, such as the University of the People[11], offer a free but not necessarily an open educational experience.

Openness and the teacher as reflective practitioner

A significant feature of higher education teachers is that most have not been through professional training in being a teacher. Traditionally faculty are hired because of their research and enterprise potential and often promotion prospects depend upon the same factors as noted earlier. However the expansion and greater costs of higher education are making many consider the quality of the educational experience which in turn impacts upon perceptions of teaching proficiency. In some countries, such as the UK, there are formal programmes that provide both initial and continuing professional development in higher education teaching skills[12]. If new forms of open teaching are to emerge and succeed then teachers need to have the skills and competencies to be able to work online in distributed teams and to understand how they can make use of open educational resources and new technologies. Intriguingly, in the UK, there has already been a drive to make the educational resources used in such training and development programmes openly available as OER themselves[13] with a further aim to have the teachers using these materials make some of them about the very processes of using OER in teaching (Browne *et al*, 2010), although not always about team based teaching.

Open innovation and educational systems

I have argued above that the new forms of open education as exemplified by OER are driving changes in higher education, including the teaching practices of individuals and institutions. However openness is not only a feature of education and can be found in other parts of the economy. As noted by Gassmann *et al* (2010) *'Institutional openness is becoming increasingly popular in practice and academia: open innovation, open R&D and open business models.'* However, this particular research focus on openness in the commercial world has not addressed,

---

[9] http://p2pu.org/en/
[10] http://wikieducator.org/Main_Page
[11] http://www.uopeople.org/groups/tuition-free-education
[12]

http://www.heacademy.ac.uk/assets/documents/rewardandrecog/ProfessionalStandardsFramework.pdf
[13] http://www.jisc.ac.uk/whatwedo/programmes/elearning/oer2/OMAC.aspx

nor has it much influenced the thinking of, the openness movement in education. Open innovation, as discussed by Enkel *et al* (2009) has three core processes:

1. The *outside-in process*, where the organisation enriches their own knowledge base through the integration of suppliers, customers and external knowledge sourcing;

2. The *inside-out process*, where the organisation gains revenue by bringing ideas to market, selling Intellectual Property (IP), and multiplying technology by transferring ideas to the outside environment;

3. The *coupled process*, where there is co-creation with (mainly) complementary partners through alliances, cooperation, and joint ventures during which give and take are crucial for success.

They also go on to note that cooperative innovation processes require different IP management systems than closed innovation systems. In the case of educational resources open licensing, mainly in the form of Creative Commons licenses, has been a critical driver of the recent open education movement, although the primary motivation on the part of most higher education institutions has largely been a philanthropic one about knowledge sharing to everyone who can access it rather than as part of open R&D and investigating open business models. Interestingly it has been the ODL institutions, which have long operated a more open innovation style model amongst themselves, widely sharing knowledge and experiences and licensing the use of educational systems and resources to each other that have so far done most to also investigate the benefits of open R&D and open business models. This compares well with open innovation in the commercial world, where it has been most popular in high tech industries, given that ODL institutions have had to invest more in the high tech infrastructure that supports their teaching model compared to the traditional infrastructure of a campus based institution.

Conclusions

Academia has done much to research the impact of openness on the business strategies of many industries and especially the role of open innovation. To some degree higher education institutions are quite open to knowledge sharing in and out of the institution and to collaborating on R&D across institutions. However they have been less open in the way they operate their teaching practices. The advent of OER promises to change that situation by strengthening the third main element of open innovation – coupled processes. There has been some element of coupled processes in higher education whereby one institution may teach for another's course or where professional practitioners provide teaching through work based learning (the facilitation of learning aspect) but OER now enables HEIs and other non-educational organisations in the private, public and voluntary sectors to also be involved in the collaborative development of educational resources.

References

Anderson, T. (2009) "On Open, distance, e-learning and other name confusion", available at http://terrya.edublogs.org/2009/01/15/on-open-distance-e-learning-and-other-name-confusion/

Anon (2007) "Cape Town Open Education Declaration", available at http://capetowndeclaration.org/

Browne, T., Holding, R., Howell, A. and Rodway-Dyer, S. (2010) "The challenges of OER to Academic Practice", *Journal of Interactive Media in Education*, 15pp.

Carson, S. (2009) "The unwalled garden: growth of the OpenCourseWare Consortium, 2001-2009", *Open Learning: The Journal of Open and Distance Learning*, Vol. 24, No.1, pp. 23-29.

Casserly, C. and Smith, M. (2008) "Revolutionising Education through Innovation: Can Openness Transform teaching and Learning?" In Ilyoshi, T. and Vijay Kumar (Eds.), M.S., *Opening Up Education: The Collective Advancement of Education through Open Technology, Open Content, and Open Knowledge*, MIT Press, pp 261-276.

Caswell, T, Henson, S, Jensen, M. and Wiley, D (2008) "Open Educational Resources: Enabling universal education", *The International Review of Research in Open and Distance Learning*, Vol. 9, No. 1, 11 pp.

Chao, I.T., Saj, T. and Hamilton, D. (2010) "Using Collaborative Course Development to Achieve Online Course Quality Standards", *The International Review of Research in Open and Distance Learning*, Vol. 11, No. 3, 11 pp.

Enkel, E., Gassmann, O., and Chesbrough, H. (2009) "Open R&D and open innovation: exploring the phenomenon", *R&D Management*, Vol. 39, No. 4, pp. 311-316.

Gassmann, O., Enkel, E., and Chesbrough, H. (2010) "The future of open innovation", *R&D Management*, Vol. 40, No.3, pp. 213-221.

Geser, G. (Ed) (2007) *Open Educational Practices and Resources: OLCOS Roadmap 2012*, 149 pp, available at www.olcos.org.

Gourley, B. and Lane, A. (2009) "Re-invigorating openness at The Open University: the role of Open Educational Resources", *Open Learning: The Journal of Open and Distance Learning*, Vol. 24, No.1, pp. 57-65.

Harley, D. (2008) "Why Understanding the Use and Users of Open Education Matters", In Ilyoshi, T. and Vijay Kumar, M.S. (Eds.), *Opening Up Education: The Collective Advancement of Education through Open Technology, Open Content, and Open Knowledge*, MIT Press, pp. 197-212.

Hawkes, M. and Coldeway, D.O. (2002) "An Analysis of Team vs. Faculty-Based Online Course Development: Implications for Instructional Design", *The Quarterly Review of Distance Education*, Vol. 3, No. 4, pp. 431-441.

Hertel, G., Konradt, U. and Orlikowski, B. (2004) "Managing distance by interdependence: Goal setting, task, interdependence, and team-based rewards in virtual teams", *European Journal of Work and Organisational Psychology*, Vol. 13, No. 1, pp. 1-28.

Hixon, E. (2008) "Team-based Online Course Development: A Case Study of Collaboration Models", *Online Journal of Distance Learning Administration*, Vol. 11, No. 4, 8 pp.

Hylén, J. (2007) *Giving knowledge for free,* OECD, available at http://www.oecd.org/document/41/0,3746,en_2649_35845581_38659497_1_1_1_1,00.html

Illich, I (1971) *De-schooling Society*, available at http://ournature.org/~novembre/illich/1970_deschooling.html

Ilyoshi, T. and Vijay Kumar, M.S. (2008) *Opening Up Education: The Collective Advancement of Education through Open Technology, Open Content, and Open Knowledge*, MIT Press, available online at http://mitpress.mit.edu/opening_up_education/

Kumar, M.S. V. (2009) "Open Educational Resources in India's national development", *Open Learning: The Journal of Open and Distance Learning*, Vol. 24, No. 1, pp. 77-84.

Kurshan, B. (2008) "OER Models that Build a Culture of Collaboration: A Case Exemplified by Curriki", *elearningpapers*, No. 10, 8 pp., September 2008.

Lane, A.B. (2008a) "Who puts the Education into Open Educational Content?", In Richard N. Katz, (Ed.), *The Tower and the Cloud: Higher Education and Information Technology Revisited*, Boulder: EDUCAUSE, 2008.

Lane A.B. (2008b) "Widening Participation in Education through Open Educational Resources",. In Ilyoshi, T. and Vijay Kumar, M.S. (Eds), *Opening Up Education: The Collective Advancement of Education through Open Technology, Open Content, and Open Knowledge*, MIT Press, pp 149-163.

Lane. A.B. (2009) "The impact of openness on bridging educational digital divides", *The International Review of Research in Open and Distance Learning*, Vol. 10, No. 5,: 12 pp.

Lane A.B., McAndrew, P., and Santos, A. (2009) "The networking effects of OER", *In online proceedings of ICDE 2009 Conference, Maastricht, Netherlands, 7-10 June 2009*, available at http://www.ou.nl/Docs/Campagnes/ICDE2009/Papers/Final_Paper_279Lane.pdf

Laurillard, D. (2008) "Open Teaching: The Key to Sustainable and Effective Open Education", In Ilyoshi, T. and Vijay Kumar, M.S. (Eds), *Opening Up Education: The Collective Advancement of Education through Open Technology, Open Content, and Open Knowledge*, MIT Press, pp. 319-335.

Lee, M.M., Lin, M-F.G., and Bonk, C.J. (2007) "OOPS, Turning MIT Opencourseware into Chinese: An analysis of a community of practice of global translators", *The International Review of Research in Open and Distance Learning*, Vol. 8, No. 3, 13 pp.

Mendonca, M.M., Santos, A.I.S. and McAndrew, P. (2011) "Towards crossing over the digital divide: the use of OER to promote digital literacy", paper presented at OER11, 11-13 May 2011, Manchester, UK, available at http://www.ucel.ac.uk/oer11/abstracts/1167.html

McAndrew, P., Santos, A., Lane, A., Godwin. P., Okada, A., Wilson, T., Connolly, T., Ferreira, G., Buckingham-Shum, S., Bretts, J., and Webb, R.(2009) *OpenLearn Research Report (2006-2008)*, 72 pp, The Open University, ISBN 0780749229252 available at http://oro.open.ac.uk/17513/

McAndrew, P. and Wilson, T. (2008) "Pocketing the Difference: Joint Development of Open Educational Resources", *Proceedings of Eighth IEEE International Conference on Advanced Learning Technologies*, pp 698-700, available at http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=4561809&tag=1

Parry, M (2010) "Online, Bigger classes may be Better Classes", *The Chronicle of Higher Education*, available at http://chronicle.com/article/Open-Teaching-When-the/124170

Tait, A. (2008) "What are open universities for?", *Open Learning: The Journal of Open and Distance Learning*, Vol. 23, No. 2, pp. 85-93.

The Open University (2011a) *Edited transcript of Lord Crowther's speech at Inauguration of The Open University*, available at http://learn.open.ac.uk/mod/oucontent/view.php?course=4748&id=137809

The Open University (2011b) *About the OU: our mission*, available at http://www.open.ac.uk/about/ou/p2.shtml

UNESCO (2002) *Forum on the Impact of Open CourseWare for Higher Education in Developing Countries, UNESCO, Paris, 1-3 July 2002: final report* available at http://unesco.unesco.org/images/0012/001285/12851e.pdf. Accessed 23 April 2007

Wenger, E. (1998) *Communities of Practice, Learning, Meaning, and Identity*, Cambridge University Press, New York.

West, P. and Daniel, J. (2009) "Virtual University of the Small States of the Commonwealth", *Open Learning: The Journal of Open and Distance Learning*, Vol. 24, No.1, pp. 85-95.

Wiley, D. (2009) "Open Teaching Multiplies the Benefit but Not the Effort", *Chronicle of Higher Education*, available at http://chronicle.com/blogs/wiredcampus/david-wiley-open-teaching-multiplies-the-benefit-but-not-the-effort/7271

Wiley, D. and Gurrell, S. (2009) "A decade of development…", *Open Learning: The Journal of Open and Distance Learning*, Vol. 24, No.1, pp. 11-21.

Wilson, T, (2008) "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", *The International Review of Research in Open and Distance Learning*, Vol. 9, No. 1, 18 pp.

Wolfenden, F. (2008) "The TESSA OER Experience: Building Sustainable Models of Production and User Implementation", *Journal of Interactive Media in Education*, Vol. 3, 9 pp.

Xu, H. and Morris, L.V. (2007) "Collaborative course development for Online Courses", *Innovative Higher Education*, Vol. 32, pp. 35-47.