



**Journal of
Interactive Media
in Education**

JIME <http://jime.open.ac.uk/2010/10>

Defining openness: updating the concept of "open" for a connected world

Patrick McAndrew

**The Open University
Institute of Educational Technology
Walton Hall
Milton Keynes
MK7 6AA
p.mcandrew@open.ac.uk**

Abstract: The release of free resources by the education sector has led to reconsideration of how the open approach implied by Open Educational Resources (OER) impacts on the educator and the learner. However this work has tended to consider the replication of standard campus based approaches and the characteristics of content that will encourage other institutions and individuals to join in (Wiley, 2006), rather than the approach to open learning itself and the changes that embracing openness imply. This paper will look at the experience of acting as an open university over 40 years, and how the understanding of the concept of openness has changed in the last 10 years by considering changes in how we view learners. The Open University was built on open concepts that allow learners to avoid barriers to study and successfully enabled more than 2 million people to experience formal higher education. However the openness that applied to the Open University did not cover all aspects that might be commonly assumed - such as free access, choice of start times, global availability. Offering free access to some material online has shown the impact that openness can have on learners and identified a range of behaviours that cluster around content driven and social driven approaches to learning. A combined view that considers the original values of open attached to The Open University alongside the emerging view from OER gives us the opportunity and driver for revising our view of openness and developing a position that helps bridge between formal and informal learning.

Keywords: Open Educational Resources, OER, Open University, Higher Education

1 Introduction

It is clear that there have been significant changes in the education sector and a strong expectation that those changes will continue. The education system over the last decade has been subject to policy pressures for expansion of formal routes for education (e.g. Dearing, 1997). The impact of the Internet and online access changes the way that people interact with each other and information (e.g. Anderson, 2008). At the same time there has been growing recognition of the importance and role of informal learning.

Informal learning is defined by Livingstone (2006) as "any activity involving the pursuit of understanding, knowledge, or skill that occurs without the presence of externally imposed curricular criteria". Informal learning can be triggered by work requirements and involve support and motivation from others and so it can be useful to also consider the distinction into self-directed learning described by Livingstone as "self-directed informal learning per se is most simply understood as learning that is undertaken in the learner's or learners' own terms without either prescribed curricular requirements or a designated instructor" (Livingstone, 2006:p205). The incidence of informal learning in the adult population is high with a series of surveys based on early work by Tough (2002) indicating about 80% of the adult population will identify themselves as having carried out informal learning with an extent of around 500 hours per year. These surveys in general pre-date Internet services however the Internet offers ways to serve the needs of informal learners and opportunities to blend formal and informal approaches. Some of these pressures are not new and the Open University in the UK was itself launched in part as a response to an earlier era of technological expansion and a need to reach those who had missed out on the opportunity of higher education (<http://www.open.ac.uk/about/ou/p3.shtml>). However, the impact of the Internet and apparently free access to information means that we now need to consider even more radical changes in education and the university system.

In this paper we consider the way in which the world of education needs to adjust to the wide availability of free resources by looking at the way in which The Open University was developed 40 years ago, the adjustments made in the last decade to the incorporation of online learning, and recent developments inside and outside the university using Open Education Resources (OER). While there is no formal definition of OER it is most often taken to mean resources (content or tools) that have been explicitly made available in such a way that they can be freely used for education either as they are or adjusted and remixed to new contexts. The clear release of the content is often achieved by adopting a Creative Commons licence (Lessig, 2001) that offers permissions in advance while not relinquishing all copyright.

The Open University itself was established in 1969 (just over 40 years ago at the time of writing) to meet a different challenge of openness. Higher education had very limited availability (in the UK at that time approximately

5% of the adult population were able to attend university) and, while the provision was expanding, many people were being left behind unable to meet entry level qualifications or find the time required for full time study away from employment. The Open University sought to use the technology of the time to offer courses that addressed the distance barrier and the entry barrier to offer relatively large numbers of learners access to higher education. The mission adopted by the OU 40 years ago was to be "Open as to people, places, methods and ideas" (<http://www.open.ac.uk/about>). The approach to teaching that was an enabling factor has been described as Supported Open Learning (summarised by Tait, 1994) where a common material base printed text would be accompanied by other materials broadcast through television, the radio or supplied on audio cassette. Each student would then be part of a group supported by a tutor or Associate Lecturer that would help them progress through the course through tutorials, telephone contact and feedback on their assignments. Over time this model has adapted to use of new technologies (video cassette, computers, CDRoms, and then DVDs) and alternative ways to offer support (emails, synchronous communication tools, and virtual tutorials) but has remained fairly resilient in its structure of a core of produced material for learners who have contact with a tutor for support rather than teaching. This current model does not necessarily apply in the new world of openness.

2 Scenarios

The way in which the Open University set out to help people learn when it was established and how it has changed and is still changing can be illustrated through scenarios. Scenarios (Carroll, 2000) are often applied in software engineering as an approach to help understand requirements or in planning (Sayers, 2010) to understand potential future environments. In The Open University the first of these scenarios (the Lighthouse Keeper) acted as a communication device to help people understand the aims of a new organisation. The other two scenarios are presented more tentatively as updated views on the approach of the OU and to offer examples that may cross to other organisations and structures.

Scenario 1: The Lighthouse Keeper

Developing The Open University 40 years ago was itself a challenge that was encapsulated in an image of the person that The OU would be able to serve: the isolated lighthouse keeper. As described by Sir John Daniel (former Vice Chancellor of the Open University) the founding Vice Chancellor "Walter Perry, told his new staff ... to design the teaching system to suit an individual working in a lighthouse off the coast of Scotland." (Daniel, 2008) The lighthouse keeper of the 1960s was isolated from content resources such as bookshops, libraries, and educational establishments, and from other students. However they could communicate with the technology of the time (telephone, television and radio) and from time to time post or travel to meetings. In order that such a person could be supplied with what they needed the university had to adopt a philosophy that each course would be contained within a "closed box" that would supply the essential content needs of the lighthouse keeper backed up with support through marked

work, telephone contact and occasional tutorials that were not compulsory.

In order to be "open" to the remote lighthouse keeper the university aimed for an approach that: met all learning needs, treated people fairly by addressing access requirements, matched to the support available, and included key components. This approach to content was termed by Rowntree (1997) as "Material based learning" and led to tightly authored customised content linked to books and other materials, backed up with motivational additional resources transmitted by broadcast television. The university has built a strong base from this work recognised in results from the National Student Surveys (the highest average student satisfaction levels in the last five years) and consistently learners have rated the printed material produced by the university as the most valuable component of their courses. However in terms of "openness" it has some restrictions. The completeness it offers to learners comes at the cost of careful controls that mean that learning objectives are matched to the content and in turn to the assessment. Courses typically have a fixed start and end point so that a group of students can learn together and be supported by tutors during periods of marking. However, the course in a box approach limits the scope for introducing new resources and the learners taking their own initiative.

Scenario 2: The connected student

Around 10 years ago at the end of the 20th century the impact of online learning was clear in higher education (Dearing, 1994). The lighthouse keepers themselves also proved to be a disappearing category as the lighthouses became automated parts of a network (in 1998 the last manned lighthouse in the UK was automated at North Foreland, Kent). The value of this metaphor for the Open University was considered by Waistell (2006) in commenting on "a distance university's use of metaphor" identifying that the metaphor was being modified to adjust to a more automated view of the future. For the online student body therefore the lighthouse keeper is no longer the iconic representation that can summarise the target for a distance learning organisation. Indeed the organisational stereotypes themselves were starting to be too restrictive as the impact of the Internet has caused the binary division between on campus face-to-face and distance learning universities to become blurred with the result that almost all universities have a mixed-mode in offering online education to learners (on and off campus) and distance learning institutions need to be aware of new competition and expectations.

One of the dominant innovations of the connected era was the introduction of online communication between students and other students and tutors. This replaced one-to-one communication through telephone and letter with the looser model of the forum: where the posts could be to many people, be replied to by strangers, or by someone unexpected by the sender. This new form of communication changed the balance between learners and their tutors bringing tensions into the control model. (As a tutor myself working on a masters level course I found myself surprised at first by the different impact my own posts might have compared to those of the learners - even

in the new model the authority conferred on posts varied with the designated role of the poster.)

Early discussion and research on the use of forums in online courses expressed concern about those people who did not join in (the pejorative label of "lurkers" being used to describe those who read but did not post). However the value of "vicarious" learning through seeing the actions of others was also recognised (Mayes et al., 2001) and scope for new forms of courses identified such as those less dependent on content and instead on linking between students and those working in the field (McAndrew et al., 2002). Concerns from this time are reflected in work on modelling learning such as the Educational Modelling Language (Koper & Manderveld, 2004 leading to IMS Learning Design (Koper & Tattersall, 2005), switch from content to tasks and models for online learning (Mason, 1998). The structure of the content as it moved from print to online was also of increasing concern but the assumption remained that content and structure were an important element of online courses as they were of previous distance courses. The tensions of the "all in the box" approach were beginning to be felt. For example in reviewing the quality of experience offered by courses the equality of experience ensured by providing everything needed were in tension with the opportunity for using further resources available through online journals and academic sources. Open University students have often been relatively early adopters of new technology and by 2002 only 8% of its students reported not having a computer available for use in their studies (Kirkwood & Rae, 2002). However this varied across subjects from under 2% in technology to nearly 16% in Health and Social Care. Of those with computer access even in 2001 the great majority (91%) had Internet activity. Arguably the isolated lighthouse keeper that concerned the OU in the 1970s was now the unconnected modem-less learner in the first years of the 21st century. However whereas addressing the needs of the lighthouse keeper was to the benefit of all learners, being inclusive to the unconnected student often meant missing on the opportunities for the connected learner.

The lighthouse keeper model therefore was a restriction on how the university might develop lighter more flexible courses that took some risks in relying on a dynamic between learners online and the availability of new resources that might not be known to the authors at the time of specifying tasks in the course. However it was not so clear what scenario could adequately replace the lighthouse keeper as the challenge for the university. Rather the need to support a diversity of learners is itself a challenge and the adoption of a target that all courses have an online presence provided a counter pressure to that of meeting individual needs.

Scenario 3: The Open Learner

The learner scenarios of 40 years and 10 years ago are both based on the concept of the student who is expected to follow a course that has a start and an end, learning outcomes, assessment and accreditation. The challenge that is now facing universities is the more complicated blending of many different sources and tools. The characteristic for such learners is that

learning is not so much a start/stop formal process but a less formal continuous switch between learning, working, and living with a strong online component. Data from market research indicates that time online forms a major component of leisure with the average user in the global survey spending 30% of their time online (TNS-Global, 2008). Online activity is also varied with shopping, banking, entertainment, socialising, working and learning all blending together. Connection to online is both more pervasive than 10 years ago, with games consoles, mobile phones, smart phones, netbooks and laptops all offering connection for learning, and more able to provide rapid answers through Google, Wikipedia, answers.com, twitter, facebook and many other resources. As of the time of writing "meteor shower", "bitesize" (a revision aid) and "maths games" all feature in Google's list of top-10 rising science searches (via <http://www.google.com/insights/search>). These show evidence of interest in learning and inquiring after information. Some of these can be served immediately from searches: there is no need to memorise when a search can be relied on to provide the answer. This "Google knowledge" not only covers the common themes but also more esoteric knowledge for example of cast lists for films is now replaced by instant availability of film information, synopses, ratings and cast lists.

Openness also asks us to revisit some of the work of the past 10 years on supporting online learners (Lane and McAndrew, 2010). The learning design/learning object approach that looked so promising for encouraging sharing and reuse perhaps had fundamental problems of description and availability with too much investment required beyond providing the materials. Working in the open means that more standard tools of search can be used and access does not need to be controlled. The effort in describing design from the educators point of view still has some attractions but without proven value. Rather a patterns based approach that considers design for, use by the learner may have more impact and scale with resources playing a freer role (Dimitriadis et al., 2009).

The new challenge for universities then is to see how they operate in the blended world of the open learner. While it might seem that this is a challenge that can be avoided as the connected student continues to be an available model (in 2010 the OU has high demand for its courses with more students seeking places than expected), however our students are also affected by these changes in behaviour: time dedicated to study now becomes time split with other online activities, the switch between the guided learning of the course and the informal learning of online existence can be a tension, or, potentially, a synergy.

Comparing the scenarios

In the table below a series of concerns and characteristics are presented for the different stereotypes of learner presented in each of the three scenarios. The items in the table represent aspects that each case raises as a particular concern, in addition to such common aspects as curriculum and content.

| Concerns in each scenario | | |
|---|--|--|
| Lighthouse keeper | Connected student | Open Learner |
| Provide a complete experience | Supporting and understanding online groups | Attention switching |
| Accept restrictions in contact | Helping tutors cope with new demands on their time | Rival sources of content |
| Focus on the individual learner | Mixing the needs of online learners and those less connected | Many places for social connections |
| Expect to have to supply all that is needed and that this will cost the learner | Understanding the structures that worked for online learners | Specialist requirements that are narrower than usual courses |
| Control the learners progression with strict guidelines | Going beyond the box to bring in the resources available on the Internet | Ways to bring in other activities |
| Tutor operates within the restricted area of the course | | Fast paced technology changes |
| | | How to assess and accredit |
| | | Understanding motivation that may not value accreditation |

Table 1: Issues in each scenario

The Open University has recognised the need to understand what was involved in making the change from a distance learning organisation that supports the learning of individual students to one that needs to work in a much more open way. One approach adopted was through experimental projects to learn by trying new modes of operation. One of these initiatives, OpenLearn, is described in the next section.

3 The OpenLearn experiment

While the Open University has produced and made available its content since it was established in 1969 until recently it has been very protective of its copyright and the way material was transferred. In 2006 this changed when it launched OpenLearn as an environment for free access to content. The content provided through OpenLearn was released under a Creative Commons licence (<http://creativecommons.org>) that explicitly permitted copying and reuse, including editing and transfer to other servers. The majority of the content came from within existing Open University courses, though some was newly authored or provided by other people and organisations that could also upload content to the server. The change in attitude that was reflected in OpenLearn came about as the university considered options for the future that broke away from the standard student model. While there are several motivations for OpenLearn (McAndrew, 2006) a key component was that it was an experiment to allow the university to see the impact on itself as an organisation, involvement with others

interested in OER, and to understand who used OpenLearn and how they used it. OpenLearn also provided a challenge for research methods and data collection in working with a wide and inaccessible user group in contrast to research on identified students.

Experience on OpenLearn showed benefits for the university in attracting learners interested in becoming students, a rapid development base for technology and a route for new research and collaboration relationships. It also enabled us to see the complexities in behaviour across a large user group, over the three years since launch in 2006 approximately 8million distinct visitors have come to the site and for the majority of those users we have little information that enables us to understand their motivations or eventual use of the site. However we can draw insight through the smaller groups that have answered survey questions, become involved in sharing their experiences, or have been approached to provide case study information.

Analytics

Alongside direct information from users we also can examine the metrics of use of the site through analytics data measuring access to pages and aggregated paths through the site. Analytics give anonymous data that has limitations (Harley & Henke, 2007) but also enable an overview of behaviour through statistics and provides data on common paths in to and out of the site.

Taking a specific six-month window of analytics data (from 1 May 2009 to 31 October 2009) as an example. During this period there were over 1.6million unique visitors, a majority (57%) of whom arrived at the OpenLearn site through a search, and most of those (93%) from searching on Google. Of the more than 900,000 searches from Google that brought users to OpenLearn in that period there are more than 400,000 distinct search terms. This demonstrates that there is a great variety of search entries many of which will be unique to a single user. From the 10 most popular searches there are two distinct categories: six of the ten are alternative ways to search for free and open resources, and the remaining four specialised search for content. The two sorts of search illustrates two aspects of open content sites; first that the content operates to attract searchers into content based areas, and second that the point of arrival will be highly dependent on the search and so careful structuring of the content may well be by-passed by many users.

Learner types

The second source of data considered in this paper is a study of registered users of OpenLearn (Godwin and McAndrew, 2008). Active users were approached to complete a questionnaire (n=2011) with follow-up interviews (n=17). This data drew a rich picture of the complexity of learners' lives and the way in which OpenLearn provided a component in their learning. Individuals such as "Anna" (not her real name), a UK citizen working in Spain, were learning several subjects on OpenLearn (Spanish, health,

creative writing) taking local classes (Spanish at Madrid University) and active in hobbies (gardening) as well as intending to develop skills in others (a writing group). Cluster analysis placed learners such as "Anna" in a majority group amongst the enthusiasts as "volunteer students" who seek more authoritative content, would like to be assessed on what they learn, and to collate their learning experience. A second cluster is less driven by content as "social learners" interested more in the tools and people drawn to the OpenLearn site with the content area providing an attraction but less interested in working through the specific learning tasks laid out in that material.

4 Discussion

The understanding of openness that is emerging from those working in OER reflects the ethos of the Internet. The availability of OER has been compared to the Free/Libre Open Source Software movement (Meiszner et al., 2008) where software is produced under a licence where it can be freely used but is also in a form where the source code is available to be edited, modified and improved. The analogy with software goes further as just as with software there are a range of other content that arguably are not "OER" but to the user feels just the same, in that it is freely available and technically reusable even if the copyright and educational intent are not clear. The availability of content and tools provides a wider open world of free access in which learners find themselves. The route to content is often via a search engine (very probably Google) that offers a mix of media, sources, and types of content in response to any query. Within that content there may well be OER designed to help people learn but whether that content will work for any particular learner is part of the challenge. In addition there will be a larger range of content from providers who were not originally motivated by education - user generated content such as videos, photos, and blogs or content released as information such as hobbyist sites, commercial information, academic papers, and many other aspects of the Web. For users coming across these resources the distinction between the sources of content is unlikely to be as relevant as it is to the providers. The Open Educational Resources Teachers' Network (OERTN) asked a group of teachers to select free resources for use in their teaching, searching was the commonest method of finding resources (used by 44% of the participants) and the researchers commented "that teachers don't distinguish between the resources based on ownership and the rights associated with use" (OERTN, 2009). If teachers do not distinguish, then it is unreasonable to expect that learners will. And, indeed should it matter if they do not?

The challenge facing the university sector is how to serve the open learners who access free resources. In this paper the position of The Open University as first a provider of learning designed for the isolated individual, then as a hybrid to include online learning is sketched. OpenLearn has brought valuable experience working with less formal learners leading to opportunities both to attract learners from the informal to the formal and to develop new approaches to offering learning derived from the formal into informal situations. The changing access to resources and almost constant

connection has implications for the value of learning that will remain a challenge, the experience of OpenLearn suggests that part of the solution is to embrace openness to provide access to new learners some of whom will be attracted by content, and others attracted by the chance to learn within a social group.

We are at an important point in the development of new approaches and lessons are starting to be learnt. The early single strand and single provider launch for OER is being augmented with more diversity bringing in governments, institutions, commerce, volunteers and individuals. The next phase of innovation is more likely to look to use rather than production with concern switching to how to offer paths, measure progress and help users discover ways to learn in the open (NGLC, 2010). For the institution this means accepting lower levels of control but equally there will be increasing need to ask the right questions and set the right tasks that guide the process of learning. The structuring effect of preplanned learning outcomes and connected paths will appeal to some learners and act to connect the non formal with the formal. For others there is the need for more radical solutions that help set and recognise goals, support the social aspects of learning and link activities in a way that assists learning.

5 Conclusions

Open and distance universities lowered the barrier to learning by removing entrance requirements and the need to attend in a particular place at a particular time. Now the open world asks more of education providers to grasp the opportunity of true openness. The hierarchical approach that has ended up with a filtered few in higher education could be replaced with a model where many have access to learning opportunities, and that such learning extends over time. An expansionist approach of more universities is being tried: in Turkey the number of universities nearly doubled from 77 to 139 between 2005 and 2009, but this has taken place alongside an expansion of open courseware provision (Kursun et al., 2010). One question asked of the free approach is whether or not it can be sustained without obvious business models that match income to resources. Rather the question that should be first considered is whether the existing models can be sustained in the face of the global demand, limited resources and the alternatives that are available? In those terms the free and open case may be the only answer that is genuinely sustainable through its ability to incorporate distribution and diversity. The priority then is not to establish the case for free and open, but to find the right place for existing institutions (and that may include accepting the answer that is no place!), and more importantly to help develop the right skills to help humanity progress. The original goals for the William and Flora Hewlett Foundations investment in OER (quoted in Atkins, Seely Brown and Hammond, 2007) were to "equalize access to knowledge and educational opportunities across the world" Openness remains the best approach to achieve such ambitious goals.

Acknowledgement: OpenLearn received financial support from The William and Flora Hewlett Foundation.

6 References

- Atkins, D., Seely Brown, J., & Hammond, A.L. (2007). *A review of the open educational resources (OER) movement: Achievements, challenges, and new opportunities*. San Francisco: Hewlett Foundation. <http://www.hewlett.org/uploads/files/ReviewoftheOERMovement.pdf>
- Anderson (2008). *The Theory and Practice of Online Learning*, Athabasca University Press
- Carroll, J. M. (2000) *Making Use: scenario-based design of human-computer interactions* Cambridge, MA:MIT Press.
- Daniel, J., Kanwar, S & West, P. (2008) Distance Education across Borders, *Asian Association of Open Universities*. <http://www.col.org/resources/speeches/2008presentations/Pages/2008-10-16.aspx>
- Dearing, R. (1997). *Higher education in the learning society* . National Committee of Inquiry into Higher Education. <http://www.leeds.ac.uk/educol/ncihe/>
- Dimitriadis, Y., McAndrew, P., Conole, G. and Makriyannis, E. (2009). New design approaches to repurposing open educational resources for collaborative learning using mediating artefacts. *In: ascilite 2009: Same places, different spaces, 6-9 Dec 2009, Auckland, New Zealand*. <http://oro.open.ac.uk/19378/>
- Godwin, S. J., & McAndrew, P. (2008). Exploring user types and what users seek in an open content based educational resource. In *Ed-Media 2008*. AACE.
- Harley, D. and Henke, J. (2007) 'Toward an Effective Understanding of Website Users: Advantages and Pitfalls of Linking Transaction Log Analyses and Online Surveys.' *D-Lib Magazine*, 13 (March/April), <http://www.dlib.org/dlib/march07/harley/03harley.html>
- Kirkwood, A. & Rae, S. (2002). Students' Use of Electronic Resources: Data extracted from the Courses Survey 2002. Plum Report 161. Milton Keynes: The Open University. <http://kn.open.ac.uk/public/document.cfm?documentid=4316>
- Koper, R. & Manderveld, J. (2004). Educational modelling language: modelling reusable, interoperable, rich and personalised units of learning. *British Journal of Educational Technology*. 35(5):537-551
- Koper, R. & Tattersall, C. (2005) *Learning Design: A Handbook on Modelling and Delivering Networked Education and Training*. Springer
- Kursun, E., Wilson, T., McAndrew, P. and Cagiltay, K. (2010). Evaluating the current status of OpenCourseWare in Turkish Tertiary Education: Benefits, barriers and incentives. In: *Open Educational Resources 2010 (OER10)*, 22-24 March 2010, Cambridge, United Kingdom.

<http://oro.open.ac.uk/21120/>

Lane, A. and McAndrew, P. (2010), Are open educational resources systematic or systemic change agents for teaching practice? *British Journal of Educational Technology*, 41(6):952-962.

Lessig, L. (2001). *The Future of Ideas: The Fate of the Commons in a Connected World*. Random House.

Livingstone, D.W. (2006). Informal learning: Conceptual distinctions and preliminary findings. In Bekerman, Z., Burbules, N. & Silberman-Keller, D. (Eds.), *Learning in places: The informal education reader*. 203-228. New York: Peter Lang Publishing

Mason, R. (1998). Models of Online Courses, *ALN Magazine*, 2(2). <http://web.archive.org/web/20080317013801/www.aln.org/publications/magazine/v2n2/mason.asp>

Mayes, J.T, Dineen, F., McKendree, J., and Lee, J., (2001) 'Learning from watching others learn', in Steeples, C. and Jones, C. (eds) *Networked Learning: Perspectives and Issues*. London:Springer.

McAndrew, P. (2006) Motivations for OpenLearn: the Open University's Open Content Initiative, commissioned report for OECD, <http://kn.open.ac.uk/public/document.cfm?docid=8816>

McAndrew, P, Mackinnon, L. & Rist, R. (2002) 'A framework for work-based networked learning', *Journal of Interactive Learning Research*, ISSN 1093-023X, 13(1/2):149-166.

Meiszner, A,, Glott, R. & Sowe, S. K., (2008). Free / Libre Open Source Software (FLOSS) Communities as an Example of successful Open Participatory Learning Ecosystems, *UPGRADE, The European Journal for the Informatics Professional*, www.cepis-upgrade.org/issues/2008/3/up9-3-Meiszner.pdf

NGLC (2010) Next Generation Learning Challenges. <http://nextgenlearning.org>

OERTN (2009). Open Educational Resources Teacher Network (OERTN) project: Progress Report http://oertn.eun.org/sites/default/files/docs/OERTN_Progressreport20090914.pdf

Rowntree, D. (1997). *Making Materials-based Learning Work*. London: Routledge Falmer

Sayers, N. (2010) *Guide to Scenario Planning in Higher Education*. London: Leadership Foundation for Higher Education

Tait, A. (1994). The End of Innocence: Critical Approaches to Open and Distance Learning., *Open Learning* 9(3):27-36

TNS-Global (2008). Digital world, digital life: snapshots of our online behaviour and perspectives around the world. http://www.tnsglobal.com/_assets/files/TNS_Market_Research_Digital_World_Digital_Life.pdf

Tough, A. (2002) *The Iceberg of Informal Adult Learning*. NALL Working Paper # 49. <http://www.nall.ca/res/49AllenTough.pdf>

Waistell, J. (2006). Metaphorical mediation of organizational change across space and time. *Journal of Organizational Change Management*. 19(5):640-654

Wiley, D. (2006). *On the sustainability of open educational resource initiatives in higher education*. Paris: OECD. <http://www.oecd.org/dataoecd/33/9/38645447.pdf>