

Project acronym: OPAL

Project title: Open Educational Quality Initiative



Work Package 3 – Open Educational Practice Innovation and Quality Monitor

Deliverable D3.1 – Scope of Desk Research and Case Study Identification

Due date of deliverable: April 15th 2010

Actual submission date: April 16th 2010

Start date of project: 01/01/2010

Duration: 24 months

Organisation name of lead contractor for this deliverable: OU



This project has been funded with support from the European Commission. This website reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Project co-funded by the European Commission		
Dissemination Level		
PU	Public	
RE	Restricted	x
CO	Confidential	

Deliverable fact sheet

Deliverable version:	V6
Deliverable type:	Summary of qualitative case studies of OEP
Current release status:	Restricted to a group specified by the consortium
Final release status:	Restricted to a group specified by the consortium
Work package:	WP3
Responsible partner:	OOUK
Primary contributor:	OOUK
Deliverable reviewers:	Thomas Richter, Tapio Koskinen

No.	Date	Sections	Change	Author/ Editor
1	05.04.10	All	TOC and initial sections by PM. Case studies by GC, UE, PM, TC and AS. Detailed OpenLearn narrative TC and AS. Analysis of case studies GC. Development of dimensions of OEP GC and UE	Gráinne Conole, Ulf Ehlers, Paul Mundin, Teresa Connolly and Andreia I. dos Santos
2	12.04.10 – 16.04.10	All	Ongoing refinement of the document. Addition of case studies as they were received. Logical reordering of the structure. Refinement of the dimensions of OEP following feedback, and as more case studies were received.	Gráinne Conole, Teresa Connolly and Paul Mundin.
3	16.04.10 22.04.10	All	Updates following review	UDE (Ulf Ehlers, Thomas Richter, Patrick Veith)
4	22.04.10	All	Updates following review	Gráinne Conole
5	29.04.10	All	Inclusion of comments from Aalto, OU and Nick Moe-Pryce	Gráinne Conole, Paul Mundin
6	02.11.10	All	Production of FINAL version for project deliverable submission	Paul Mundin

Actual Date of Delivery	November 5th 2010
Audience	public X restricted internal
Date	16.04.2010

Status	draft WP leader accepted Quality checked X Project coordinator accepted
Action requested	to be revised by partner in charge of the deliverable to be reviewed by the appointed partners for approval of the project coordinator
Deadline for action:	

Executive Summary:

This deliverable is the output from OPAL Work Package 3, Deliverable 3.1 'Scope of Desk Research and Case Study identification'. The purpose of the deliverable is to identify from a primarily European Union geographical (but with some world-wide coverage) perspective, examples or case studies of good practice in, and success factors for, Open Educational Practice (OEP). From these case studies an initial set of dimensions has been extracted which support achievement in quality and innovation through OEP. These dimensions are being used as the basis for the development of a quantitative survey instrument to gather a broader body of evidence on OEP. The case studies were analysed to:

1. Evidence the quality of OEP in the EU.
2. Identify methods, concepts, and practices used by institutions to enhance OEP quality
3. Identify the factors influencing the quality and innovation potential of OEP and the perceived level of quality of Open Educational Resources.
4. Map out actors, initiatives, practices, tools and concepts in the EU landscape (with some world-wide coverage).

The report is divided into the following sections:

Section 1: Introduction and background to Open Educational Practices (OEP)

Section 2: Definition and methodology for the review of OEP

Section 3: Survey of OEP case studies

Section 4: Factors influencing the quality and innovation potential of OEP

Section 5: Conclusion

Section 6: References

Section 7: Web-site references

There are three appendices:

Appendix A: Case Study Template

Appendix B: The descriptions of OER case studies

Appendix C: The Broader OER Landscape

Table of Contents

Table of Contents	4
Abbreviations	6
1 Introduction and Background: Open Educational Practices	7
1.1 OPAL: providing support to opening educational practices in Europe and beyond	7
1.2 Scope and structure of this document.....	8
1.3 Introduction to Open Educational Resources as the Background of Open Educational Practices	11
2 Definition and Methodology for the Review of Open Educational Practices	16
2.1 Methodology.....	16
2.2 A working definition of Open Educational Practice.....	17
2.3 Overview of the Selected Case Studies of the OER and OEP Landscape.....	19
United Kingdom.....	19
Ireland.....	21
Holland	21
Germany.....	21
Austria.....	21
Switzerland	21
Brazil	22
North America	22
Finland	22
Estonia	22
Portugal.....	22
3. Analysis of Open Educational Practices on the basis of selected cases	23
3.1 OEP stakeholders	23
3.2 The OEP dimensions identified	25
3.2.1 Strategies and Policies.....	27
3.2.2 Quality Assurance Models	28
3.2.3 Collaborative and Partnership Models	30
3.2.4 Tools and Tool Practices	30
3.2.5 Innovations	32
3.2.6 Skills Development and Support	33
3.2.7 Business Models/Sustainability Strategies.....	34

3.2.8 Barriers and Enablers	35
4 Quality and Innovation through Open Educational Practices	43
4.1 Introducing quality of educational practices	43
4.2 How OEP enhances quality and innovation in education	49
4.3 Quality through OEP vs. Quality of OEP	51
4.4 Innovation through OEP	53
4.5 Strategy and Policy Supporting Quality through OEP	55
5 Conclusion	58
6 References	62
7 Web-site references	72
Appendix A: Template (V3) for collecting case studies for:	74
OPAL Work Package 3 – Deliverable 3.1 ‘Desk Research and Case Study Identification’	74
Notes on the use of this template:	74
Template Sections for completion:	74
Appendix B: OER Case Studies	77
United Kingdom.....	77
Ireland.....	79
Holland	79
Germany.....	79
Austria.....	79
Switzerland	79
Brazil	79
North America	79
Finland	79
Estonia	79
Portugal.....	80
Appendix C: The Broader OER Landscape	81

Abbreviations

Aalto	Aalto University, Finland
AE	Adult Education
DFG	Deutsche Forschungsgemeinschaft (German Funding Council)
EFQUEL	European Federation for Quality in eLearning
EU	The European Union
HE	Higher Education
HEA	Higher Education Academy, UK
ICDE	International Council for Open and Distance Education
IIEP	International Institute for Educational Planning
ISKME Education	The Institute for the Study of Knowledge Management in
LAMS	Learning Activity Management System
LLL	Lifelong Learning
LMS	Learning Management System
MIT	Massachusetts Institute of Technology
NDLR	National Digital Learning Repository, Ireland
OCW	OpenCourseWare
OEP	Open Educational Practice(s)
OER	Open Educational Resource(s)
OPAL	Open Educational Quality Initiative Project
OU	The Open University, UK
QA	Quality Assurance
UCP	The Catholic University of Portugal – Universidade Católica Portuguesa
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WP	Work Package

1 Introduction and Background: Open Educational Practices

In this document the current state of the art of open educational practices is summarised. The work reported here sets the scene for the larger OPAL initiative which will provide tools, guidelines and support to the community of organisations, individuals and policy makers who are concerned about the uptake OER usage, and how it can contribute to improving quality and innovate educational scenarios.

1.1 OPAL: providing support to opening educational practices in Europe and beyond

The overall aim of OPAL is to improve the effectiveness of teaching and learning by enhancing the quantity and quality of Open Educational Resources (OER) that can be incorporated into higher education and further education provision. The central vision of the OPAL project is that articulation and use of the Open Educational Practices (OEP) that surround OER will lead to better quality and innovation in the development and use of OER, i.e. a focus on OEP will lead to an iterative improvement in OEP.

‘As a project promoting Open Educational Practice, the OPAL project fosters EU policies in the field of social inclusion and is consistent with the orientation of several intertwined EU policies, and in particular aims to contribute to the achievement of the Lisbon goals, the i2010 initiative, and the Bologna process.’ (OPAL, 2009)

The objective of the OPAL project will be to foster OEP in HE and AE with improved quality and innovative educational practices, and to establish a European Consultative Group which will work towards feeding a quality and innovation agenda into existing OER initiatives, and to elevate the projects results onto an EU level of perception. It will study and analyse the use of OEP from a holistic perspective taking into account the views of the OEP governance community. It will:

- Elaborate and validate guidelines
- Use it for the peer-review of resources and practices which will be linked in an EU OER Quality Clearinghouse
- Establish a register of organisations joining the EU Charter on Quality and Innovation through OEP and will establish an Innovation Award.

The aims of the OPAL project are innovative in three respects:

- 1 It extends the model of OER with the concepts of quality and innovation into the concept of open educational practices (OEP), where OER are used in innovative educational scenarios to raise quality for HE and AE. Research and experience show that the uptake of OER demands a culture of sharing, valuing innovative and social network based forms of learning,

and encouraging novel pedagogical models. The OPAL project combines OER with the concept of quality and innovation to OEP, practices which support the (re)use and production of high quality OER through institutional policies, promote innovative pedagogical models, and learner empowerment.

- 2 It is focussing on innovation and quality through OEP and thus aims to have an impact on the use of OER in the fields of HE and AE. Existing approaches for fostering the use of OER have made achievements by focusing on building access to resources (e.g. MERLOT, MIT OCW, Stanford iTunes, the OU's Openlearn, Rice University, Opentrain UNESCO, OER WIKI UNESCO etc.), and licence models (e.g. creativecommons.org). However, there are a number of cultural barriers (including: a lack of trust, few examples of existing sharing cultures, and a lack of acceptance or the vision to see the potential of OER for education) that hinder the up-take of OER, OER use and better access. The OPAL project will aim to build trust by establishing an EU environment for Quality and Innovation through OEP in the fields of HE and AE.
- 3 The OPAL project aims to build an EU multi-stakeholder environment which will take into consideration the OEP governance community in order to embed quality and innovation, concert European activities, and provide a European interface to international initiatives. While existing OER initiatives gather large provider institutions of high reputation mostly from outside of the EU, the OPAL project proposes for the first time to create an EU multi-stakeholder group of organisations, learners, policy makers and professionals to promote OEP sustainably.

1.2 Scope and structure of this document

This deliverable is the output from OPAL Work Package 3, Deliverable 3.1 'Scope of Desk Research and Case Study identification'. The purpose of the deliverable is to identify examples or case studies of good practice in, and analyse from them success factors for, Open Educational Practices (OEP). While the scope of the funded initiative is a European one, the OPAL initiative understands itself as being a bridge to other regions of the world and intends to include evidence from other regions of the world well as to share Europe's experiences and learn from others.

From these case studies an initial set of dimensions has been extracted which support achievement in quality and innovation through OEP. These dimensions are being used as the basis for the development of a quantitative survey instrument to gather a broader body of evidence on OEP. The case studies were analysed to:

1. Evidence the quality of OEP in the EU.
2. Identify methods, concepts, and practices used by institutions to enhance the quality of OEP.
3. Identify the factors influencing the quality and innovation potential of OEP and the perceived level of quality of Open Educational Resources.

4. Map out actors, initiatives, practices, tools and concepts in the EU landscape (with some world-wide coverage).

The report is divided into the following sections:

- Section 1: Provides a contextual background to the work
- Section 2: Provides a definition and methodology for the review of OER
- Section 3: Gives an analysis of OEP on the basis of OEP case studies
- Section 4: Describes factors influencing the quality and innovation potential through OEP
- Section 5: Looks towards an OEP framework

The document will start by tracing the origins of the Open Educational Resource (OER) movement and provides a definition for the term OER. However, it goes further to describe the 'practices' that surround the development and use of OER and provides a starting definition for the term Open Educational Practices (OEP), which are the central focus of the OPAL project.

This report aims to define a holistic OEP framework on the basis of existing research and to identify and describe existing cases of good practices of OEP. These will be used to extract a set of initial dimensions of outstanding achievements of quality and innovation through OEP. It will be a 'living report', iteratively refining a set of OEP dimensions, focusing in particular on what constitutes success factors and good practice. The document will feed into the next set of OPAL activities, namely a stakeholder consultation which will take place in the Cloudworks website that will be used as the web-based OEP Monitoring Environment (Work Package 3, Deliverable 3.2), in which the validation consultations with the community will be carried out, and feedback from the consultations will be collected. Community stakeholders will be invited to share their views on the study result, which will be continuously presented and refined. The information will be a comprehensive presentation of assumptions, methods, and experience. The Cloudworks Cloudscape web address is:

<http://cloudworks.ac.uk/index.php/cloudscape/view/2019>

OPAL, by definition, is a community-based project, adopting an ongoing iterative approach to OPAL outputs. Ongoing consultation with the broader stakeholder community is important. This means that the project builds on experiences from different relevant OER practitioner communities and will feed its results back into these communities. The consultation processes of the research team and the communities are of the utmost importance and are the interface for thematic discussion and exchange in order to aggregate the useful, and separate out the overhead, from the reports and information gathered. The following consultation will be conducted:

- Three thematic discussions will be held in the Cloudworks social networking site for educators, each lasting one week. These will be moderated

and synthesised at key points. Stakeholders from relevant OER communities will be invited to discuss the key conclusions of the project. See:

- <http://cloudworks.ac.uk/cloudscape/view/2105>
- At the beginning of each week, a moderator will post a statement and then follow up the reactions of stakeholders to it. At the end of each week, the moderator will summarise (weave) the discussions of the week.

The output of this deliverable will provide a direct input into the following OPAL project Work Packages:

- Work Package 3: a) The international standardised survey on open educational practice, b) research design for in-depth interview panel with OEP champion institutions
- Work Package 4 – Guidelines on Quality and Innovation through OER

The work conducted will also feed into the following Work Packages:

- Work Package 5 - European OER Consultation Group
- Work Package 6 - OER Quality Clearing House
- Work Package 7 – OER Innovation Awards.

The case studies addressed the complete OEP governance community. The results and recommendations of the case studies (via this document) will be made available on the Cloudworks web-site (<http://cloudworks.ac.uk/cloudscape/view/2085>) to community stakeholders for wider consultation and validation. Cloudworks is a social networking site for sharing and discussing learning and teaching ideas. It combines many features evident in other tools, such as blogs, wikis, forums and enables the collective improvement of the material on the site in a number of ways: collective aggregation of links and references, tagging, etc. Cloudworks forms a natural follow on to the extensive consultation on OER that has already taken place in the UNESCO wiki; it will build on and link to this site in a complementary way. The consultation will draw on a number of existing well-established communities, such as:

Table 1: OER communities and networks

Community	Number of experts reached
<ul style="list-style-type: none"> • The UNESCO-OER WIKI members (850 members), 	<p>The UNESCOR OER community was established in 2005 and has 850 members (see http://oerwiki.iiep-unesco.org/ for further details). The community has already engaged in an extensive consultation process on how to advance the OER movement (http://oerwiki.iiep-unesco.org/index.php?title=OER:_the_Way_Forward)</p>
<ul style="list-style-type: none"> • ICDE community mem- 	<p>Member organisations (Africa 5, Asia 41, Australia and Oceania 8, Europe 28, Latin America and the Caribbean</p>

bers	9 and North America 13) Individual members (Africa 4, Asia 9, Australia and Oceania 4, Europe 15, Latin America and the Caribbean 3 and North America 11)
• EFQUEL community members	Europe - 85 members, outside Europe – 5; 9 European network I all with over 1000 member organisations
• The JISC/HEA OER network in the UK	29 projects plus an overarching support project, SCORE. A total of 80 HE institutions are involved in the UK and many of the projects link into the HEA existing subject centres. Therefore this network has the potential to rich across the UK education community. SCORE also intends to support 36 fellows over the next two years.
• The Olnet network	Two main partners (OU and Carnegie Mellon) plus a network of international fellows worldwide. The Olnet site has 250 registered users.
• OCW	The extensive international OCW network will also be drawn on.
• Hewlett funded projects	Hewlett have funded by far the greatest concentration of OER-related initiatives, with over 40 listed on their website (http://www.hewlett.org/programs/education-program/open-educational-resources/oer-proposals). These include major initiatives such as MIT, Carnegie Mellon, Rice university, Utah state university and the OU. We will connect into this network via the established Hewlett Grantees network (see for example http://cloudworks.ac.uk/index.php/cloudscape/view/2053)
• Consortium member networks	The OPAL project consist of a strong consortium who have extensive links across the research and teaching community worldwide

In addition the outputs from the desk research and case study identification work are being used to extract a set of initial dimensions of outstanding achievements of quality and innovation in the field of OEP, which will be used an input to Work Package 3. See the supplementary document – ‘OEP Dimensions Supplement’.

1.3 Introduction to Open Educational Resources as the Background of Open Educational Practices

This section provides a brief introduction to the concept of Open Educational Resources (OER). This includes a brief description of the emergence of the OER movement, a definition of the term and an overview of the OER landscape (including key initiatives and stakeholders). This concept is returned to in more detail at relevant points in the document.

Before describing the emergence of the OER movement it is worth briefly positioning the term 'OER'. Conole and McAndrew (2010) provide the following definitions:

- A learning object can range from a simple digital asset (such as a piece of text or an audio file) through to a more complex learning resource incorporating a range of media and designed to support a particular learning activity.
- Open Educational Resources (OER) are teaching and learning materials made freely available for use and repurposing by teachers and learners. The term is potentially synergistic with learning objects; the emphasis is on the open licence allowing the use and reuse of the resources.
- A learning activity consists of a set of tasks a learner undertakes, either individually or in a group, using a specific set of resources (which may include tools) to achieve a set of intended learning outcomes.
- Learning design is a research area developing methods, tools and resources to support teachers in making pedagogically informed better use of technologies. It is also worth noting that related to this is the term - Open Courseware (OCW), which means free and open digital publication of high quality educational materials, organized as courses.

The OER movement reflects the growing interest in recent years in making educational content freely available. Terms such as 'open content' and 'open educational resources' have gained currency. There is now a well-established international community of those interested in producing, using and researching OER. Conole and McAndrew (2010) provide a summary of the emergence of the field, highlighting the key movements and reports, which is summarised here.

The term Open Educational Resources (OER) was first used by UNESCO at its 'Forum on the Impact of Open Courseware for Higher Education in Developing Countries' in 2002. However it is worth noting that MIT had already used the term OpenCourseWare with their initiative in 2001. Alternative labels include 'open courseware', 'open learning resources', and 'open teaching/learning resources' (UNESCO 2002, p.24). Commissioned by the Hewlett foundation, Atkins et al. (2007) the report provides a comprehensive review of the development of the OER movement, describing many of the major initiatives in the field and some of the key achievements. A complementary report emerged at around the same time, commissioned by OECD (2007). Both reports give a good overview of the field, the motivations and aspirations behind the OER movement, as well as a reflection on some of the challenges associated with this area. Liyosh, Kumar and Seely Brown (2008), through an edited collection, consider the wider notion of 'openness' and what it might mean in an educational context. The Hewlett Foundation defines OER¹ as:

¹ Definition on the Hewlett website,
<http://www.hewlett.org/Programs/Education/OER/>

‘Teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use or re-purposing by others.’

Whilst the OECD defines them as:

‘Digitised materials offered freely and openly for educators, students and self- learners to use and reuse for teaching, learning and research.’ (OECD, 2007:133)

The scale of effort and investment in the development of OER is impressive, as the following statement on the OpenCourseWare website² indicates:

‘OpenCourseWare Consortium is a collaboration of more than 200 higher education institutions and associated organizations from around the world creating a broad and deep body of open educational content using a shared mode.’

In 2002 the Hewlett Foundation initiated an extensive OER programme, the chief aim was to ‘catalyze universal access to and use of high-quality academic content on a global scale’ (Atkins et al., 2007:1). More recently, in the UK, the Higher Education Academy (HEA) and the Joint Information Systems Committee (JISC) have initiated a large-scale call on the development of OER,³ building on existing initiatives such as JORUM and OpenLearn. According to the OECD (2007) over 300 universities worldwide are engaged in the development of OER with more than 3000 open access courses. There are numerous initiatives and consortia involved in this area; examples include: the OpenCourseWare consortium (<http://www.ocwconsortium.org/>), the China Open Resources for Education (CORE) consortium (http://www.core.org.cn/cn/jpkc/index_en.html), the Japanese OCW Consortium. (<http://www.jocw.jp/>), the ParisTech OCW project. (<http://graduateschool.paristech.org/>), Irish IREL-Open initiative (<http://www.irel-open.ie/>), and the UK JORUM repository (<http://www.jorum.ac.uk/>).

The Cape Town Open Education Declaration⁴ argues that the OER movement is based on ‘the belief that everyone should have the freedom to use, customize, improve and redistribute educational resources without constraint’. It focuses on three suggested strategies to removing current barriers to the use of OER: i) teacher and learner engagement with OER, ii) general policy to publish openly and iii) commitment to open approaches at institutional and government levels.

² <http://www.ocwconsortium.org/about-us/about-us.html>

³ See

http://www.jisc.ac.uk/fundingopportunities/funding_calls/2008/12/grant1408.aspx for details of the call and associated documentation

⁴ <http://www.capetowndeclaration.org/>

The OER movement has been successful in promoting the idea that knowledge is a public good, expanding the aspirations of organisations and individuals to publish OER. However as yet the potential of OER to transform practice has not been realised. There is a need for innovative forms of support for the creation and evaluation of OER, as well as an evolving empirical evidence-base about the effectiveness of OER. However, recognition of the importance of investment and effort into promotion of the use and uptake of OER is evident in the prominence given to OER developments in a recent major report on Cyberlearning, commissioned by the National Science Foundation (NSF, 2008). One of the five higher-level recommendations in the conclusion to the report is to 'adopt programs and policies to promote Open Educational Resources.'

Researching Open Educational Resources raises issues in how to address global connections, and the reuse, design and evaluation of world wide efforts to work with learning resources that are available for free use and alteration.

'OER is not only a fascinating technological development and potentially a major educational tool. It accelerates the blurring of formal and informal learning, and of educational and broader cultural activities. It raises basic philosophical issues to do with the nature of ownership, with the validation of knowledge and with concepts such as altruism and collective goods. It reaches into issues of property and its distribution across the globe. It offers the prospect of a radically new approach to the sharing of knowledge, at a time when effective use of knowledge is seen more and more as the key to economic success, for both individuals and nations. How paradoxical this may turn out to be, and the form it will eventually take are entirely unforeseeable. The report offers some preliminary handles for understanding the issues raised.' (OECD, 2007:9)

Open provision of course materials has become a more extended movement with many universities adopting the approach. However the diverse OER projects have not received much research attention as to how best to move from existing provision to better structures for open operation. UNESCO (2002) identified four elements that have to be considered when talking about Open Educational Resources:

- The vision for the service - open access to the resource, with provision for adaptation
- The method of provision - enabled by information/communication technologies
- The target group - a diverse community of users
- The purpose - to provide an educational, non-commercial resource" (UNESCO 2002, p.24).

The main properties of OER are: free access 'enabled by information and communication technologies' and a 'non-commercial purpose' (UNESCO 2002, p.24). OER is intended to make "high-quality educational material freely available worldwide in many languages". (Keller and Mossink, 2008).

McAndrew, Santos et al. (2009) argue that despite some terminological differences (Hylén, 2006) open educational resources are largely digital assets (music, images, words, animations) put together into a logical structure by a course developer who has attached an open license to it. In other words, the content is openly available (it can readily be found or discovered), is openly accessible (it is in a form which others can take it away) and openly re-usable (the user can easily modify it and is allowed under the license to do certain things with it without having to ask the creator's permission first).

2 Definition and Methodology for the Review of Open Educational Practices

In order to find elements of what constitutes open educational practices a number of cases from the broader field of open educational practices were identified, researched and analysed. This section discusses the case studies that were reviewed, along with a description of other related OER initiatives and projects. The purpose of the review was to:

- Interrogate these examples to identify elements of existing OEP
- Identify the state of the art in open educational practice articulate what constitutes OEP and in particular good practice
- Extract the associated dimensions of OEP in order to provide input into further research activities.

This section thus sets out to present the evidence collected from a recent desktop study of Open Educational Resources projects and their working practices. Examples from the case studies are given where appropriate in addition to evidence gathered from the contemporary OER literature. Bringing this information together and through its examination may also help determine the pathway towards not only a holistic OEP concept but also the establishment of an OEP framework.

2.1 Methodology

We began with a working definition of OEP (see Section 2.2.) to help define the scope of the desk research and guide the review of case studies. To identify open educational practices we looked at a range of OER cases studies. A number of criteria were used in choosing the case studies to be reviewed:

- i) Well established: We included a significant number of OER initiatives that were well established, which were likely to have a more mature set of associated practices and an understanding of the barriers and enablers associated with OER
- ii) Coverage of key areas: examples that provided evidence along the key areas of interest (policy, quality, innovation, barriers and enablers, etc.)
- iii) Geographical coverage: as much as possible a reasonable geographic spread, with a particular emphasis on examples from Europe
- iv) Educational sectors: examples which were from both the field of higher education and from the field of adult education.

A case study template was drawn up outlining the data to be collected (Annex A). This included background and contextual information, as well as headings

around the key areas of interest. The template was validated within the consortium. Collection of the case studies was divided amongst the partners according to their areas of expertise. Appendix B 'OER Case Studies' lists the case studies. The case studies were then collated and analysed to draw out key features. An evolving set of OER dimensions was then derived (see Section 3 in this document). The dimensions provided the basis for the input into the development of the quantitative survey.

The scope of research extends to higher education (HE) and adult education (AE). Whereas HE refers to the traditional HE segments, inclusion of the AE sector widens this territory / target group considerably and refers largely to the segment of "ongoing, further education", but also post degree and non degree related provision. The higher education sector includes: all European (+ selected beyond) Universities and HE institutions (private and public) offering educational programmes/courses for students, corporations, and professional training, etc. The adult education sector includes: all forms of non-vocational adult learning, whether of a formal, non-formal or informal nature (taken from the glossary of terms of the Lifelong Learning programme: http://ec.europa.eu/education/programmes/llp/glossary_en.html). AE therefore refers to all European (+ selected beyond) adult-learning institutions. This goes beyond university education and includes also community colleges, adult learning centres, providers for professional training, and further education for adults. Adult education is also sponsored by corporations, labour unions, and private institutes. The field now embraces such diverse areas as vocational education, training (VET) designed to advance individuals' general proficiency, especially in relation to their present or future occupations. The field does not normally include degree awareness training for the professions (VET).

2.2 A working definition of Open Educational Practice

This section helps to clarify what is and isn't in scope in term of OEP. It provides a number of illustrative examples that help to clarify the relationship between OER and OEP and a starting position on the nature of OEP. This is guided by abstraction from the case studies of OER/OEP undertaken as part of Deliverable 3.1 and will act as input to the quantitative survey being carried out as part of Deliverable 3.2. It is worth noting that we are aware that OER is part of a broader spectrum around the notion of openness and open practices: such as open source work, open research initiatives and more generally open dialogic practices evident in Web 2.0 environments. We intend to be cognisant of this broader landscape but focus in this work specifically on OER and associated practices.

A database or repository of open educational resources is not open educational practice. The pure usage of these open educational resources in a traditional closed and top-down, instructive, exam focussed learning environment is not open educational practice. However, if OER are used to create resources which are more learner-centred than the ones existing before, if

learners are involved into the creation of content which is taken seriously by the teachers/facilitators, if teachers are moving away from a content centred teaching to “human resource” based teaching, if learning processes are seen as productive processes and learning outcomes are seen as artefacts which are worth sharing and debating, improving and reusing, then OER might improve the learning process and then we talk about open educational practices.

Open Educational Practices have a “lifecycle” which is influenced by the entire open educational practice governance community:

- Be it the national policy makers who are promoting the use of open educational resources,
- The rector of a higher education institution who is initiating an institution wide open education initiatives in which teachers are asked to create, find, adapt and share OER in an institution wide OER repository, and in which educational strategies and models are collected and shared amongst teachers
- The teachers who are encouraging learners to produce, share and validate content
- Or the learners who are using open available content to create knowledge landscapes on study topics which better fit their needs than the available text book “one size fits all” style.

Conole (2010) suggests that Open Educational Practices (OEP) are a set of activities and support around the creation, use and repurposing of Open Educational Resources (OERs). It also includes the contextual settings within which these practices occur. Therefore there are three importance dimensions to this:

- The **stakeholders** engaged with creating, using or supporting the use of OER. These can be further sub-divided into those involved in ‘creation and use’ of OER and those involved in ‘policy and management’ aspects of OER, namely the:
 - **Creators** - create the OER, and could be either ‘teachers’ or ‘learners’
 - **Users** - Use the OER, and could be either ‘teachers’ or ‘learners’
 - **Managers** - Provide the infrastructure to support the OER (technical and organisational) and the tools/support to create/use OER
 - **Policy makers** - Embed OER into relevant policy
 - **Support staff** – facilitating the OER and OEP process
- The range of **mediating artefacts** that can be used to create and support the use of OER. These include:
 - **Tools and resources** to help guide the creation and use of OER
 - The **technologies** to support the hosting and management of them

- The **contextual factors** which impact on the creation, use or support of OER

Ehlers (2010) provides further explanations and elaborations in the.

- OEP are defined as practices which support the (re)use and production of high quality OER through institutional policies, promote innovative pedagogical models, and respect and empower learners as co-producers on their lifelong learning path. OEP address the whole governance community, policy makers, managers, administrators of organisations, educational professionals and learners
- There is little consideration of how OER are supporting educational practices, and promote quality and innovation in teaching and learning
- Open Educational Practices are defined as the use of open educational resources in such a way that the quality of educational experience is raised. Whereas OER are focusing on content and resources, OEP represents the practice in which an educational method is employed to create an educational environment in which OER are used or created as learning resources

In addition the project's aimed to include the notion of both innovation and quality in the use of OER. An attempt to integrate both the structural definition give above and the intent to emphasize the quality and innovation aspects is captured in the following general definition:

‘Open Educational Practices (OEP) constitute the range of practices around the creation, use and management of open educational resources with the intent to improve quality and innovate education’

2.3 Overview of the Selected Case Studies of the OER and OEP Landscape

The case studies reviewed during the desk-based research are listed below by country/geographic region. Appendix B lists the case studies in more detail. Further details on each case study are available in the individual case study templates (<http://cloudworks.ac.uk/cloudscape/view/2085>). The dimensions of OER that were extracted from the case studies are discussed in Section 3 of this document. The case studies were chosen to give a spread in terms of covering both the HE and AE sectors, geographical local and representative of the different types of projects/initiatives possible (i.e. different types of consortium, different focus, spread of subject areas, models of Quality Assurance, etc.).

United Kingdom

- OpenLearn, OU UK (AS)
- SCORE (PM)

- UK - JISC funded:
 - Exeter University (AS)
 - Nottingham University (AS)
 - Oxford University (AS)
 - University of Westminster (AS)
 - University College London (AS)
 - SC Economics (Bristol) (AS)
- Cambridge University (AS)
- POCKET (TW)
- OTTER (TW)
- Open Educational Repository in Support of Computer Science, Ulster University and 5 other HE partners (TC)
- The Humbox project, Southampton, Royal Holloway & Warwick University and 12 other HE partners (TC)
- Open Educational resources pilot project, Loughborough University and 9 other HE partners (TC)
- Collaborative open resource Environment (CORE), Liverpool University and 21 other HE partners (TC)
- Skills for Science project, Hull University and 17 other HE partners (TC)
- C-Change project, Plymouth University and 12 other HE partners (TC)
- Art, Design & Media OER project, Brighton, Cumbria and University of the Creative Arts (TC)
- FETLAR, Nottingham Trent University and 11 other HE partners (TC)
- Biosciences Interactive Laboratory/Fieldwork Manual, Leeds University and 11 other HE partners (TC)
- OERs in Simulated learning (SIMSHARE), Warwick University and 4 other HE partners (TC)
- PHORUS project, Kings College London & 16 other HE partners (TC)
- Key Social Sciences resources for learning & teaching, Birmingham University and 16 other HE partners (TC)
- Organising Open Educational Resources (OOER), Newcastle University and 16 other HE partners (TC)

- Open Content Employability project, Coventry University (TC)
- Unicycle project, Leeds Metropolitan University, UK
- BERLiN project, Nottingham University, UK
- OpenStaffs project, Staffordshire University, UK
- Open Source Electronics Learning Tools project, York University, UK
- openUCF, University College Falmouth, UK
- The Numeracy Bank (Numbat) project, Anglia Ruskin University, UK
- EVOLUTION project, University of Central Lancashire, UK
- Chemistry-FM project, University of Lincolnshire, UK
- Open Educational Resources Project (OERP), Bradford University, UK
- ICS Open Educational Resources (TW)

Ireland

- NDLR (GC)

Holland

- OpenER (GC)
- Wikiwijs (GC)

Germany

- Akleon (UE)
- KELDAmet (UE)
- CampusContent (UE)
- Podcampus (UE)
- Zentrale für Unterrichtsmedien (UE)
- Dual Mode Technische Universität Darmstadt (UE)
- MatheVital (UE)
- Skriptenforum (UE)

Austria

- EducaNext (UE)
- eLibrary Projekt (UE)

Switzerland

- GITTA (UE)

Brazil

- UnisulVirtual (AS)

North America

- CCCOER/CCOT (GC)
- BC campus (PM)
- MIT OpenCourseware (GC)

Finland

- EDU.Fi (TK)
- AVO-SOMETU (TK)
- Le Mill (TK)

Estonia

- Estonia National Network

Portugal

- INTERACTIC (AA)
- Casa das Ciências (AA)

Appendix C also includes a description of the broader OER landscape. This includes other OER initiatives that have not yet been scrutinised according to the OPAL OER case study template, as well as broader initiatives.

3. Analysis of Open Educational Practices on the basis of selected cases

This section describes the analysis of a Europe-wide case study collection outlined in the previous section. Stakeholders identified through the case studies are listed along with their principle roles in terms of OEP. A set of eight dimensions has been abstracted from the case studies, which can be used to analyse and describe Open Educational Practices (Section 3.2). Finally, the document provides a more detailed description of each of the dimensions, along with specific examples drawn from the case studies. The purpose of the review was to:

- help refine our definition of the term Open Educational Practices (OEP)
- outline the specific characteristics of Open Educational Practices (OEP)
- elicit a set of dimensions of OEP derived from a series of case studies of OER
- feed into a broader pan-European survey of OER and OEP to be conducted in three languages and across eight countries
- form a basis for broader community consultation about how articulation of OEP can be used to promote innovative practices in the creation and use of OER and improve the quality of OER.

3.1 OEP stakeholders

The stakeholders of open educational practice are the ‘open educational practice governance’ community. These are those actors who are involved into open educational practices from all perspectives, be it the policy making component in the field of education in which national, regional or local (communal) policies are shaped and implemented to stimulate the use of open educational practices, production and distribution of learning materials, the management or administration of educational organisations, teaching or providing learning environments, or learning in learning environments in which open educational resources are used to improve quality and access of learning. We are focusing on higher education institutions and on educational organisations in the field of adult learning.

Table 2: OEP stakeholders

	Higher education	Adult learning
Policy maker level	European, national, regional, local (communal)	European, national, regional, local (communal)
Management and administration level	Rectors/ VCs of HE Institutions, Heads of administration, leaders of technical departments,	Directors of Adult Learning Centres or initiatives, leaders of administrative units within

	institutional policy makers, IP experts	adult learning centres, leaders of technical departments within ALCs, institutional policy makers, IP experts
Educational level (teachers, professors, curriculum designers, etc.)	Teachers, professors, curriculum designers, learning material designers, assessors and validators of learning, teacher trainers, pedagogical advisors and consultants, support staff related to educational processes, Technical editors converting materials into online format, , quality assurance professionals, etc.	Teachers, facilitators (also learners can become teachers in adult learning), material, and curriculum designers, validators/ assessors, teacher trainers, pedagogical support staff, advisors, Technical editors converting materials into online format, quality assurance professionals, etc.
Teaching and learning level (learners, students, tutors, teachers)	Students in formal learning contexts, lifelong learners, informal learners	Students in formal learning contexts, lifelong learners, informal learners

For all stakeholders our aim was to enquire how open educational resources are used (created, found, used in teaching/learning, shared, and adapted) to improve quality and innovation of the learning environment. All the above stakeholder categories can either be involved as individuals, as part of communities (online or face-to-face) or as members of institutions leading initiatives in the field of OEP. The following stakeholders were cited in the case studies as being involved with different aspects of OEP:

- Teachers - finding, creating, using or repurposing OER
- Formal learners - finding, creating, using or repurposing OER
- Informal learners - finding, creating, using or repurposing OER
- Non-formal learners - finding, creating, using or repurposing OER
- Managers – decide strategy and implementation plan and resources related to OER
- Policy makers - implement policy around OER
- Technical editors - converting materials into online format
- Instructional designers – helping ensure the design of OER adheres to good ID principles
- Educational developers - helping staff gain the skills to understand and use OER
- Quality assurers - putting in place QA models and ensuring the quality of OER both in terms of content and processes
- Translators – converting OER into other languages
- International relations staff – dealing with cross-cultural issues

- OER mentors - providing support for collaborators in creating and using OER
- Wider community – for example family members of learners
- E-learning and OER researchers – with an interest in exploring specific questions around the use and effectiveness of OER.

3.2 The OEP dimensions identified

As described previously, OEP is defined as the full set of practices around the creation, use and management of OER. This includes the tools that are used to support this process, the resources themselves and any enabling frameworks. OEP covers the full spectrum of policy, research and practice around OER and involves almost all stakeholders involved in supporting and managing learning provision in educational systems. Our aim through analysis of the OER case studies was to gain a better understanding of the type and scope of OER that has been undertaken to date. To articulate the different approaches that had been adopted, what had worked and what hadn't. Each case study was completed according to a pre-defined template. Analysis of the case studies lead to the generation of a set of 'dimensions' or themes across the case studies, which provide a common framework with which to compare and contrast the case studies. The following eight OEP dimensions were identified:

- Strategies and policies
- Quality Assurance (QA) models
- Partnership models
- Tools and tool practices
- Innovations
- Skills development and support
- Business models/sustainability strategies
- Barriers and success factors

These dimensions come out of the analysis of over 60 collected case studies and can be used as dimensions and categories for the analysis of OEP on the different target group levels. As outlined above, OEP can be influenced by actions, rules and regulations on all levels of stakeholder involvement. The following table gives an overview of how the dimensions influence the actions of four aggregate groups of stakeholders; policy makers, management and administrators, educational professionals and learners.

Table 3: The relationship between stakeholders and the OPE dimensions

Stakeholders	Practice Level	Influence Dimensions
<i>Stakeholders...</i>	<i>...perform actions in their practice fields...</i>	<i>...which show impacts in the following dimensions.</i>
Policy Makers	Policy-Environments (National, Regional, Local conditions)	Strategies and policies Decision of funding
Management, Administration: Educational organisation(s)	Organisational Environment (also includes consortia, and partnerships)	Strategies and policies QA models Partnership models Tools and tool practices Innovations Skills development & support Business models/ sustainability strategies Barriers and success factors Funding
Educational Professionals	Educational Environment (consists of technological plus social environment)	Tools and tools practices Barriers and success factors Innovation Skills development & support
Learners	Teaching and learning processes(activities and outcomes)	Tools and tools practices Innovation Skills development & support Barriers and success factors

The following section discusses the specific evidence for each of the eight dimensions of OEP that came out of the analysis of the Europe-wide case study analysis. This section is discussed under the eight dimensions against the four headings outlined in the table: the policy environment, the organisational environment, the educational environment and the teaching and learning process. The evidence from the case studies is discussed, and an indication of which case studies demonstrated each type of evidence is given. It is worth noting that the four levels are hierarchical in nature, therefore some of the dimensions indicated at a higher level can be considered to cascade through to the lower levels. This is taken as given. For example a national level policy initiative will naturally have a direct impact on each of the other levels, although the impact might be of a different kind. For example a new funding initiative at a national level might lead to new OER activities and initiatives at an organisational level, changes in attitudes and teaching practice at the educational level, and finally an improved student experience for the learner.

3.2.1 Strategies and Policies

At the policy environment level the most evident dimensions are strategies and policies. Strategies include:

- i) The level of national level engagement or support
- ii) Adopting a national-level initiative to pool expertise, gain critical mass and develop a vibrant community (such as NDLR in Ireland, BCCampus in Canada, Wikiwijs in Holland), and provision of a coherent national focus, through the repository and associated events and support mechanisms (NDLR, Wikiwijs, SCORE).

Policy makers implement policy around OER through key white papers (see for example the NSF Cyberlearning report from the states, NSF, 2008), via inclusion in strategy document (see for example the UK HEFCE elearning strategy), through funding calls (see for example the international work supported by the William and Flora Hewlett Foundation and the recent call in the UK jointly funded by the HEA and JISC) or through acting as a front to promote OER initiatives (for example the public support of the Dutch education minister for the Wikiwijs initiative).

Policies include having in place a national level policy drive. For example in the UK, there has recently been a joint national funding initiative funded, by JISC and the HEA, which focuses on making a significant amount of existing learning resources freely available online and licensed in such a way as to enable them to be used and repurposed worldwide. Notice that the focus here is on 'existing' materials, rather than on the actual creation of OER, which is a significant shift from earlier OER funded initiatives such as those supported by the Hewlett Foundation. In contrast to some of the government or national level directives in Europe, in Brazil for example there is no public policy in place for OER at the HE level.

Three main strategies have emerged at the organisational environment level:

- i) The extent to which initiatives are bottom up, versus top down, within institutions.
- ii) Lightweight/user driven strategies versus institutional structured workflow.
- iii) The degree to which students are actively involved.

Policies in place at the organisation level obviously need to be of a different level of granularity to those at the national level and include:

- i) The need for need to adhere to the initiatives/policies in order to be able to join (e.g. CampusContent, NDLR).
- ii) The requirement to adhere to Open Source principles and approaches.

- iii) Adhering to existing policy practices and standards. For example the CCCOER project points to the wikieducator⁵ exemplary collections of institutions with OER policies, and also to the DLISE review of collections best practices.
- iv) Linking to national or broader policy agendas For example the OpenER project links to the Lisbon agenda, feeding through Dutch government objectives in this area
- v) Mainstreaming OER work into institutional business provision. This was a core object of the OpenLearn initiative in the UK and is now being instantiated. Many other initiatives are seeing the importance's of building in sustainability and embedding into core processes as an essential part of their overall strategy.

3.2.2 Quality Assurance Models

A range of Quality Assurance (QA) models was evident across the case studies. These depended on a number of factors:

- The type of institution and their learning and teaching culture
- The balance of importance of the 'value' of teaching (in comparison to research activities in the institution).
- The degree to which OER activities were seen as research activities in their own right
- The level of e-learning maturity of the institution
- The extent to which they had engaged with OER work previously.

QA models range from lightweight, user-defined models to strictly controlled hierarchical models. An example of a lightweight and user-driven model came from the Southampton University case study and their edshare project. They provided the option of either open-web sharing or institution-only sharing, according to academics wishes. The OER are made available as simple assets (such as PowerPoint, Word, or PDF files), i.e. standard formats that academics are used to producing in their everyday practice. In terms of QA and adherence to standards this is very much a lightweight approach, no adherence to IMS CP or LOM is required. OpenExeter is another example of quality control driven by academics, although interestingly it does adhere to IMS standards and is SCORM compliant. It is interesting to note that Southampton and Exeter would both view themselves as 'research-focused' institutions, where

⁵ http://wikieducator.org/Exemplary_Collection_of_institutions_with_OER_policy

the academic view is still privileged; hence such lightweight, academic-driven approaches are to be expected. In fact, this does appear to be quite a common approach adopted by many of the case studies; certainly some of the more recent, smaller initiatives.

In contrast to these lightweight models, the OpenLearn initiative is a good example of a top-down controlled QA model, with clearly articulated quality processes and identified roles (authors, editors, technical support, quality assurers, etc.). Again this can be seen as both a consequence of the unique position in the UK as a large-scale distance educational institution (with a well established, Ford-ish-production model for course production and presentation) and due to the fact the project received considerable funding from the Hewlett Foundation and hence was in a better position to set up more rigorous and complex roles and processes.

Other case studies can be seen as examples along a spectrum from lightweight to more controlled QA models and a number of examples of the QA practices are evident from across the case studies. These practices include the use of peer-reviewing as a means of assuring quality (for example in the Gitta project); defining criteria for peer-production and open content (the AVO project); and more organic and community peer-review based relatively linear quality assurance models, where quality assurance checks and processes are embedded into the workflow for production of OER; annotation through experts which help the users through the learning materials; multi-level reviews, or reviews against a set of pre-defined criteria.

An example of a relatively linear quality assurance models is the OpenER project, where authors are required to produce and submit content, which is then checked, converted and rechecked. EducaNext is an example of a more organic community-based model, where members are able to comment on published content or run a complete course evaluation. KELDAmEd is another example, which includes annotation by experts, who then are also available to help the users through the learning materials.

CampusContent have multi-level reviews where experts review the material and then learners can further improve shared understanding of the OER through their own annotations. Podcampus is an interesting example of a lightweight QA model, where contributions are provided from experts. Another community-based model can be seen in the CCCOER/CCOT initiative which enables educators to share reviews of materials, and also to look at and comment on the reviews of others. The CCOT reviews are done against a set of pre-defined criteria. These include sub-dimensions around accuracy, importance or significance, pedagogical effectiveness, completeness of documentation, ease of use for teachers and learners, inspirational/motivational for learners, and robustness as a digital resource. Another interesting model is that adopted by eLibary, which involved multiple stakeholders, who could contribute to both the development and improvement of the resources in a variety of different ways.

3.2.3 Collaborative and Partnership Models

Some OER initiatives have involved more than one organisation and a number of partnership models have emerged. In some cases these include different types of academies (universities, technical universities, colleges), in other cases they focus on specialist areas, each led by a senior academic in that field.

The Gitta project involved ten Swiss partner institutions, who jointly developed and operated learning content for academic education in the field of Geoinformatics. The partners are interdisciplinary institutions, different types of academies (universities, technical universities, colleges), as well as multilingual.

The TRUE project consisted of 14 such specialist areas, each led by a senior academic in that field. Each specialist leader gathered and collated materials from colleagues in various universities. Resources included syllabus details, reading lists, lecture slides, seminar/workshop materials, problem sets and worksheets, student handouts, assessment schemes, past assessments and module/unit handbooks.

The AVO project has a dozen organizations and tens of experts involved, and operates through the national network eOppimiskeskus, the Association of Finnish eLearning Centre. Ope.fi is aimed at teachers in Finland and focusing on learning materials that would otherwise not be published – i.e. materials that are not of interest for the commercial publishing companies, materials that are not likely to have a large enough audience in order to make publishing worthwhile from the economic point of view.

In Canada the BCcampus OER initiative has been implemented in 25 institutions, through a multi-institutional partnership, which involves staff from more than one institution. At the moment however these resources are only shared amongst the 25 institutions and are not available more openly.

The e-library project uses volunteers of national eLibraries to help digitise content and then work with scientists and students to publish them. Employers also help to create and maintain content.

An interesting example of a partnership mode is that between OpenLearn and UnisulVirtual, who chose materials from the existing platform for translation into Portuguese. Materials were analysed by UnisulVirtual tutors and chosen on their suitability in terms of relevance, clarity and depth.

3.2.4 Tools and Tool Practices

A rich range of tools and tool practices emerged from the case studies, exploiting the full potential of new technologies to support the sharing and critiquing of resources. In some cases institutional Learning Management Systems (LMS) have been adopted, in other cases a more specialised digital repository has been created. More generally web 2.0 tools (such as wikis, blogs,

social networking sites, etc.) are being used in a variety of ways to foster and promote the community of practice around the OER. Not surprisingly in general there is strong support for adopting open practices. Most projects subscribe to some form of creative commons licensing, in particular the use attribution, non-commercial, share-alike basis.

Connexions is mentioned across a number of the case studies as a valuable system for sharing and editing OER. Similarly the EduCommons content management system has been used as an OER platform by a number of projects (for example OpenER). OpenLearn used the open source learner management system Moodle for hosting its OER, whereas others used commercially available LMS (for example NDLR used Blackboard). Rather than create a separate platform, UnisulVirtual, choose to use the specially adapted platform that OpenLearn created. OpenExeter chose to use its existing Information Technology Infrastructure Library system, whereas U-NOW developed a conventional website. Some used relatively lightweight packaging and distribution of OER (using Word files in ZIP and PDF formats), whereas others adopted an XML-based framework. Gitta for example used eLML (eLesson Markup Language). A number of the sites incorporated or developed specialised repository tools to enable different types of search (for example AK-LEON) or KELDA (an annotated database).

Web 2.0 tools were used in a variety of ways. ZUM-Unity used forums and blogs as a means of exchanging ideas. In contrast, a number of projects chose wiki-based systems – sometimes for storage and sometimes to promote discussion and community building (for example the Unesco wiki, Wikiwijs, ZUM-wiki and Skriptenforum, eLibrary). MatheVital used a repository plus a wiki for annotation. More specialised OER such as podcasts have either been distributed via specialised podcasting platforms (as in the case of Podcampus) or via iTunes (for example the OUUK and the OpenSpire project at Oxford University). ELibary used Voice-Over-IP and instant messaging. Other standard available web tools such as Twitter and YouTube have also been used as a means of distributing information at the various OER initiatives. CCOT used the social networking site Ning to promote community engagement. The AVO project includes SOMETU, which is also Ning based and provides a forum for people who are interested in the potential that social media offers for learning. It is described as a tool that ‘not only helps expand one’s knowledge but promotes business, eDemocracy, citizen activism and leisure activities in the digital age’. More recently a number of projects have been using the Cloudworks site as a means of sharing and discussing OER issues and practices (for example OpenExeter, Olnet, the Hewlett grantees and NROC). AVO is also exploring the use of Virtual Worlds (along with mobile devices, blogs, wikis, and other social media tools). Finally a number of tools have emerged to support visualising OER, both in terms of making their inherent designs explicit (CompendiumLD) and to support visualisation of argumentation about OER issues (Compendium and Cohere).

At the educational environment level, in addition to the above, a number of other factors emerged. There were some good examples of the use of voting and ‘recommendation’ tools to enhance community engagement and shared consensus, and syndication formats like RSS and RSS aggregators to distri-

bute metadata and provide access to content. Blogs, wikis and discussion forums have all been used as spaces to discuss OER/OEP and to co-create a shared understanding and there are examples of the use of social networking sites and file sharing services (such as Flickr, Slideshare and YouTube). Collectively there is evidence that these tools enable peer critiquing and commenting, which is leading to an improved shared collective understanding. Community-based tagging, the use of folksonomies to create metadata and tagging has become more important as users have shifted away from pre-defined metadata categories.

Adopting open practices is, perhaps not surprisingly, fairly common. The emergence of the Creative Commons license four or five years ago was a major break-through in terms of providing a means for project to label the level of attribution and the degree of sharing they wanted on the resources. Most of the case studies reviewed from the UK, for example, use attribution, non-commercial, share-alike. However some projects were not comfortable with the share-alike option, meaning that the repurposing of the OER was not possible. More generally in terms of adopting open practices there are a range of approaches, for example some projects have deliberately chosen to use open source tools (such as Moodle), whereas others have opted for bespoke systems or commercially available products. Likewise projects differed in their attitudes to adherence to open standards ranging from full to no compliance. In the BCcampus project, OER developers have a choice of two licensing options: Creative Commons Share Alike-Attribution Canada Licence or the BC Commons licence (90% have chosen the latter).

3.2.5 Innovations

Innovations evident from the case studies included the use of tools specifically for the creation and use of OER (Connexions, OpenLearn, and eduCommons are particularly noteworthy), as well as examples of innovation in the application of Web 2.0 practices to create and use OER (such as use of blogs, wikis, open repositories, RSS feeds, and social book marking). Examples of good practice were seen in a number of cases in the development of communities around OER, such as the NDLR Communities of Practice approach, and EducaNext. Some work has been done more recently to help make the design of OER more explicit and the application of principles from pedagogical patterns work, for example the work as part of the Olnet initiative. There is clearly more potential for aligning research understandings from the field of pedagogical patterns to the design and use of OER. There were also examples of good practice in terms of support mechanisms that had been put in place for staff such as training materials, events, and workshops. See for example the NDLR programme of activities, the Campus promo kit, and the materials produced by UnisulVirtual. The AVO project appears to be innovative in terms of trying to harness web 2.0 practices. Its stated outcomes are the development of 'new networks and forums to facilitate web2.0-learning culture, handbooks and toolkits for teachers, decision-makers and citizens about social media, patterns for social networking and open content production, road-shows and

online-conferences, hands-on workshops and seminars to train users to apply digital tools to their everyday activities'. Another aspect of AVO that can be considered as innovative is that it collects actors and activists of OEP in Finland into a nationwide network.

UnisulVirtual made an online course available via the OpenLearn platform, but complemented this with local tutor support paid for by the university.

Other innovations included: provision of easy mechanisms to exchange both content and information about related OER activities (EducaNext); effective application of open source principles and licences (e.g. UnisulVirtual and the University of Leicester case studies); use of simulation environments to provide learners with a visual, quasi-haptic approach to abstracting data (MatheVital); making lessons available at multiple levels for different types of learners and the generation of solution-orientated case studies (Gitta); the creation of new networks of peer learning for experts of different fields (AVO); and an impressive student-led initiative, where students share collections of minutes, notes and scripts which they took in lectures and seminars in universities.

3.2.6 Skills Development and Support

A range of mechanisms has been used to overcome academics' initial concerns about OER and to help with skills development and support. These include: mechanisms to foster and support community engagement, the provision of case studies of good practice and exemplars, running of parallel events and workshops, and provision of specific training materials. For example the Campus promotion kit includes marketing materials, guidelines and tutorials on OER, an open textbook adoption worksheet, OER needs assessment survey, policies and models. The NDLR adopts a Community of Practice (CoP) approach and aims to facilitate the development of CoP around the OER to provide mutual peer support and in particular the establishment of discipline-based CoP.

Getting staff-buy in and support, and making it relevant to them, emerges again as a key issue at this level, but also important is ensuring that there is a critical mass of resources and of people to support and sustain these types of initiatives. Language and culture issues are also barriers to uptake and adoption. This was evident in particular in case studies which involved the translation of materials such as UnisulVirtual, who had to hire staff to translate the OER and to discuss them with lecturers, for adaptation and localisation purposes. This has also been cited as an issue in Turkey, where the number of new universities has doubled since 2003 and there is recognition of the value and role of OER, but only if they are available in Turkish. The AVO project aims to strength the production of open content through the development of high quality materials by training and networking key experts.

3.2.7 Business Models/Sustainability Strategies

An ongoing critical discourse against the OER movement is the issue of how it can be made sustainable in the longer term and what business models might be appropriate. Untangling which models are actually being used in practice is complex, as a number of models might be used in conjunction, and projects may change the basis of their business model over time. For example it is common for projects to start through some funding initiative and then to move to an alternative model once that initial funding finishes.

Downes (2007) provides a useful categorisation of funding models for open source type initiatives, endowment models (where the project obtains base funding); membership models (where a coalition is invited to contribute a sum); donation models (where requests are made for donations); conversion models (where initial freely made material ultimately leads to some element of the paying consumer); contributor-pay models (where the contributor pays for the cost of maintaining the contribution and the provider makes it freely available); sponsorship models (such as commercial advertising); institutional models (where the institution assumes responsibility for the initiative); and government models (direct funding via government agencies); partnership or exchanges (where the focus is on exchanging resources).

In the case studies examples a mix of these are evident. For example the OpenLearn initially fitted the endowment model through funding from the Hewlett Foundation, but now is supported internally and hence fits under the institutional model primarily. However because of the ongoing range of spin off initiatives and partnerships it could also be considered to fit in with a number of the other models to some degree as well (endowment, conversion, and partnership).

All of the case studies under the current HEA/JISC OER programme are essentially a mix of endowment and institution, as although they are receiving funding for the work there is a requirement that there is institutional support and ongoing commitment to the work. The business model of UnisulVirtual was one of 'independent investment'; that is, it did not use public funding money to promote its OER initiative, but used university funds to implement it. Its aim was to mainstream OER into its usual university practices. However, its model of making material available via OpenLearn supported through local paid tutors is an example of institutional investment. BCCampus could be argued to be a mix of a Government model (as it received government aid) but also fits under the partnership model.

The lack of clarity of individual business models is perhaps not surprising, as in reality projects will probably adopt a number of strategies in conjunction. For example many initiatives have reported that making some of their educational material freely available has led to direct revenue returns, in terms of learners then signing up for paid courses (hence an example of the conversion model). Furthermore many of the pioneering early flagship OER projects now boast a range of spin-out initiatives, consultancy work and related research projects. Encouragingly there seems to be a general recognition of and commitment to OER work as is evident in the number of institutions who are prepared to sign up for some element at least of the institutional model.

3.2.8 Barriers and Enablers

Many of the projects have incorporated formal evaluation mechanisms and so have been able to document both the barriers and enablers to the uptake and adoption of OER. Some are technical (for example a lack of interoperability between platforms) but others are more to do with cultural or organisational issues.

For example in some instances there is evidence of users accessing OER but not repurposing them. A commonly cited barrier is academics reluctance to provide resources under a Creative Commons share-alike license. More generally academics have often been slow to see the benefit of OER and have been concerned about the investment in time the creation and use of OER will take. A significant issue is the lack of experience of using web 2.0 technologies and given that most OER are delivered and repurposed this way, this is potentially a significant barrier.

The Pocket project aimed to explore the issues that inhibit users from downloading, uploading and repurposing material from OpenLearn. The project identified a number of barriers to transformation and made recommendations for improvement.

As a means of overcoming barriers caused where Internet access is slow or expensive the eGranary project sets up mirror sites for OER. A good example of a project that has attempted to address staff self-motivation is the Westminster University case study, where they used Multimedia Training Videos as a means of promoting their OER work and explaining the benefits to staff. An alternative strategy is to see the OER work as part of a broader family of e-learning initiatives. MatheVital is perceived as successful because it is an additional initiative to the e-learning activities of the faculty.

Open.fi adopts a different approach to getting teacher engagement. In addition to its core offering, i.e. the digital learning materials, the portal offers a wide variety of materials for supporting teaching and learning. It organises competitions and theme days (e.g. European Spring 2010, intellectual property rights day with European Competition) and includes links to European sites such as eTwinning.

The collaborative approach adopted by the e-library project (involving e-library volunteers, students, scientists and employees) is stated as being a great motivator and helps teach the stakeholders involved to work in teams and gives them experience of using new technologies).

There are four main types of barriers and enablers. They are technical, economic, social and legal and examples of all four types were evident in the case studies. This section draws extensively on two main reviews covering this topic (Centre for Educational Research and Innovation, 2007; Open eLearning Content Observatory Services, 2007).

Technical Issues

Not surprisingly there are a number of technical barriers associated with the development and use of OER, although arguably as technologies improve and interfaces become more intuitive some of these technical barriers are becoming less of a problem. As OER are made available over the web, access to the web is a prerequisite. This can be a significant barrier therefore in countries where access is limited or there is no broadband. In addition there are technical issues with converting print material into digital format. There are choices to be made in terms of whether to use PDF or XML formats and there are decisions to be made in terms of the extent to which metadata is added and what type of metadata will be most appropriate. The MIT OCW chose PDF as the document format for their courses, however PDF has limitations. For example the PDF format inhibits reuse, as it is not possible to dissect and reconfigure the resource easily. HTML or XML formats offer greater flexibility, but require higher levels of technical skills. Nonetheless many initiatives have opted for these formats, recognising the increase flexibility they provide and in particular the ease with which they can be repurposed or transferred to different technology platforms.

Technical drivers are associated with the ease of use, cost and availability of technologies. The Centre for Educational Research and Innovation (2007: 59) suggests the following mechanisms for overcoming technical barriers: increased broadband availability: increased hard drive capacity and processing speeds coupled with lower costs: greater provision and variety of technologies to create, distribute and share content: and provision of simpler software tools for creating, editing and remixing: and decreased cost and the increased quality of consumer technology devices for audio, photo and video.

During the last ten years there has been an enormous change in the way knowledge is created and communicated. Web 2.0 technologies have transformed the way in which we interact, access and use digital materials. The wide availability of broadband networks allows learners and educators to communicate a thought, a message or even learning material almost instantaneously. At the present time there is also the rapid development of mobile technologies using OER content and these are often related to location-based services.

This change in the broader technological landscape is timely and is an important driver in terms of OEP. JISC in the UK has been one of the leaders in terms of the development of digital content infrastructures, both in terms of the technical architecture required, as well as an understanding of how to populate and manage digital repositories (Centre for Educational Research and Innovation, 2007: 61). Other large-scale commercial operations are also interested in working in this space. For example Google is piloting a project for the free hosting of educational material, for example large open collections of scientific data, and shows that the development of access, and of course preservation of access, is going on (Aitkins, Daniels, Brown, Hammond and Allen, 2007: 26). Copyright tools are also becoming easy to use. Creative Commons now offers the ccPublisher tool for licensing and have even developed add-

ons for Microsoft Office and OS pendant OpenOffice (Open eLearning Content Observatory Services, 2007: 98).

Economic Issues

There are significant resources associated with the creation and management of OER. These are both technical and human costs. The Centre for Educational Research lists a number of costs:

- Investment in appropriate hardware and software to develop and share OER. It's worth adding that this might be the provision of new hardware or software, or adaptation of existing hardware or software
- Costs associated with developing the resources
- Costs needed to sustain OER initiatives in the long run

The exact nature of the costs will depend on how sophisticated the OER initiative is. Even with the most rudimentary and streamlined example there will be costs associated with someone capturing the content, digitising it, checking for and resolving any copyright issues, and putting in place some quality assurance check on the final product. With more sophisticated initiatives that are either larger in scope or more complex in terms of the nature of the consortium involved and the scale of the initiative, there are additional costs incurred. These initiatives are likely to need more complex workflows, different roles for the different activities involved, and invariably some element of project management.

Making the resources available in a variety of formats (for example in print, on physical media such as hard drives, DVDs and USB drives, as well as over the Internet) will also add to the costs and creates an additional burden in terms of versioning control. However, providing OER in a variety of formats is particularly important in terms of social inclusion and as a means of addressing the issues of access for those with poor Internet provision. Many academics lack the necessary skills needed to create OER and to add appropriate metadata and hence there may be an additional cost in terms of up-skilling them. It is essential therefore that there is appropriate training available as well as easy to use tools which help to create rich metadata, especially for those persons who are unaware of the significance of metadata and its function in good OEP.

As discussed in the previous section there are a variety of business models currently being trialled around the development and ultimately sustainability of OER initiatives, but as yet there is no one clear model that is guaranteed to work. In the last few years significant funding has been made available by a number of public and private parties, notably the William and Flora Hewlett Foundation. However, this scale of investment is unlikely to continue and indeed the recently funded JISC/HEA OER programme placed the emphasis on making available *existing* digital resources, rather than funding for the creation of OER. There are many OER projects in the pipeline which cannot be fully funded by such parties, and this model of funding is not sustainable. There-

fore alternative funding models will need to be developed. Models based on membership fees, or payment for consultancy services associated with the OER, have been suggested. Donation and sponsorship models have also been suggested, and as discussed in the previous section Downes (2007) provides a detailed critique and examples of nine models, along with some of the pros and cons of each.

The Centre for Educational Research and Innovation (2007: 59) identify five forms of economic enablers, which are either the result of recent technological advantages (such as the lower cost of broadband Internet connections or the increased availability of tools for creating, editing and hosting content), or can be considered as strategies or approaches to adopt (for example providing opportunities to reduce costs through co-operation and sharing or articulation of new business models for sustainability).

The increasingly ubiquitous nature of the Internet provides opportunities for distance/online collaborations that would not have been possible in the past. Therefore it is now possible to have large-scale, multi-partner initiatives co-constructing and manipulating resources online. Clearly such collaborations have cost benefits, 'by sharing and reusing, the costs for content development can be cut, thereby making better use of available resources (Centre for Educational Research and Innovation, 2007: 64). However, this of course is based on the assumption that the institutions involved are willing to share their materials with each other. . This means consequent sharing and creation of resources by all institutions. This is at the heart of the OpenCourseWare Consortium, which involves over 120 institutions worldwide. Another perceived driver relates is to use the marketing of high quality OER as a means of attracting new students:

'There is a need to look for new cost recovery models, new ways of obtaining revenue, such as offering content for free, both as an advertisement for the institution, and as a way of lowering the threshold for new students, who may be more likely to enrol – and therefore pay for tutoring and accreditation – when they have had a taste of the learning on offer through open content'. (Centre for Educational Research and Innovation, 2007: 65).

Social Issues

A number of social or cultural barriers are evident. Firstly, academics may be sceptical as to the value of investing in the creation of OER. Secondly, they may lack the necessary skills (either technical or pedagogical) to create or use OER. Thirdly, there are cultural obstacles in terms of sharing or using resources developed by other teachers or institutions (Centre for Educational Research and Innovation 2007: 59-60). Fourthly, there are usually no recognition systems to reward academics for engaging with OER initiatives. Indeed quite the reverse, involvement can be seen as a distraction from doing more important activities such as research (Centre for Educational Research and Innovation 2007: 60). Fifthly, academics may be apprehensive about taking part in such initiatives, feeling a loss of control and ownership over their

teaching materials and concerns about possible misuse of any OER they produce. Finally, for some there is simply a lack of interest in pedagogical innovation; teaching is seen as a routine part of their role, with research as the main passion and driver.

Cultural obstacles are also an issue. Firstly there are language barriers. A significant proportion of OER have been produced in English. This is a major barrier to use for those where English is not their first language. A number of the flagship initiatives have translated their materials. MIT is, for example, attempting to counter this barrier by translating its content into different languages, as well as publishing new content. Similarly, OpenLearn materials are now available in a range of different languages and indeed as one of the case studies testifies are actually working in close partnership with other institutions to go beyond simple translation of materials, to the provision of additional support at the local level. Even if the resources are translated, (which has an associated cost), there may be subtle language nuances that change the meaning. Secondly, there are significant regional variations in terms of culture, religion and customs. So what may be acceptable in one context will be culturally unacceptable in another context. Similarly examples and case studies used within OER to explain particular teaching points may be too contextually located and hence not travel well to other cultural contexts.

Motivation and incentives are important factors in terms of getting staff buy in and engagement and hence the lack of any visible reward system is likely to be an obstacle for the deployment of OER in teaching and learning. To establish a credible academic reward system that includes the production and use of OER might be the single most important policy issue for a large-scale deployment of OER in teaching and learning.

Understandably, teachers are generally reluctant to share their resources, unless they can see a benefit. Articulating the benefits or putting in place appropriate reward mechanisms are two important strategies for getting staff buy-in. As touched on briefly above there are a number of other complex factors at work in terms of academic reluctance. Some are not interesting in teaching innovations, whereas others lack the necessary skills. The use of OER requires a change in mindset, away from didactic, teacher-centred pedagogical approaches to those in which the teachers' role is more around orchestration and facilitation of the learning. In addition, the teachers' role is no longer around creation and dissemination of knowledge, indeed learners could therefore be more actively involved in the design of curricula and the creation of knowledge (Yuan et al. 2008: 20).

The Centre for Educational research and Innovation has identified the following social enablers; 'the altruistic motives of individuals; opportunities for institutions to reach out new social groups; increased use of broadband (and hence experience of working in online digital spaces); the desire for both teachers and learners to have interactivity in learning materials; an increased willingness to share, to contribute and to create online communities' (Centre for Educational Research and Innovation, 2007: 59). Altruistic motives are often based on the notion that sharing knowledge is a good thing to do (Ibid: 64). People should have easy/equal access to educational resources and this

access should be at minimal cost to the individual. Indeed this idea of people being educated for free has its roots in the United Nations Human Rights.

Opportunities to reach out to new social groups can have two different interpretations. Firstly, targeting new groups especially people who are not yet involved in higher education. This aligns well with the general increased prominence on lifelong learning in policy rhetoric at the European level, and within individual member states. This also has potential positive publicity benefits 'It is good for public relations and it can function as a showcase to attract new students' (Ibid: 64-65). Indeed there is some evidence to support this. MIT report that about 35% of their new students stated that they chose MIT because of having first had a look at MIT OCW (Ibid: 52).

Freely available OER might suggest that there will be an increased willingness for users (both teachers and learners) to share, contribute and participate in social communities. However, this is not always the case. Individuals may prefer to share only within a closed community of peers (Ibid: 104). OER initiatives need to be sensitive to their end users and the degree to which they are comfortable in participating in open spaces. Many initiatives have taken this on board and have created safe, closed spaces that can be user controlled in terms of access. At the other end of the scale, open web 2.0 practices offer a different set of advantages, enabling users to be part of a worldwide community. In addition, web 2.0 tools can now be appropriated to enable individuals to create their own Personal Learning Environment (PLE) of tools and services (customising tools such as personal Weblogs, social networking tools, social bookmarking, online content sharing, personal file repositories, and e-portfolios for personal use).

Legal Issues

The following are the four main legal issues associated with creating and making OER available, copyright issues, ownership, Intellectual Property Rights and permission to use. Many resources may be context-bound due to copyright issues so it is not possible to adapt the source to local prerequisites. This barrier seems to be one of the most crucial ones. Without the permission of the copyright holder it is strictly prohibited to copy, reproduce or change resources. The default rule is that all uses which are not expressly permitted by the copyright owner are strictly prohibited. One of the main focuses of OER lies in sharing, using and adapting resources, and with the restrictions concerning copyright the whole model would not be applicable. However, since the founding of the Creative Commons licensing scheme, copyright issues are less of a problem. Another inhibitor is material derived from commercial sources. A commercial educational resource based on parts of the publishers' original part will not be open for learning activities such as re-use, modification or sharing due to monetary considerations of the publishers. Also educational material which gets published by universities often consists of some content which is from third parties and therefore it is not fully legal to reuse or adapt it.

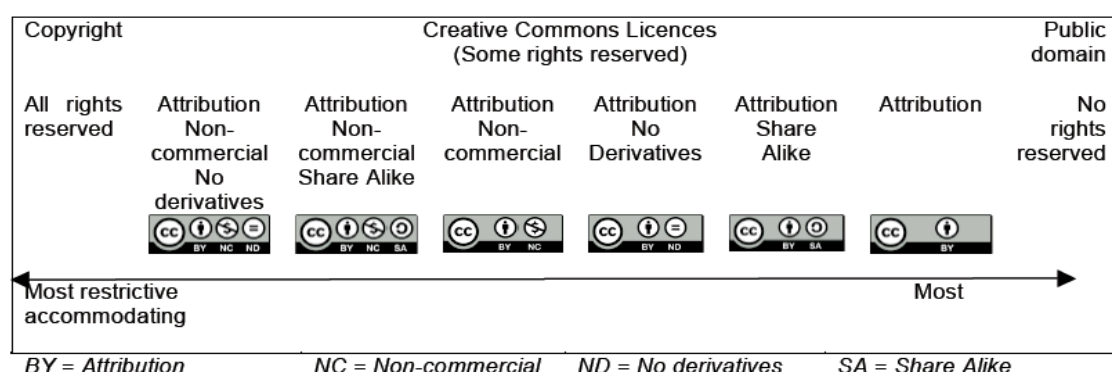
Licensing schemes such as Creative Commons and the GNU Free Documentation Licence have made a significant difference in terms of providing a

mechanism for OER to be easily attributed and shared. These new schemes offer wide and easy to use licensing options and promote good OEP that encourages the development of OER. The features of such licences are that the:

- Licensees are granted the right to copy, distribute, display, digitally perform and make verbatim copies of the work into the same or another format.
- Licences have worldwide application for the entire duration of copyright and are irrevocable.
- Licensees cannot use technological protection measures to restrict access to the work.
- Copyright notices should not be removed from copies of the work and every copy of the work should maintain a link to the licence.
- Attribution must be given to the creator of the copyright work (BY).
- Use is around 'fair use/fair dealing plus' (see for example <http://creativecommons.org/weblog/entry/5681>), in that they grant a layer of protection on top of, and in addition to, the scope of activity that is permitted under existing copyright exceptions and limitations.

The further existing optional features are:

- Non-commercial (NC) - others are permitted to copy, distribute, display and perform the copyright work – and any derivative works based upon it – but for non-commercial purposes only.
- No derivative works (ND) - others are permitted to copy, distribute, display and perform exact copies of the work only and cannot make derivative works based upon it.
- Share Alike (SA) - others may distribute derivative works only under a licence identical to that covering the original work. (Centre for Educational Research and Innovation 2007, p.74)



Copyright openness with Creative Commons licenses

The figure above is taken from Hodgkinson-Williams, Cheryl; Gray, Eve (2009: 9) and gives an overview of all available Creative Commons (CC) Licences. CC licences provide the basis on which to share and re-use OER

(Fitzgerald 2007, p.13). By mixing and matching the three core licences it is possible to generate six different licences, as shown in the figure. Although CC is meant to be a driver, by its nature, it implies some kind of barrier. The No Derivates and Non-Commercial clauses for example are not fully compatible with 'free content' as defined by Mako Hill and Möller (Centre for Educational Research and Innovation 2007: 78). Nevertheless CC seems to be a very important project that acts as a strong driver for OER development. Another feature of CC is the machine-readable translations, the so-called meta-data of the CC licenses. This data allows users to discover and search material that has a link to a CC license. Several search engines like Google have incorporated a feature that allows a user to search for materials that are connected to CC licenses (Open eLearning Content Observatory Services 2007: 59). To help address such issues CC launched a new subdivision called Learning Commons with a main focus on education and educational resources. "The mission of Learning Commons is to break down the legal, technical, and cultural barriers to a global educational commons." (Yuan et al. 2008: 17). Thus Learning Commons gives expertise and advice to the OER community to solve cultural and technical barriers. The Open eLearning Content Observatory Services (2007: 103) cites Rice University as a good example.

'One of the leading examples of IT-enabled innovation in teaching is the Connexions platform, which is managed by Rice University (USA) but invites university professors and high school teachers from anywhere in the world to participate. Connexions allows them to design, update and make available teaching and learning material in a modular and highly interactive way. All content can be used by others under a Creative Commons license.' (Open eLearning Content Observatory Services 2007, p.103)

In summary the recognised enablers of good OEP can be identified in the following quote from OLCOS:⁶

'Hence, ideally a repository would be a Web-based environment in which teachers can create, manage and share some parts of what they consider useful for teaching. Actually, the question of how to manage content effectively is one of the most important, and repositories might become much more appealing to teachers by providing assistance with this. However, this requires a good understanding of what teachers do, or would like to do, with digital content'. (Open eLearning Content Observatory Services 2007: 102-103)

⁶ <http://www.olcos.org/>

4 Quality and Innovation through Open Educational Practices

The previous section presented the data from the case studies. This section contextualises this in the broader research literature and in particular discusses in detail two of the key concepts that the OPAL project is concerned with; namely the notions of quality and innovation of OEP.

4.1 Introducing quality of educational practices

This section provides a short overview of the concept of quality as it is generally used. It focuses on the quality of resources versus quality of practices. It provides a short account of what current indications there are around the creation and use of quality processes, concepts, concentrating where possible on approaches that are specifically around actual OEP.

There are numerous ways of measuring quality processes in the context of OEP and the creation of OERs. One approach, having defined an identifiable measurement of quality, might be to contrast the quality of the resources with the quality of practices. Another method, at a different (institutional) level, might be to compare the quality mechanisms of existing educational material production with that of OER creation. The former methods are often carried out by Faculty, University or National Assurance Agencies and, as such, may have long established mechanisms and processes. In the UK, for example, Higher Education teaching (including educational material production) is overseen by the Quality Assurance Agency (QAA) who state that they will:

- safeguard the public interest in the sound standards of higher education qualifications
- inform and encourage continuous improvement in the management of the quality of higher education

(<http://www.qaa.ac.uk>)

The QAA achieve this through carrying out regular teaching quality assessments in either specific subjects areas or in terms of institutional audits of teaching practices in the Higher Education sector. Currently there does not appear to be quite such an established set of processes for OER production, however, it is possible to anticipate that OEP quality processes could fall into three categories, namely those that assess the:

- Technical production quality
- Pedagogical presentation of resources
- Subject content quality (in terms of accuracy)

OER is a broad church: individual OER production processes vary, explicit pedagogy is not always apparent (or may have been considered?) and delivered OERs cover a wide range of subject areas, each potentially inviting distinctive measures of accuracy or trust in the validity of their content. The current state of OER quality control, according to Wikimedia (<http://strategy.wikimedia.org>) have been summarised in further terms of:

Quality in this context has several important components:

- Content: does the material contain the right information on the right topic?
- Context: is the material appropriate for, and relevant to, a specific group of students, in a specific classroom, in a specific school or more broadly in other learning contexts for lifelong learners?
- Efficacy: has the material been proven effective?

In summary the quality processes to be assessed for OER and OEP can thus be measured in terms of 'fit for purpose'. It is important to recognise that any measurement of quality is contextual and ultimately the end user (learner or educator) will measure the quality of any OER through a variety of (subjective) mechanisms often unique to their experience and context.

As an addenda to this focus on quality processes it is opportune to note that the forthcoming OER workshop in Windhoek, Namibia, organised by UNESCO and The Commonwealth of Learning (COL)⁷ "Open Educational Resources for Quality Assurance Agencies" part of a series called "taking OER beyond the OER community: Policy and Capacity" will encompass many of these objectives. The initiative's aim is to expand understanding of OERs by educational decision makers in order to promote their wider use, in other words the main purpose is to promote quality assurance of OER production and delivery. The workshop aims to bring together experts in quality assurance as well as from quality assurance agencies in both developing and developed worlds to:

- Understand OER and acknowledge them as legitimate and promising option for Higher Education
- Discuss how OER can impact on a higher education institution's development
- Understand how do OER impact on quality in higher education institutions
- Discuss how quality assurance agencies can include OER in their approaches to audits and accreditation

(<http://www.col.org/OER>)

⁷ Commonwealth of Learning website: <http://www.col.org/OER>

The underlying conviction behind the concept of quality through open educational practices is that

1. The quality of education has to focus on educational practices and cannot just be taking one single part of educational processes in view (like the quality debate did for a long time).
2. Educational practices are concerned with the whole of the educational process (i.e. stakeholders, interactions and the actual resource), which lead to more practical performance competence of an individual within a particular domain.
3. The nature of the 'openness' of educational practices is directed towards opening traditional "closed" instruction-oriented, content-focussed educational practices towards open educational practices, which are focussing on social practices, acquiring competence to be able to perform responsible action within a domain.

'Quality' as an activity is now well established within educational institutions. A range of metrics has been developed to identify and benchmark 'quality' within and between institutions. Alongside this a range of methodologies has been developed. In general there has been a shift from the notion of basic 'quality audit' through 'quality assurance' and finally in recent years towards 'quality enhancement'. Within the broader focus on quality around teaching and learning practices, e-learning is a particular focus of interest; in part because it challenges many aspects of traditional teaching and learning processes and in part because it is seen as having the potential to act as leverage to promote innovation. Wirth (2006) reports that an empirical study among European universities (241) revealed that more than half of the institutions at least partly apply a quality model for e-learning (53 %) (PLS Ramboll Management 2004: 70). The instruments used are mostly focusing on learner satisfaction or evaluation by external peers, creation of an internal quality system, external quality assessment, and guidelines as well as standards for course development. In addition to this, 24 universities reported that they applied the same quality assurance methods for e-learning as they do for traditional educational settings (ibid). Research by Fraunhofer IPSI (2003: 32) confirms these findings: In the corporate sector, user feedbacks are very much in the focus, only very few organizations are opting for quality certificates (only 7-8% according to a study conducted by Unimind 2002: 26). Additionally van Buren and Erskinen (2002) report of findings which show that over three quarters of all evaluations conducted are targeting users' satisfaction and not learning success, transfer or return of investment of an educational process.

Balli et al. (2002: 17) state that an increase of quality related activities took place during recent years. In particular, the increasing number of country-, region- and even worldwide rankings and benchmarks are dedicated indicators for this development (see Danish Evaluation Institute 2003: 21, Federkeil 2004: 63). The reason for this rise in quality related activities can be attributed to increasing competition, the improvement quality strategies themselves (see Falk 2000: 557), a growing understanding of quality as a major differentiator

on the market and changing legal limiting factors (see Bötzel/ Krekel 2004: 25, Bötzel et al. 2002: 36).

The debate however is not so much characterized by accurate empirically defined concepts and operationalised notions but rather constituted of a dense bundle of a broad range of arguments, objectives, convictions and procedures (Terhart 2000: 809). It is less characterized by its precise definition but rather by its positive connotation. The very impact of the word “quality” on behaviour demonstrates its meaning. The word merely signifies “composition” (Latin: *qualis*) but in everyday language it is used to distinguish a characteristic of an object as being of a higher calibre than that of another object. Fröhlich and Jütte emphasize that even if quality management approaches nowadays’ may not be completely satisfying yet, they at least must be seen as a chance to become more sensitive towards current challenges and innovative ways to solve quality issues (Fröhlich/ Jütte 2004: 13).

Quality in education is a multidimensional concept (cf. Donabedian 1980, Ehlers 2004). Different approaches therefore to define quality are available (cf. Quartapelle/ Larsen 1996). Berkel (1998) suggests a three-dimensional scheme – originally for service quality – which has been adapted to the field of educational processes in the following description. It locates quality within three poles (ibid., p.19):

- Objective vs. subjective: This dimension addresses the question of who is defining quality criteria and values. If the quality value is defined only through the performance indicators of a product, Berkel (1987) terms it objective quality. The quality characteristics then have to be a part of the respective good – which is only partially true for the field of education. For education the quality characteristics are usually defined through individual persons or committees in a subjective way. The definition of quality requirements through clients or learners is a subjective quality definition.
- Inherent vs. instrumental: This dimension relates to the question where quality can be observed and when it becomes explicitly measurable. Inherent quality relates to quality which can be observed as lasting and inhering quality of a product. If quality reveals only through a service process and thus the participation of clients, we refer to it as instrumental quality. Often objects with inherent quality characteristics (e.g. Learning Management Systems, learning materials, etc.) are used in an instrumental way.
- Endogenous vs. exogenous: If organisational processes and structures are taken into account when evaluating and/or assuring educational quality we speak of endogenous quality. If the educational institution or organisation is not part of a quality evaluation, we can speak of exogenous quality. The quality evaluation of education needs an active process. Endogenous and exogenous can be used to distinguish between quality assessments which are either directed to the surface structure (exogenous) or the deep process structure (endogenous) of an educational service.

According to Berkel’s (1998) distinction, the quality of education is subjective, instrumental and endogenous. It reveals that quality in education is a client-

oriented concept where the quality requirements are defined in participation between clients and providers. The quality of education is therefore constituted only through mutual interaction of learners with their learning environment (cf. Brindley/ Walti/ Zwaki-Richter 2004), and the evaluation of quality is influenced by organisational processes within which the educational process takes place (endogenous).

E-learning quality – or educational quality in a wider context – is a diverse concept. It is not an absolute and fixed category but rather depends on the situation in which it is employed. No country has (yet) reached a social, political or academic consensus on what educational quality actually is. Different methods are used to assure quality, ranging from market-oriented instruments, government-driven consumer protection mechanisms and accreditation concepts to institutional strategies and individual instruments. Approaches can have an explicit intentional character or can be rather implicit – when quality development is left to individuals' professional competences.

The definition of quality always takes place as a normative act, referring to a specific context. Consequently, situations and interests always influence its definition. This applies specially to quality in the sector of social and educational services, since the quality of those services is by nature only constituted in the moment of service provision itself and through a negotiation and co-production of the professional educational actor and the client.

To critically analyze quality it is helpful to identify the basic points of the debate. We can distinguish between three fundamentally different aspects in the discussion (Ehlers 2003):

- Different interpretations of quality
- Different stakeholders with different perspectives on quality
- Different forms of quality (input-, process-, output-quality)

Together these three aspects provide a general frame of reference for the described debate.

One dimension is the different interpretation of the meaning of quality. Numerous definitions from various fields are available. For example, a widely used definition in economics is a product-oriented understanding which views quality as a physical characteristic of an object. Of course such a definition cannot easily be transferred to the educational sector. Unlike businesses education does not involve classic supplier-customer relationships. It is an association of co-producers. An e-learning program supplies technology and content but it is down to learners themselves to actively use it, i.e. learn. This interaction between the learning environment and the learner is known as a co-production process. In education, we can currently identify about five different meanings of quality (Harvey, Green, 2000):

- Quality as an exception, describing the surpassing of standards,
- Quality as perfection, describing the state of flawlessness,

- Quality a functionality, referring to the degree of utility,
- Quality as an adequate return, measured by the price-performance or cost-benefit ratio,
- Quality as transformation, describing the above mentioned co-producer relationship between the learner and the learning environment and referring to the learners progress in terms of a learning process.

There are not only different interpretations of quality but also different stakeholders' perspectives: the enterprise as a user of a training measure, the tutors supervising an e-learning-program, the human resource managers who establish a framework for continuing education in their sector, and the learners. Each of these players generally has divergent interests and differing quality requirements and interpretations. It is therefore important to regard quality not as a static element but as a negotiation process between different stakeholders involved in the social process.

Last but not least, quality can also refer to different educational processes or levels. We can cite the different levels of the famous quality triad by Donabedian (Donabedian, 1980):

- e-learning prerequisites (input or structure quality): availability or capability of the technological infrastructure, qualification of tutors, etc.,
- The learning process (process quality): the interaction of learners, learning formats, corporate learning culture, learning content and desired training goals,
- The result (output/ outcome quality): the increase in learners professional competence.

Quality cannot be generalised. There is no direct relation between action and impact. Quality development – as much as education – is situated, and rooted in the context of a culture and a learning environment. Defining quality therefore means navigating this multidimensional space. There is no easy answer or standard quality assurance solution. One has to abandon the hope of only having to define quality criteria once to be able to appraise e-learning-services and formats properly in the future. A key factor for e-learning thus will be a concise quality orientation which spans all processes and puts learners first. They must take the pole positions in the quality debate since their (professional) development is on stake – regardless of formal or informal environments.

Even more dimensions of diversity which influence the quality debate can be identified. There is, for example, the notion of quality in different subjects and topics. From an international perspective the cultural diversity places enormous challenges on the quality debate. Nagel (2004) reports that students' role in society is viewed quite differently in the Anglo-Saxon, Scandinavian or southern European countries. In Anglo-Saxon countries, he reports, students are seen as investors in their own carrier, in Scandinavian countries they are viewed as young citizens and in southern European countries as family members. It is evident that such differences in perception are influencing the struc-

ture of educational systems, and have an impact on the answer to the quality question.

In conclusion we can see that the quality of educational processes has to involve all stakeholders into a participative negotiation and lead to the ability/competence to perform responsible actions. Such a holistic view of quality is mirroring the inherent understanding of educational quality concepts summarised above.

4.2 How OEP enhances quality and innovation in education

It is true that current open educational resources initiative largely focus on building access to educational resource. It is also true that the international community of educational practitioners more and more realises that the pure access to digital educational resources is not causing the expected take off of educational availability for all or have the expected impact on renewing educational agenda, setting and environments, neither building better quality educational. The missing link is the practice dimension. The availability of resources has never been sufficient motivation or sufficient opportunity to change educational practices within organisation, policies or individual behaviour. As Hatakka questions in the title of his paper 'Build it and will they come?'

Pinning down what is meant by 'quality' and 'innovation' in OEP is complex and difficult to quantify as the practice of developing OER varies from institution to institution, amongst groups of OER specialists and those new to the area as well as between like-minded individuals with a subject interest agreed on creating an OER. With this in mind it is important to note that OER practice is an area that may or may not observe national or, indeed, international boundaries. Resources may be delivered in multiple languages and potentially crossing a number of different cultures as well as incorporating a variety of local educational practices. Each OER project has a particular story to tell about its inception, creation, ensuing good practice and probable future developments.

Capturing this diverse practice enables us to build a picture of current issues and should lead to a greater understanding of how OER can be created, developed and used in a variety of settings. Lessons of what works and what does not are essential to the further development of quality OER as well as their wider adoption in the educational community. Determining the perceived quality of those existing OER and understanding any innovative methods used to create them can also help forthcoming developments in the wider area of education where the OER practice may or may not take place. One emerging case that supports this idea has been put forward by The Higher Education Academy (HEA) and JISC, UK, who argue that: 'making educational resources open broadens their use' (HEA/JISC 2010).

The evidence from the desk study, thus far, shows that different communities have developed a diverse collection of OER and have demonstrated a variety of good educational work. Comparing two of the case studies can illustrate some of this variety of innovation in practice as well as beginning to exemplify emerging quality issues. The first case study: the UK based People's Open Access Educational Initiative – the “People's University” (<http://www.peoples-uni.org>) are a relatively small community of practice focusing on the broad area of public health. Their aim, as educators, is to help with Public Health capacity building in low and middle-income countries through Internet based education. They offer some 12 dedicated OER study units to more than 300 students and are accredited to the UK Royal Society for Public Health. Their OER courses are accessible via the content management system, Moodle. OER teaching support is offered via the 4 Trustees and 11 international advisors who are engaged by the project. The People's University, although UK based, thus aims to offer its education to a global audience through the medium of English thus demonstrating the potential of OEP.

By contrast a second case study, the Universia project, a consortium of universities based in the European Union and Latin America, aims to provide “leadership in the development of the Information Society in Hispanic university education” (<http://mit.ocw.universia.net>) - a much broader remit. They offer some 105 Spanish and 29 Portuguese OER courses in a variety of subject areas. Additionally Universia has also entered into an agreement with the Massachusetts Institute of Technology (MIT) to translate some of their existing English medium Open Courseware (OCW) courses into Spanish and Portuguese. Universia also offers an online discussion forum for Spanish speaking OCW users and a contrasting example of multi-lingual OEP.

Thus OEP in action can take different forms: focused geographical coverage, type of networking and sharing the choice of language medium as well as the actual scale of OER production, delivery and support. Innovation can emerge during the development of OER and OEP as a result of perceived needs, the individual circumstances of the developers: experience, time frame and available resources. It may be a reaction to these factors or simply transpire as a result of the local conditions and perceived OER status. For example, the OpenLearn initiative in the OU UK, funded by the Hewlett Foundation was both an institutionally focussed initiative, with clear institutional strategic drive and commitment as well as a flagship exemplar for other OER projects. In contrast the NDLR in Ireland focuses very much at a national level with a partnership consortium arrangement of key institutions.

Open educational practices are practices where the open refers to opening and widening the paradigm of resources and content-based education. The vision behind is to achieve a situation in which resources are no longer the sole focus, but in which the practices within a specific domain (e.g. Engineering, Medicine, etc.) are the focus of education. Not knowledge only but responsibility is the objective of such an educational vision.

Open educational practices are going beyond the state of availability of resources. Open educational practices are practices in which a portfolio of educational, pedagogical processes are configured in such a way that available

open educational resources are used to move from an instructional paradigm of education in which the learner is seen as the receiver of information and knowledge, and resources are used to inform the learner about things s/he does not know, to a paradigm where the knowledge is freely available whilst teachers and learners are striving to learn how to navigate in a professional domain, asking the right questions and assessing the suitability of materials for the respective array of problems. Learners are then not only receivers but also creators of knowledge and resources which they collect from the available resources on the net or other media and which they assemble into personal knowledge spaces, modify them into their own knowledge portfolios and share them with other learners and become part of communities of practices and members of networks creating new knowledge.

Validation of knowledge is key in such scenarios and is not easy to achieve, because the sole paradigm of right and wrong is no longer only the fixed curriculum but the problem which has to be solved, which the learners together with facilitators defined at the outset of their professionalisation process. Validation is a process of peer-review, reflection and bench-learning in which learners and facilitators together reflect in the suitability and usefulness of the acquired knowledge, skills and attitudes. Validation comes more from peers and external actors in form of reviews and peer-reflections than from a 'fixed check against a standard portfolio. The Peer2Peer OER project ably demonstrates this ethos in its fundamental aims and objectives.

The vision of open educational practice is including a move from a resource-based learning, and attempting to meet the high standards, to a learning process in which social processes, validation and reflection are at the heart of education, and learners become experts in judging, reflection, innovation within a domain and navigation through domain knowledge.

To avoid misunderstanding it is important to stress that open educational practices do not neglect the importance of the availability of good resources but that they aim at higher levels of the ladder of reproduction/ understanding – connecting information – application of knowledge – competence action – responsible behaviour (North 2001).

The vision of open educational practices therefore involves all stakeholders of the higher education and adult education governance community. It is a vision that cannot be achieved by learners or teacher themselves but demands the support of management, administration, educational leaders and policy makers on local, regional, national and global levels.

4.3 Quality through OEP vs. Quality of OEP

This section provides an outline of methods, concepts and practices used to enhance the quality of OEP and considers one of the fundamental questions underlying the OPAL project, i.e. how can a better articulation and understanding of OEP be used to enhance quality?

Quality in education can only be achieved through educational practices. A focus is therefore required on the logical framework of quality through open educational practices rather than on the quality of open educational practices. We are emphasising also that we perceive that opening up educational practices is a new and challenging concept which will put educational stakeholders into new situations and encourage them to move on from the long grown tradition of transmissive philosophies to participative educational philosophies.

Achieving quality OEP through the adoption of best appropriate educational practices can be argued to promote the creation and delivery of OERs that are not only fit for purpose but also may incorporate the opportunity to increase new innovative methods of delivery to and sharing with a wider global audience. How this is accomplished often depends upon local circumstances as well as access to suitable technological solutions and personal attitudes. It is informed by knowledge of current research in the area of OER production as well as drawing from existing OEP. Assessing dissemination activities and observing or commenting on practical workshop/seminars, where both new and existing OER/OEP specialists can exchange and share those experiences, are important channels of circulating ideas of quality processes and production of OEP methods.

In this respect the European Association of Distance Teaching Universities (EADTU) (<http://www.eadtu.nl>), in association with UNESCO, ran a very successful joint seminar in Paris 12-13th March 2009 entitled: "Quality Assurance in eLearning and Open Educational Resources". The seminar focus was primarily on promoting the internationalisation of global education whilst recognising that "quality assurance in eLearning can be one of the main vehicles for cross-border higher education" (UNESCO-EADTU 2009). The main objective of the meeting was to compare the approaches on quality assurance in eLearning in a forum of continents, thus encompassing global OEP experience that included:

- E-xcellence: a benchmarking approach (Europe)
- CALED: Introduction on Latin American cooperation on QA in eLearning
- Commonwealth of Learning performance indicators
- Asia and Pacific region: Approaches on quality in eLearning
- ACDE: The establishment of Pan-African standards, quality assurance and accreditation for distance learning across Africa

During the EADTU-UNESCO seminar attendees also had the opportunity to assess the opportunities and threats of OER production for the participating continents. This was facilitated through the use of Force Field Analysis and resulting outputs were captured using the Compendium Knowledge Mapping software (Okada, Connolly & Lane, 2010). This part of the seminar was, in fact, the third in a series of structured workshops delivered within EADTU meetings where ideas and experiences of OER production and practices were shared, presented visually in force field diagrams and later represented as

Compendium knowledge maps. Results from the series of workshops can be seen on the MORIL section of the EADTU website <http://moril.eadtu.eu/>.

Lane (2009) considers describes the design principles that teachers can use to create effective educational content and goes on to discuss what constitutes quality in terms of Open Educational Content. He argues there are three main features of quality that need to be addressed: and poses the question:

1. Is the material academically sound in that it appropriately covers the body of knowledge and meaning for the topic?
2. Is it pedagogically robust in that the way the material has been structured matches a stated pedagogical model and sets out appropriate learning outcomes and ways of assessing those outcomes?
3. Is the way the material is presented through the chosen media helpful in enabling learners to meet the learning outcomes?

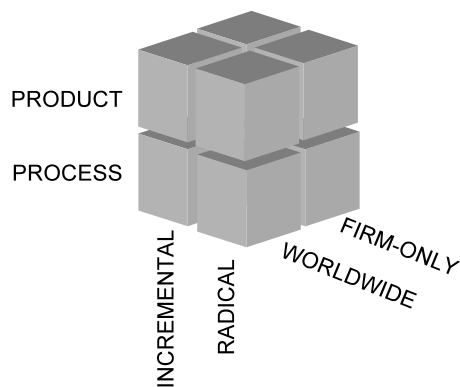
He argues that there are two distinct models of QA. For many OER the quality assurance is carried out by the originating institutions and this was certainly the case with many of the case studies we reviewed. In contrast large-scale pan-institution initiatives or those that are not institutionally based have a different model. He sites Connexions and Wikiversity as examples. Here OER tend to be judge through open peer-rating or –reviewing mechanisms. Again we saw examples of this in the case studies are reviewed.

4.4 Innovation through OEP

This section looks at examples of current innovative practices and considers how OEP can support innovation. It then presents a framework for educational practices and innovation and how OEP supports innovation

Kamien and Schwartz (1982) define two basic types of innovations: product innovations and process innovations. New products or processes are called radical innovations, while improved products and processes are called incremental innovations. In the context of OEP the innovation could focus on the educational system (product) or on the teaching/instruction/learning support activity/practice (process).

A third aspect of innovations is its novelty in geographic terms. A worldwide innovation refers to the very first implementation of a new or improved product or process. Firm-only innovation occurs when the new or improved product or process is novel for the organization but has already been implemented elsewhere.



The three aspects of innovations

Innovation processes occur in interaction between institutional and organisational elements which together may be called systems of innovation. The systems of innovation approach is considered by many to be a useful tool for better understanding of innovation processes as well as production and distribution of knowledge in the economy.

The most recent innovation theories emphasize the importance of collaboration and knowledge sharing for effective innovation. Today's innovations do not come from individuals but from collaboration. Work on social networks suggests that much of the most successful innovation occurs at the boundaries of organisations and industries where the problems and needs of users, and the potential of technologies can be linked together in a creative process that challenges both.

Educational practices in general are diverse. In a European context there are as many educational traditions as nations and sometimes even within nations there are different debates, and educational streams to be considered. To talk about innovation of education in this context is unlikely to lead to a normative model; i.e. one particular educational approach as the one and only right to follow and innovative.

Innovation in the context of open educational practices rather means to view a particular educational practices field as a structural system which always contains more closed, stable and set elements and others which are more fluid, changing and open.

The use of fixed curricula in formal educational settings, which are supplemented through expert-created content that has to be learnt, is an example of closed and stable elements within most European higher education systems.

Opening this particular educational element would mean to disturb the so far reached, (if also forced), equilibrium and touch upon many other elements of the educational scenarios, as well. An example is the role of teachers. If fixed curriculums and expert-based material are suddenly complemented through open educational resources, then the role of teachers as the sole content supplier of an educational process is weakening and topics like authority and the understanding of what teachers' roles are, are having to be redefined.

Innovation in this case comes through putting the existing assumptions of how educational environments need to be shaped to discussion. Basically we can see that changing one element in the configuration of the educational environment leads to a cascading redefinition process – which we call innovation through opening educational practices.

In our particular understanding we have chose a specific viewpoint and that is to promote the use of open educational resources. We believe that this particular starting point causes the cascade to touch upon many important and often unquestioned educational definitions, assumptions and paradigms. Therefore we chose this particular starting point.

OEP has developed in a number of different ways. OERs are produced by variety of institutions, groups and individuals. Each emerges from an almost unique history depending upon the circumstances of their development. Some have specific paths: by building on existing teaching practice for example, or by reusing and adapting pedagogy that translates into a form deemed suitable for OER delivery. A good illustration of the latter can be seen in the Open-Learn project (<http://openlearn.open.ac.uk>) where a selection of the self study materials of the UK Open University were repurposed as OER study units. OEP, however, generally materialises from the needs and requirements of a variety of actors (mainly University staff, sometimes includes students) who come together with a specific purpose in mind: the creation of an OER to resolve a particular problem or challenge as well as having a sound pedagogical base.

This ‘coming together’ of teaching and educational technologists or media specialists in a University environment can, in tandem, stimulate originality and advancements to meet the potential requirements of a proposed OER. Again innovation that emerges in this area takes many forms. Evidence from the recent OER10 conference (Cambridge, 2010) demonstrates how many pioneering OER developments, for example, have emerged from the UK HEI community through specific HEA/JISC funded projects that have brought together groups of subject specialists within and across these HEIs. Each appears to have taken a different approach to the development of an OER project and amongst the thirty projects a wide variety of innovation is evident.

One project based in the HEA Subject Centre for Medicine, Dentistry & Veterinary Medicine (MEDEV <http://www.medev.ac.uk>) is a good example of both the “coming together” of different actors as well as being a very real source of innovation through a community of practice. MEDEV is a consortium of 18 UK HEIs that are developing interesting OER toolkits and teaching resources. The resulting MEDEV OERs have been created from a crystallisation of many different ideas from subject specialists in different UK HEIs collaborating for the development of specific OER materials for the MEDEV arena.

4.5 Strategy and Policy Supporting Quality through OEP

This section considers the strategies and policies that are used around the creation, use and management of OER. It will concentrate in particular on looking at how strategy and policy are currently contributing to the support of

quality and innovation through OEP. It considers pan-European, national and institutional strategies and policies.

There are a number of examples where leading professional organisations or funding bodies have provided strategic direction in terms of promoting OER. The work of the Hewlett Foundation and UNESCO are particularly noteworthy in this respect. Strategic drive can take a number of forms. Firstly, through declarative statements of intent; both UNESCO and OECD for example articulate the direction of the movement by providing definitions for the term OER. Similarly some of the early commissioned reports helped to capture the range of OER activities and portrait the landscape. Secondly, through dedicated funding initiatives for example the Hewlett foundation has provided significant support to the extent that there is a recognised worldwide community of Hewlett trustees and associated projects. Similarly more recently the JISC/HEA OER programme in the UK. Thirdly, strategic drive can be support through facilitative and capacity building activities; for example, the UNESCO OER wiki consultation programme, and funder events, conferences and workshops. Therefore the role of strategic stakeholders is to both identify and articulate the nature of the area and provide momentum for moving it forward, but also to act as a critical lens and to synthesise and represent the current state of play at critical moments as the area moved forward. Positional papers, review reports, end of project reports and broader consultation processes are all good examples of this.

Once again it is possible to draw an analogy between the types of existing educational practices and those of OER production. There are many policy-led practices established in Universities and institutions across Europe and worldwide that focus on the creation and delivery of teaching in its many forms. It can be argued that in the case of OEP the distance teaching universities may have an advantage over their campus-based counterparts simply because they often have an established production process for their educational materials. This does not preclude the face-to-face universities adopting OEP, rather that they may have to adapt their existing processes in a much more significant and strategic manner.

Indeed the emergent OER from the different style of institutions also adds value to their richness, diversity and range of content and resources associated with them. This can be observed from the gathering of original materials or assets that are then reused or repurposed as OER.

Returning to policies, however, it is important to acknowledge a number of influential factors:

- Distance teaching universities have established publishing processes.
- In campus-based institutions, initiatives to date have been predominately bottom-up rather than top-down.
- Formal quality assurance mechanisms are rare; looser, collegial, peer-review approaches are more common.

- Policy (and associated funding) often act as a significant (perhaps even) predominate) driver to development and practice.
- Institutional policies encouraging new/diverse/collaborative practice; these may be either pedagogically or technologically based, or in some cases a mixture of both.
- There is evidence that involvement in OER initiatives has had a number of benefits at the local level, including enhancing the reputation of institutions involved, which are seen externally as being innovative in their e-learning practices.
- The breadth of OER initiatives now in operation means that we now have a sizeable body of data on the development and use of OER that we can draw on and hence we are in a good position to build both national and international catalogues of practice.

A number of significant national policies initiatives were evidence across the case studies reviewed. These included the OER leadership and drive provided by the Hewlett foundation, the relatively recent JISC/HEA OER national, UK initiative (the 29 projects in the JISC/HEA OER programme are divided into institutional, individual and subject centred OER projects), and the Open-CourseWare Consortium. A number of more subject-based developments were also evident. These provide a different means of spreading innovation and have the advantage of working across and between institutions at the discipline level, building on established discipline networks, whilst also enabling and encouraging the creation of new learning communities.

5 Conclusion

This document has reported on the work done to date in terms of mapping the OER terrain and in particular analysis of a series of OER case studies in order to identify and articulate associated OEP. A set of dimensions has been derived and described. This work will feed into the development of a broader OEP survey as described earlier in this report and in more detail in the appendices. It has outlined some of the barriers and enablers associated with the creation, use and management of OER, categorised under four main types (technological, economic, social and legal). The following quote captures the essence of the OER movement:

“Education and science have a longstanding tradition of openness and sharing. The OER movement is but the latest example. However, when listing other motives for institutions to initiate OER projects, it becomes clear that what at first appears to be a paradox – giving intellectual property away in a competitive world – might actually be a way of handling a changing landscape for higher education. Institutions are experimenting with new ways of producing, using and distributing learning content, novel forms of covering their costs and more efficient ways of attracting students. The same is true for individual teachers and researchers. Although many are driven by willingness to share and co-produce with peers, other motivations exist simultaneously, maybe even for the same individuals. One of the current strengths of the OER movement is that it allows multiple motivational systems to coexist.” (Open eLearning Content Observatory Services 2007: 68)

This quote illustrates that there are a number of development stages involved in achieving the vision inherent in the OER movement. The first is essentially pragmatic; it is concerned with the creation of OER and access. However the second is much more important, it is about radical transformation and about how OER can fundamentally change teaching practice and the nature of the teacher-learner nexus. And indeed arguably this radical transformation is essential if we are to keep pace with and make sense of the rapidly changing context within which modern education operates. We need to be proactive in harnessing the affordances new technologies offer, rather than been meek recipients or bystanders as to their impact. Furthermore, if we don't act as existing established institutions arguably others with a vision will.

Our intention then is to derive appropriate theoretical lenses to describe and make sense of our emerging understanding of OEP. A number of existing frameworks are being considered at this stage as potential candidates to include and/or adapt. The first is a framework that may enable us to map the dimensions of OEP identified in the case study review across different factors:

- Micro Level Factors: Cognitive and emotional aspects (learners, teachers)
- Meso Level Factors (Management, Administration): Organisational aspects
- Macro Level Factors: Societal and policy aspects

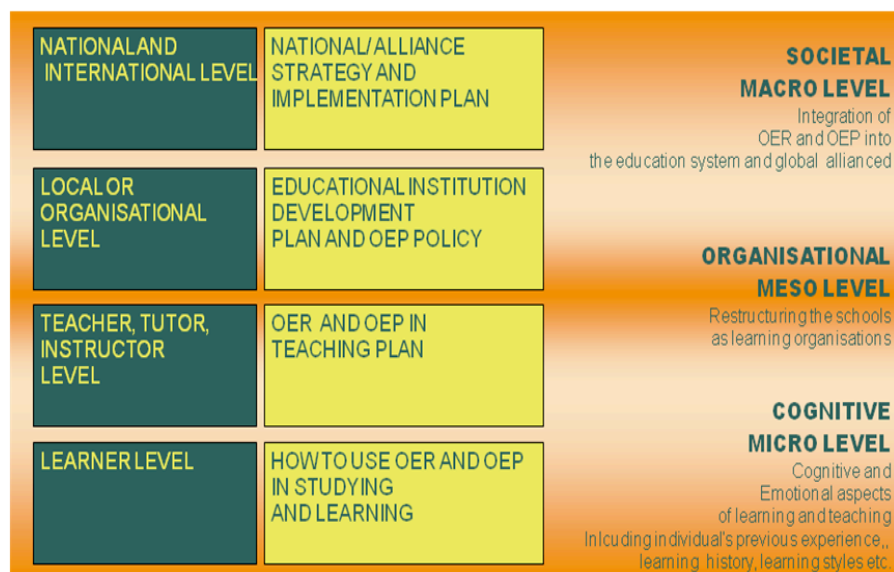


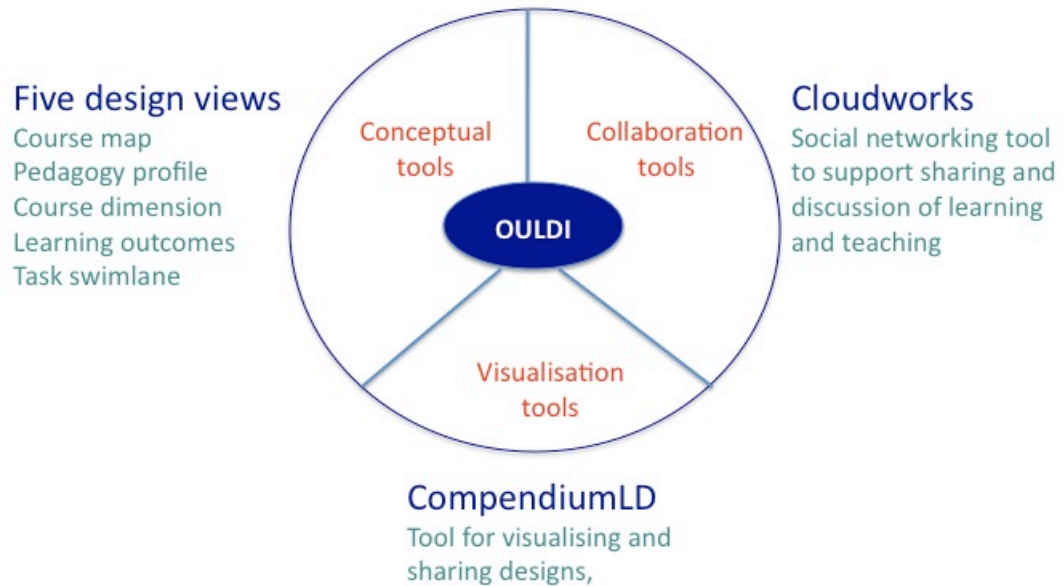
Figure 1: Propose framework for analysing the factors



A framework for analysing the OEP dimensions

A second set of tools that might be useful is parallel work around articulation of understanding the complete OER effectiveness cycle, which is emerging from work at the Open University as part of the OU Learning Design Initiative (<http://ouldi.open.ac.uk>) and Olnet (<http://olnet.org>). In particular we have developed a set of conceptual, visual and collaborative tools for articulating and representing the inherent designs of educational offerings (these can include whole courses or programmes, individual learning activities or OER).

Design tools

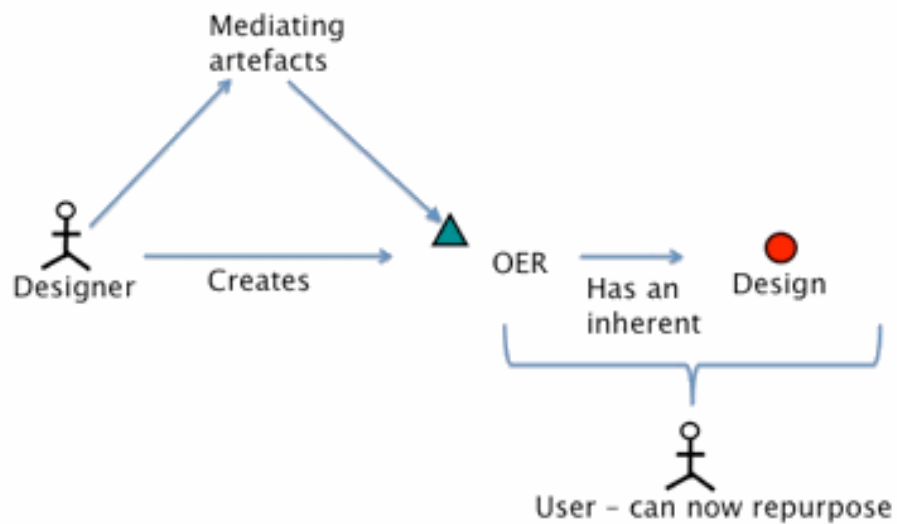


Learning Design tools that might be applied to OER and OEP

Finally, more generic tools such as Activity theory may be useful as a description tool; considering OEP in terms for the associated mediating artefacts involved, as well as the rules/conventions, the community involved and the division of labour.

Mediating artefacts

1. Learning design visualisation tools – CompendiumLD
2. Learning design methods
3. Pedagogical patterns – CSCL patterns
4. Web 2.0 sharing and discussion – Cloudworks



Mediating artefacts in the creation, use and management of OEP

The next phase of work will be to refine and consolidate our thinking on the theoretical basis for this work and to develop a framework for OEP.

6 References

- AFNOR (2004). Code of practice: Information technologies – e-Learning Guidelines (French Code of Practice). Available from Internet: <http://www.fffod.org/fr/doc/RBPZ76001-EN.doc> (cited 06.12.2004).
- American Council on Education (2001). Distance Learning Evaluation Guide. Washington, DC: American Council on Education.
- American Federation of Teachers (2000). Distance Education: Guidelines for Good Practice. Available from Internet: http://www.aft.org/higher_ed/downloadable/distance.pdf (cited 18.11.2003).
- Atkins, D., Seely Brown, J. and Hammond, A.L. (2007), A review of the Open Educational Resource movement: achievements, challenges and new opportunities, report to the William and Flora Hewlett Foundation, available online at http://www.hewlett.org/NR/rdonlyres/5D2E3386-3974-4314-8F67-5C2F22EC4F9B/0/ARReviewoftheOpenEducationalResourcesOERMovement_BlogLink.pdf, last accessed 5/2/09.
- Attwell, G. (2008), BAZAAR Project Scenario Papers.
- Baacke, D. (1996). Gesamtkonzept Medienkompetenz [Media Competence]. In: Agenda. Zeitschrift für Medien, Bildung, Kultur. March/ April 1996, pp. 12-14.
- Baijnath, N., Singh, P. (2001). Quality assurance in open and distance learning. In N. Baijnath, S. Maimela, P. Singh (Ed) (2001). Quality assurance in open and distance learning. Roodepoort: University of South African and Technikon South Africa.
- Balli, C., Krekel, E. M. & Sauter, E. (2002). Qualitätsentwicklung in der Weiterbildung aus der Sicht von Bildungsanbietern – Diskussionsstand, Verfahren, Entwicklungstendenzen [Quality development in ongoing e-ducation from the perspective of providers]. In C. Balli, E. M. Krekel & E. Sauter (Eds.), Qualitätsentwicklung in der Weiterbildung – Zum Stand der Anwendung von Qualitätssicherungs- und Qualitätsmanagementsystemen bei Weiterbildungsanbietern (p. 5–24). Bonn: Bundesinstitut für Berufsbildung.
- Baumgartner, P., and Zauchner, S. (2007a), Herausforderung OER - Open Educational Resources.
- Baumgartner, P., and Zauchner, S. (2007b), Freie Bildungsressourcen im didaktischen Kontext (Vol. 111).
- Beck, U. (1986). Risikogesellschaft - Auf dem Weg in eine andere Moderne [Risk Society – on our path towards a changed world]. Frankfurt a.Main.
- Berkel, I. (1998). Die Rolle der Organisationsentwicklung im Dienstleistungsqualitätsmanagement: Dargestellt am Beispiel einer Kundenbefragung im Pri-

vatkundengeschäft [The role of organisational development for service quality]. Munich.

Bötel, C. & Krekel, E. M. (2004). Trends und Strukturen der Qualitätsentwicklung bei Bildungsträgern [Trends and structures of quality development of educational providers]. In C. Balli, E. M. Krekel & E. Sauter (Eds.), *Qualitätsentwicklung in der Weiterbildung – Wo steht die Praxis?* (p. 19–40). Bielefeld: Bertelsmann.

Bötel, C., Seusing, B. & Behrendorf, B. (2002). Qualitätssicherungs- und Qualitätsmanagementsysteme bei Weiterbildungsanbietern: Ergebnisse der CATI-Befragung [Quality assurance, quality management in training institutions]. In C. Balli, E. M. Krekel & E. Sauter (Eds.), *Qualitätsentwicklung in der Weiterbildung – Zum Stand der Anwendung von Qualitätssicherungs- und Qualitätsmanagementsystemen bei Weiterbildungsanbietern* (p. 25–44). Bonn: Bundesinstitut für Berufsbildung.

Boyce, M. E. (2003). Organizational Learning is Essential to Achieving and Sustaining Change in Higher Education. *Innovative Higher Education*, 28, pp. 119-136.

Brindley, J. E., Walti, C., Zawaki-Richter, O. (Ed.) (2004). *Learner Support in Open, Distance and Online Learning Environments*. Volume 9. Oldenburg.

Brown, J., and Adler, R. (2008), *Minds on Fire: Open Education, the Long Tail, and*
Carson, S. (2006), *2005 Program Evaluation Findings Report - MIT OpenCourseWare*.

Casslerly, C. and Smith, M. (2006): *The Promise of Open Educational Resources*.

Centre for Educational Research and Innovation (2007): *Giving Knowledge for Free: The Emergence of Open Educational Resources*.
<http://www.oecd.org/dataoecd/35/7/38654317.pdf>, Abruf am 2009-12-16.

Champy, J. (1995). *Reengineering Management. The mandate for new leadership*. New York.

Conole, G. (2010), *Defining Open Educational Practices (OEP)*, blog post, <http://e4innovation.com/?p=373>, 25th January 2010, last accessed 21/04/10.

Conole, G. and McAndrew, P. (2010), *A new approach to supporting the design and use of OER: Harnessing the power of web 2.0*, M. Edner and M. Schiefner (eds), *Looking toward the future of technology enhanced education: ubiquitous learning and the digital nature*.

Conole, G., (2010), *Defining open educational practices*, blog post, <http://e4innovation.com/?p=373>, 25th January 2010.

Conole, G., McAndrew, P. and Dimitriadis, Y. (forthcoming), 'The role of CSCL pedagogical patterns as mediating artefacts for repurposing Open Educational Resources', in F. Pozzi and D. Persico (Eds), *Techniques for Fostering Collaboration in Online Learning Communities: Theoretical and Practical*

D'Antoni, S. (2007), *Open Educational Resources and Open Content for Higher Education*

D'Antoni, S. (2008), *Open Educational Resources : The way forward. Developing Countries*, UNESCO, Paris, 1-3 July 2002: final report.
<http://unesdoc.unesco.org/images/0012/001285/128515e.pdf>, Abruf am 2009-12-22

Danish Evaluation Institute (2003). *Quality procedures in European Higher Education: An ENQA survey*. ENQA Occasional Papers 5. Available from Internet: <http://www.enqa.net/texts/procedures.pdf> (cited 22.12.2003).

Donabedian, A. (1980). *Explorations in Quality Assessment and Monitoring*. Ann Arbor.

Doppler, K., Lauterburg, C. (2005). *Change Management: Den Unternehmenswandel gestalten*. Frankfurt a. Main.

Downes, S., 2007. Models for sustainable open educational resources. *Interdisciplinary journal of knowledge and learning objects*, 3, 29–44.

EADTU), in association with UNESCO, ran a very successful joint seminar in Paris 12-13th March 2009 entitled: "Quality Assurance in eLearning and Open Educational Resources

educa.ch (o.J.): Begriffsdefinition: Open Content.

Educational Resources (OER) Movement: Achievements, Challenges, and New Opportunities.

Ehlers, U.D. and Vogels, P. (2010), *Open Educational Resources – Their Quality and Usage*.

Ehlers, U.-D. (2003): Zum Stand der Forschung: Qualität beim E-Learning [State of the art in research for quality in e-learning]. In: Ehlers, U.-D., Gerteis, W., Holmer, T., Jung, H. (Hrsg.) (2003): *E-Learning-Services im Spannungsfeld von Pädagogik, Ökonomie und Technologie*. L³-Lebenslanges Lernen im Bildungsnetzwerk der Zukunft. Bielefeld

Ehlers, U.-D. (2004). *Qualität im E-Learning aus Lernericht. Grundlagen, Empirie und Modellkonzeption subjektiver Qualität* [Quality from a learner's perspective]. Wiesbaden.

Ehlers, U.-D. (2005). A Participatory Approach to E-Learning-Quality. A new Perspective on the Quality Debate. In: LLine - Journal for Lifelong Learning in Europe. Vol. XI/2005.

Ehlers, U.-D. (2007): Quality Literacy - Competences for Quality Development in Education and E-Learning. In: Educational Technology & Society, Palmerston North, New Zealand 10(2).

Ehlers, U.-D., Pawlowski, J.M. (2006): Handbook of Quality and Standardisation in E-Learning. Springer Verlag. Heidelberg

Ehlers, U.-D., Hildebrandt, B., Pawlowski, J.M., Teschler, S. (2004): The European Quality Observatory. Enhancing Quality for Tomorrow's Learners. In: Supporting the Learner in Distance Education and E-Learning, Proceedings of the Third EDEN Research Workshop, Oldenburg, Germany, S. 138-145.

European Universities Association (2006). Quality Culture in European Universities: A Bottom-up Approach. Report on the Three Rounds of the Quality Culture Project 2002 - 2006. Brussels.

Faulstich, P., Gnahn, D. & Sauter, E. (2003). Qualitätsmanagement in der beruflichen Weiterbildung: ein Gestaltungsvorschlag [Qualitymanagement in VET]. Available from Internet:
<http://www.europanozert.de/epz/dokumente/Studie-Weiterbildung.pdf> (cited 15.01.2005).

Fink, L. D. (2003). Creating Significant Learning Experiences. San Francisco.

Fitzgerald, B. (2007), Open Content Licensing (OCL) for Open Educational Re-

Fleming, C., and Massey, M. (2007), Jorum Open Educational Resources (OER) Report.

Fraunhofer IPSI (2003). Gemeinsam Online-Lernen: Technologien & Lernszenarien - Auswertung einer Umfrage des Fraunhofer IPSI bei Weiterbildungsanbietern im August/September 2003 [Online Learning Communities]. Available from Internet:
http://www.ipsi.fraunhofer.de/concert/projects_new/alba/Gemeinsam_Online_Lernen.pdf (cited 07.03.2004).

Fresen, J.W. (2002). Quality in Web-supported Learning. Educational Technology. 42(1). pp.: 28-32.

Friend-Pereira, J. C., Lutz, K. & Heerens, N. (2002). European Student Handbook on Quality Assurance in Higher Education. Available from Internet:
<http://www.esib.org/projects/qap/QAhandbook/QAhandbook.doc> (cited 09.02.2004).

Friend-Pereira, J. C., Lutz, K. Heerens, N. (2002): European Student Handbook on Quality Assurance in Higher Education 2002 [online]. Available from Internet: <http://www.esib.org/projects/qap/QAhandbook/QAhandbook.doc> [cited 09.02.2004].

Fröhlich, W. & Jütte, W. (2004). Qualitätsentwicklung in der wissenschaftlichen Weiterbildung [Quality development in scientific training]. In W. Fröhlich & W. Jütte (Eds.), Qualitätsentwicklung in der postgradualen Weiterbildung: Internationale Entwicklungen und Perspektiven (p. 9–17). Berlin, München, Münster, New York: Waxmann.

Geith, C., and Vignare, K. (2008), Access to Education with Online Learning and Open Educational Resources: Can They Close the Gap?

Geser, G., (2007) Open Educational Practice and Resources: OLCOS Roadmap 2012, Salzburg, Austria.

Gnahn, D. & Kuwan, H. (2004). Qualitätsentwicklung in der Weiterbildung – Effekte, Erfolgsbedingungen und Barrieren [Quality development in ongoing education]. In C. Balli, E. M. Krekel & E. Sauter (Eds.), Qualitätsentwicklung in der Weiterbildung – Wo steht die Praxis? (p. 41–59). Bielefeld: Bertelsmann.

Goertz, L. and Johnanning, A. (2007), Open Educational Resources an internationalen Hochschulen - eine Bestandsaufnahme.

Grönroos, C. (1984). A service-oriented approach to marketing of services. European Journal of Marketing. 18 (4). pp.: 36-44.

Grönroos, C. (1990). Service Management and Marketing. Lexington.

Gross, P., Badura, B. (1977). Sozialpolitik und Soziale Dienste: Entwurf einer Theorie personenbezogener Dienstleistungen [Social policy and social services]. In: Ferber, C. v., Kaufmann, F.-X. (Ed.) (1977). Sozialpolitik. Bielefeld. pp.: 361-385.

Hall, G., Hord, S. (2001). Implementing Change. Patterns, Principles and Pot-holes. Boston.

Hatakka, A., (2009). Build it and will they come? Inhibiting factors for reuse of open content in developing countries. Electronic Journal on Information Systems in developing countries 37, 5, 1-16 www.ejisdc.org.

Hassler, B., (2009) Access to Open Educational Resources Report of a UNESCO OER community discussion, 9-27 February, Paris, France

HEA/JISC (2010) Open Educational resources, An update on activities, Document 669

HEA/JISC (2010), Open Educational Resources programme, available online at <http://www.jisc.ac.uk/whatwedo/programmes/elearning/oer.aspx>, accessed on 21/04/10.

HEFCE elearning strategy – missing reference page 36.

Hiatt, J., Creasey, T. J. (2003). *Change Management: The People Side of Change*. Loveland.

Hodgkinson-Williams, C., and Gray, E. (2009), *Degrees of Openness: The emergence of Open Educational Resources at the University of Cape Town*.
<http://ijedict.dec.uwi.edu/include/getdoc.php?id=3695&article=864&mode=pdf>

Hollands, N. (2000). *Online Testing: Best Practices from the Field*. Available from Internet:
<http://198.85.71.76/english/blackboard/testingadvice.html> (cited 10.04.2004).

Horine, J., Lindgren, C. (1995). Educational improvement using Deming's profound knowledge. In: *New Era in Education* (London). Volume 76. Number 1. pp.:6-10.

Hylén, J. (2006) *Open Educational Resources: Opportunities and Challenges*. OECD's Centre for Educational Research and Innovation, Jan, Paris, France, Available at: <http://www.oecd.org/dataoecd/5/47/37351085.pdf>.

ISO/IEC (a). ISO/IEC 19796-1:2005. *Information Technology - Learning, Education, and Training — Quality Management, Assurance and Metrics— Part 1: General Approach*. Final Draft International Standard (FDIS), 2005.

Jelitto, M.(2005): *Open Educational Resources und deren Verbreitung in Repositorien und Referatorien*.

Keller, P., and Mossink, W. (2008), *Reuse of material in the context of education and research*.

Lagrosen, S., Seyyed-Hashemi, R. & Leitner, M. (2004). Examination of the dimensions of quality in higher education. *Quality Assurance in Education*, 12(2), 61–69.

Lane, A. (2009), *Who puts the education into OE content?*, in R.N. Katz (Ed), *The tower and the Cloud*, Educause e-book, 158-168, available online
<http://www.educause.edu/thetowerandthecloud>, last accessed 21/04/10.

Le Préau (2005). *Which quality model for e-learning* [online]. Available from Internet: www.preau.ccip.fr [cited 20.09.2005].

Lethinen, U., Lethinen, J.O. (1991). Two Approaches to Service Quality Dimensions. In: *The Service Industries Journal*. Volume 11. Number 3. pp.: 287-303.

Liyosh, T., Kumar, M.S.V., and Seely Brown, J. (2008), *Opening up education: the collective advancement of education through open technology*, MIT press: Cambridge, MA, available online at

<http://mitpress.mit.edu/catalog/item/default.asp?ttype=2&tid=11309&mode=c>, last accessed [9/2/09].

Luhmann, N., Schorr, K.E. (1982). Zwischen Technologie und Selbstreferenz. Fragen an die Pädagogik [Between technology and self reference. Questions to pedagogy]. Frankfurt a. Main.

McAndrew, P., Santos, A.I., Lane, A., Godwin, S., Okada, A., Wilson, T. Ferreira, G.; Buckingham Shum, S.; Bretts, J. and Webb, R. (2009), OpenLearn Research Report 2006-2008. The Open University, Milton Keynes, England. available online at <http://oro.open.ac.uk/17513/>, last accessed 21/04/10

Martens, E., Prosser, M. (1998). What constitutes high quality teaching and learning and how to assure it. In: Quality Assurance in Education, Volume 6, Number 1. pp.: 28-36.

Meyer, A., Mattmüller, R. (1987). Qualität von Dienstleistungen [Quality of services]. Entwurf eines praxisorientierten Qualitätsmodells. In: Marketing ZFP, Volume 9. Number 3. pp.: 187-195.

Moslehien, S. M. (2003). A glance at postmodern pedagogy of mathematics. Philosophy of mathematics education. [online]. Available from Internet: <http://www.ex.ac.uk/~PErnest/pome17/contents.htm> [cited 3.09.2005].

Mulder, F. (2007), The advancement of Lifelong Learning through Open Educational

NSF (2008), Fostering learning in the networked world: learning opportunity and challenge. A 21st Century agenda for the National Science Foundation, report of the NSF task force on cyberlearning, available online at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08204, last accessed 8/2/09.

North (1998). K.: Wissensorientierte Unternehmensführung, Wertschöpfung durch Wissen [Knowledge oriented enterprise management]. Wiesbaden.

North, K. (2005). Kompetenzmanagement [Competence management]. Wiesbaden.

OECD (2007), Giving knowledge for free – the emergence of open educational resources, Centre for educational research and innovation, report for OECD, available online at <http://www.oecd.org/dataoecd/35/7/38654317.pdf>, last accessed 5/2/09

OER10 (2010) Conference, Cambridge, UK, 22-24th March 2010, Clare College, Cambridge University. Cambridge, website <http://www.ucel.ac.uk/oer10/index.html>, last accessed 22/04/10

Oelkers, J. (1982). Intention und Wirkung [Intention and Impact]. In: Luhmann, N., Schorr, K.E.: Zwischen Technologie und Selbstreferenz. Fragen an die Pädagogik. Frankfurt a. Main. pp.: 139-194.

Okada, A., Connolly, T. & Lane, A. (2010) *Integrating Strategic Views about Open Educational Resources through Collaborative Sensemaking*, Presentation at The 6th International Conference on Technology, Knowledge and Society, Berlin, 15-17 Jan 2010.

OPAL (2009), 'Description of Work – Section 3 Project Framework Description', Opal project working paper.

OPAL Annex 5 Meeting outcome discussion paper 'Open Educational Practice – Approaching a definition for a new concept'.

Open eLearning Content Observatory Services (2007), Open Educational Practices and Resources – OLCOS Roadmap 2012.

Open Source Initiative (o.J.), The Open Source Definition.

Phipps, R. A. & Merisotis, J. (2000). Quality On The Line. Benchmarks For Success In Internet-Based Distance Education. Washington, DC: The Institute For Higher Education Policy.

Pruitt, D.G., Carnevale, P. J. (1993). Negotiation in social conflict. Belmont.

Quartapelle, A., Larsen, G. (1996). Kundenzufriedenheit [Customer satisfaction]. Wie Kundenzufriedenheit im Dienstleistungsbereich die Rentabilität steigert. Berlin.

Read, M. (2008), The Tower and the Cloud – Higher Education in the age of Cloud Computing. <http://net.educause.edu/ir/library/pdf/PUB7202n.pdf>, Abruf am 2010-01-10.

Resnick, P., Zeckhauser, R., Friedman, E. and Kuwabara, K. (2000), Reputation Systems: Facilitating Trust in Internet Interactions.

Russel, T. L. (1999). The No Significant Difference Phenomenon [online]. Available from Internet: <http://teleeducation.nb.ca/nosignificantdifference>. [cited: 15. 12. 2003]

Ryle, G. (1949). The concept of mind. New York.

Senge, P. (1990). The Fifth Discipline. The Art & Practice of the Learning Organization. New York

Seufert, S., Euler, D. (2002). Virtuelle Lerngemeinschaften: Konzept und Potenziale für die Aus- und Weiterbildung [Virtual learning communities]. Ergebnisbericht des Bundesinstituts für Berufsbildung (BIBB). Bonn.

Taylor, M. (2004). Generation NeXt Comes to College, A Collection of Papers on Student and Institutional Improvement, Volume 2, pp. 19-23.

Tulloch, J. B. & Sneed, J. R. (2000). Quality enhancing practices in distance education: Teaching and learning. Washington, DC: Instructional Telecommunications Council.

Tuomi, I. (2006): Open Educational Resources: What are they and why do they matter.

Twigg, C. A. (2001). Quality Assurance for Whom? Providers and Consumers in Today's Distributed Learning Environment. Available from Internet: <http://www.center.rpi.edu/PewSym/Mono3.pdf> (Stand.

Uhler, U (2010), Uhler (2010), 'Annex 5 of a paper - Meeting outcome discussion paper "Open Educational Practice – Approaching a definition for a new concept', OPAL project working paper.

UNESCO (2002), 'Forum on the Impact of Open Courseware for Higher Education in Developing Countries' in 2002, report available online at http://portal.unesco.org/ci/en/ev.php-URL_ID=5303&URL_DO=DO_TOPIC&URL_SECTION=201.html, last accessed 21/04/10.

UNESCO-EADTU Seminar (2009) "Quality Assurance in eLearning and Open Educational Resources" 12-13th March, Paris

Van Damme, D. (2000). Accreditation in global higher education. The need for international information and cooperation. Outline of a IAUP approach. Memo for the Commission on Global Accreditation of the International Association of University Presidents. Available from Internet: <http://www.ia-up.org/grp5/> (cited 08.03.2004).

Weinert, F. E. (1999). Konzepte der Kompetenz. Paris.

Wildt, J., (2006). Kompetenzen als Learning Outcomes. In: Journal Hochschuldidaktik 17. Jg. Nr. 1, pp.6-9.

Wiley, D.A. (2000), Connecting learning objects to instructional design theory: a definition, a metaphor, and a taxonomy.

Wiley, D.A. (2006), The Current State of Open Educational Resources.

Woodhouse, D. (2003). The Quality of Quality Assurance Agencies. Available from Internet: <http://www.inqaahe.nl/public/docs/ThequalityofEQAs.doc> (cited 30.07.2003).

www.peter.baumgartner.name/article-de/oer_didakt_kontext.pdf, Abruf am 2009-12-19.

www.peter.baumgartner.name/article-de/oer_herausforderung.pdf, Abruf am 2009-12-19.

www.uoc.edu/rusc/4/1/dt/eng/dantoni.pdf, Abruf am 2009-12-22.

Yuan, L., MacNeil, S., and Kraan, W. (2008), Open Educational Resources – Opportunities and Challenges for Higher Education.

7 Web-site references

Abruf am 2010-01-04.

<http://learn.creativecommons.org/wp-content/uploads/2008/07/oecd-open-licensing-review.pdf>.

Abruf am 2010-01-10.

http://learn.creativecommons.org/wp-content/uploads/2008/09/oer_briefing_paper.pdf.

Abruf am 2010-01-10.

http://learn.creativecommons.org/wp-content/uploads/2009/07/090706surfcc_reuse_materiaal_def.pdf.

Abruf am 2010-01-10.

<http://learn.creativecommons.org/wpcontent/uploads/2008/03/changearticle.pdf>.

Abruf am 2009-12-15.

<http://net.educause.edu/ir/library/pdf/ERM0811.pdf>.

Abruf am 2009-12-20.

http://ocw.mit.edu/ans7870/global/05_Prog_Eval_Report_Final.pdf.

Abruf am 2009-12-15.

http://oerwiki.iiepunesco.org/images/4/46/OER_Way_Forward.pdf.

Abruf am 2009-12-19.

<http://presnick.people.si.umich.edu/papers/cacm00/reputations.pdf>.

Abruf am 2010-01-28.

<http://reusability.org/read/chapters/wiley.doc>.

Abruf am 2009-12-18.

http://www.distanceetdroitededucation.org/contents/JALN_v12n1_Geith.pdf.

Abruf am 2010-01-06.

<http://www.educa.ch/dyn/132947.asp>.

Abruf am 2010-01-03.

http://www.fernuni-hagen.de/imperia/md/content/fakultaetfuermathematikundinformatik/forschung/berichteetit/forschungsbericht_6_2005.pdf

Abruf am 2010-01-02.

http://www.jorum.ac.uk/docs/pdf/0707_JorumOERreportFinal.pdf.

Abruf am 2010-01-10.

http://www.meaningprocessing.com/personalPages/tuomi/articles/OpenEducationalResources_OECDreport.pdf.

Abruf am 2009-12-12.

http://www.mmkh.de/upload/dokumente/OER_an_internationalen_Hochschule_n_Jan07_mmb_MMKH.pdf.

Abruf am 2009-12-28.

<http://www.oecd.org/dataoecd/19/26/36224377.pdf>.

Abruf am 2009-12-28.

<http://www.oecd.org/dataoecd/35/7/38654317.pdf>.

Abruf am 2009-12-16.

http://www.oerders.org/wp-content/uploads/2007/03/a-review-of-the-open-educational-resources-oer-movement_final.pdf.

Abruf am 2009-12-18.

http://www.olcos.org/cms/upload/docs/olcos_roadmap.pdf.

Abruf am 2009-12- 12.

<http://www.opensource.org/docs/osd>.

Abruf am 2009-12-23.

http://www.ou.nl/Docs/Campagnes/SCOP/OER_paper_by_Fred_Mulder.pdf.

Abruf am 2010-01-02.

<http://www.pontydysgu.org/wp-content/uploads/2008/05/scenarios.doc>.

Appendix A: Template (V3) for collecting case studies for:

OPAL Work Package 3 – Deliverable 3.1 ‘Desk Research and Case Study Identification’

Notes on the use of this template:

- The contents of this template will be used to provide input to Section 2 ‘Towards an OEP Framework’ of the above titled document
- The aim of the template is to collect evidence of OER and OEP practice
- When researching a HE or AE institution for suitability for providing input to a case study it is **not** necessary for all of the below sections/questions to be answered for each institution. For example, a particular institution may only be used once as a case study to show practice around a ‘single’ feature listed below (Sections 2-10) e.g. quality, or tools, or policy
- Just to repeat - the intention is not to provide a complete case study for every institution researched in Section 2! Unless it is a particularly rich case study
- The final document will comprise of case study examples drawn mainly from HE and AE institutions in Europe, and also some case studies from around the world

Template Sections for completion:

Case Study Title:

(Which refers to the specific characteristic of this case study e.g. policy, tool, innovation, quality etc.)

Case Study Country:

Type of organisation described by the case study, address of organisation, hyperlink to organisation, hyperlink to case study source:

Case Study Contributed by:

Case Study Sections:

Please complete Section 1 – **mandatory**. Please complete whichever of Sections 2-10 is/are relevant to the case study.

From an analytical perspective we are looking for the following generic questions to be answered in the case study:

- What constitutes open educational practice in this case study?
- What are the elements of innovation in educational practice?
- How is OER being used to innovate educational practice?
- How is open educational practice used to improve quality?

Sections 1-10

1. **Mandatory** - A brief summary of the institution to be used as a case study
About 500 words please on a description of the institution, its OER history and approach.
2. Quality – OER/OEP
How does the institution approach quality in OER? Is there any current indication of a quality concept or process? Does the institution perceive quality from the perspective of the quality of open educational resources or the quality of open educational practice? How does the institution show quality *through* OEP versus quality *of* OEP? What methods, concepts and practices are used to enhance the quality of OEP?
3. Innovation
How can OER/OEP innovate educational practices? What current innovative practices are there in the institution? Please do not regard innovation from just a technology perspective!
4. Policy
What are the current OER/OEP policy arrangements at institutional and national level across Europe/the World?
5. Actors
What actors are involved in OER/OEP? Is there any evidence to show that OER actors do not always promote OEP but “only” access to OER?

6. Initiatives
What OER/OEP initiatives can be evidenced? Is there any evidence to show that OER initiatives do not always promote OEP but “only” access to OER?
7. Open Educational Practices
Can you identify some case studies/ descriptions which form the illustrative base for a more general model of OEP?
8. Tools and Repositories
What tools and repositories are being used to deliver OER/OEP? For example GLOW, Connexions

Are there any other special tools for OER/OEP? e.g. Cloud-works, in which practices can be discussed and validated?

Are there any tools for Visualisation? e.g. CompendiumLD

Are there any tools for Argumentation? e.g. Cohere
9. Strategies
Can you identify any strategies for organisations to use OER/OEP?
Can you identify any business models that promote OER/OEP?
10. Current barriers and enablers. What are the barriers to the use of OER/OEP? Is there any evidence to how these barriers have been overcome? What are the enablers to the use of OER/OEP?

Appendix B: OER Case Studies

This Appendix provides a list of the fifty eight case studies. It also includes other web-sites that were reviewed to provide additional, more general contextual information as part of the broader OER landscape. Each case study can be accessed via a cloud in the 'OPAL OER case studies Cloudscape at:

<http://cloudworks.ac.uk/index.php/cloudscape/view/2085>

The case studies were collected by the following people:

- Teresa Connelly (TC)
- Gráinne Conole (GC)
- Andreia De Santos (AS)
- Paul Mordin (PM)
- Tina Wilson (TW)
- Ulf Ehlers (UE)
- António Andrade (AA)
- Tapio Koskinen (TK)

United Kingdom

- OpenLearn, OU UK (AS)
- SCORE (PM)
- UK - JISC funded:
 - Exeter University (AS)
 - Nottingham University (AS)
 - Oxford University (AS)
 - University of Westminster (AS)
 - University College London (AS)
 - SC Economics (Bristol) (AS)
- Cambridge University (AS)
- POCKET (TW)
- OTTER (TW)
- Open Educational Repository in Support of Computer Science, Ulster University and 5 other HE partners (TC)

- The Humbox project, Southampton, Royal Holloway & Warwick University and 12 other HE partners (TC)
- Open Educational resources pilot project, Loughborough University and 9 other HE partners (TC)
- Collaborative open resource Environment (CORE), Liverpool University and 21 other HE partners (TC)
- Skills for Science project, Hull University and 17 other HE partners (TC)
- C-Change project, Plymouth University and 12 other HE partners (TC)
- Art, Design & Media OER project, Brighton, Cumbria and University of the Creative Arts (TC)
- FETLAR, Nottingham Trent University and 11 other HE partners (TC)
- Biosciences Interactive Laboratory/Fieldwork Manual, Leeds University and 11 other HE partners (TC)
- OERs in Simulated learning (SIMSHARE), Warwick University and 4 other HE partners (TC)
- PHORUS project, Kings College London & 16 other HE partners (TC)
- Key Social Sciences resources for learning & teaching, Birmingham University and 16 other HE partners (TC)
- Organising Open Educational Resources (OOER), Newcastle University and 16 other HE partners (TC)
- Open Content Employability project, Coventry University (TC)
- Unicycle project, Leeds Metropolitan University, UK
- BERLiN project, Nottingham University, UK
- OpenStaffs project, Staffordshire University, UK
- Open Source Electronics Learning Tools project, York University, UK
- openUCF, University College Falmouth, UK
- The Numeracy Bank (Numbat) project, Anglia Ruskin University, UK
- EVOLUTION project, University of Central Lancashire, UK
- Chemistry-FM project, University of Lincolnshire, UK
- Open Educational Resources Project (OERP), Bradford University, UK
- ICS Open Educational Resources (TW)

Ireland

- NDLR (GC)

Holland

- OpenER (GC)
- Wikiwijs (GC)

Germany

- Akleon (UE)
- KELDAmet (UE)
- CampusContent (UE)
- Podcampus (UE)
- Zentrale für Unterrichtsmedien (UE)
- Dual Mode Technische Universität Darmstadt (UE)
- MatheVital (UE)
- Skriptenforum (UE)

Austria

- EducaNext (UE)
- eLibrary Projekt (UE)

Switzerland

- GITTA (UE)

Brazil

- UnisulVirtual (AS)

North America

- CCCOER/CCOT (GC)
- BC campus (PM)
- MIT OpenCourseware (GC)

Finland

- EDU.Fi (TK)
- AVO-SOMETU (TK)
- Le Mill (TK)

Estonia

- Estonia National Network

Portugal

- INTERACTIC (AA)
- Casa das Ciências (AA)

Appendix C: The Broader OER Landscape

This appendix provides a description of the broader OER landscape. This includes other OER initiatives that have not yet been scrutinised according to the OPAL OER case study template, as well as broader initiatives. This deliverable forms an initial starting point in terms of documenting case studies. The aim is to continue gathering case studies and to encourage broader community engagement in terms of submitting case studies and commenting on existing ones.

A range of different types of OER initiative were also reviewed including:

- Community sites:
 - PEOPLES OPEN ACCESS EDUCATION INITIATIVE “THE PEOPLES UNI” (<http://www.peoples-uni.org/>)
 - THE PEER TO PEER UNIVERSITY (<http://p2pu.org/>)
 - WIKIEDUCATOR (<http://wikieducator.org>)
 - CONNEXIONS (<http://cnx.org/>)
 - MERLOT (<http://www.merlot.org>)
- OER Research groups:
 - ORGANISATION FOR ECONOMIC COOPERATION & DEVELOPMENT OECD
(http://www.oecd.org/document/20/0,3343,en_2649_35845581_35023444_1_1_1_1,00.html)
 - OER COMMONS (<http://www.oercommons.org/>)
 - Open eLearning Content Observatory OLCOS
(<http://www.olcos.org/>)
 - OPEN LEARNING NETWORK: OLNET (<http://olnet.org/>)
- International agencies:
 - OER AFRICA (<http://www.oerafrica.org/>)
 - The Commonwealth of Learning (COL)
(<http://www.col.org/RESOURCES/CRSMATERIALS/Pages/default.aspx>)
 - UNESCO: OPEN TRAINING PLATFORM (<http://oerwiki.iiep-unesco.org>)
- Translation organisations:
 - OPENSOURCE OPENCOURSEWARE PROTOTYPE SYSTEM: OOPS (<http://myoops.org>)
 - CHINA OPEN RESOURCES FOR EDUCATION: CORE
(<http://www.core.org.cn/en>)
 - CREATIVE COMMONS (<http://creativecommons.org/>)
 - UNIVERSIA.NET (<http://mit.ocw.universia.net/>)

- Emerging institutions:
 - TECHNOLOGICA DE Monterrey (<http://ocw.itesm.mx/>)
 - UNIVERSITY OF THE WESTERN CAPE (<http://freecourseware.uwc.ac.za>)
 - UNIVERSIADE DO SUL DE SANTA CATARINA: UNISUL (<http://www.unisul.br>)
- Established OER projects

A number of funders (such as the Hewlett Foundation, Shuttleworth, and UNESCO) have had, and continue to have, a significant influence on the nature of OER initiatives, in terms of the funding they provide but also through other forms of promotion and support. Examples of different types of initiatives include; EADTU/MORIL, EU funded FP7 programmes e.g. ICOPER, ASPECT, ROLE, STELLAR, and the OpenScout initiative, investigating various aspects of OER movements.

The nature of these different initiatives is a combination of a number of factors:

- The nature of the type of funding which supports them
- The vision and motivation behind them
- The nature of the organisation or organisations involved (face-to-face/distance, subject-based, institutionally or nationally focussed, single or multi-partnered)

The following alphabetical listing outlines a selection of these varied projects sourced from:

http://wikieducator.org/Exemplary_Collection_of_institutions_with_OER_policy

Anadolu University, Yunusemre Lifelong Open Learning Portal, Turkey

http://www.anadolu.edu.tr/akademik/fak_aof/eindex.htm

Anadolu University, (founded 1958) established the Open Education Faculty in 1982. It is the only institution offering both on-campus and distance education in Turkey. Anadolu University supports life-long learning and it has been offering 149 content rich courses free through its Yunusemre education portal. The courses include the following components; e-books, e-courses, e-TV, e-audio books and e-practice.

Broadband Enabled Lifelong Learning Environment – BELLE, Canada

<http://belle.netera.ca/about.htm> BELLE

BELLE was a \$3.4 million shared-cost project (2002) funded under the CANARIE Learning Program. BELLE's objective was to develop a prototype educational object repository. It is a partnership led by the Netera Alliance.

Athabasca University - Open University, Canada

<http://www.athabascau.ca/>

Athabasca University (AU) is Canada's leading distance-education and online university and serves over 38,000 students (over 7,300 full-load equivalents) and offers over 700 courses in more than 90 undergraduate and graduate programs in a range of arts, science and professional disciplines. The University strives to remove the barriers of time, space, past educational experience, and, to a great degree, level of income. Individualized study courses allow a student to learn at their own pace. Flexible instruction frees students from the demands of specified class times and rigid institutional schedules. For undergraduate individualized study courses, there are no admissions deadlines' students may enrol year-round.

OpenCourseWare Consortium (OCW) , Global

<http://www.ocwconsortium.org/about-us/about-us.html>

The OpenCourseWare Consortium is a collaboration of more than 100 higher education institutions and associated organizations from around the world creating a broad and deep body of open educational content using a shared model. The mission of the OpenCourseWare Consortium is to advance education and empower people worldwide through [opencourseware](http://www.ocwconsortium.org).

Japanese OpenCourseWare Alliance (JOCW), Japan

<http://www.jocw.jp/>

The JOCW is the consortium (established 2006) of Japanese Universities which have been providing OCW in JAPAN and also participates in the OCW as an Affiliate member.

Digital Repository Infrastructure Vision for European Research (DRIVER)

<http://www.driver-repository.eu/>

DRIVER aims to establish a cohesive, pan-European infrastructure of Digital Repositories, for both researchers and the general public. It sets out to build an advanced infrastructure for the future knowledge of the European Research Area. Aimed to be complimentary to GEANT2, the successful infrastructure for computing resources, data storage and data transport, DRIVER will deliver the content resources, i.e. any form of scientific output, including scientific/technical reports, working papers, pre-prints, articles and original research data. The vision is to establish the successful interoperation of both data network and knowledge repositories as integral parts of the E-infrastructure for research and education in Europe.

Open Archives Initiative (OAI)

<http://www.openarchives.org/>

The Open Archives Initiative develops and promotes interoperability standards that aim to facilitate the efficient dissemination of content. OAI has its roots in the open access and institutional repository movements

Carnegie Mellon Open Learning Initiative (OLI)

<http://oli.web.cmu.edu/openlearning/>

Carnegie Mellon's Open Learning Initiative (OLI) is a collection of "cognitively informed," openly available and free online courses and course materials that enact instruction for an entire course in an online format. Ideally, the courses developed and delivered through the OLI project will be used by instructors and students in Colleges and Universities throughout the world as well as individuals seeking education who are not affiliated with an institution. OLI should have a profound impact on higher education by increasing access to education, enhancing the quality of instruction and providing a model for a new generation of online courses and course materials that teach more effectively and appeal to students more powerfully than anything in existence today.

European Schoolnet (EUN), Europe

<http://www.eun.org/web/guest;jsessionid=9126F04FD9B46DEA6697FB41FC8F9643>

European Schoolnet (EUN) is a unique not-for-profit consortium of 28 ministries of education in Europe created in 1997. EUN provides major European education portals for teaching, learning and collaboration and leads the way in bringing about change in schooling through the use of new technology. EUN's work is organised in three strands corresponding to its core objective of supporting the efficient use of ICT in education and the European dimension in education; school networking and practice; knowledge building and exchange on ICT and practice and Interoperability and content exchange.

The Centre for Excellence in Teaching and Learning in Reusable Learning Objects (CETL), United Kingdom

<http://www.rlo-cetl.ac.uk/joomla/index.php>

The Centre for Excellence in Teaching and Learning (CETL) in Reusable Learning Objects is a consortium consisting of London Metropolitan University, the University of Cambridge and the University of Nottingham. It is one of a suite of Centres of Excellence in Teaching and Learning funded through HEFCE in the UK. The CETL develops, shares and evaluates learning objects and leads on innovation in pedagogical design and tries to achieve the widespread use and reuse of high quality learning objects.

ParisTech, France

<http://www.paristech.fr/en>

ParisTech is a collective entity that includes twelve of the most prestigious French institutes of education and research. It started in November 2003 and aims to make available some of their educational resources (lecture notes, exercises, yearly archives, simulations, animations, course notes and videos). One target of this project is to promote the excellent high quality teaching pro-

vided by those institutions, in order to attract foreign students. Another goal of the project is to contribute to bridge the digital divide by making available Open Access Educational Resources, in accordance with the recommendations of the World Summit on the Information Society (WSIS). This initiative appears in the WSIS stocktaking database. This project is based on three principles:

Commonwealth of Learning (COL), Global

<http://www.col.org/Pages/default.aspx>

The Commonwealth of Learning (COL), based in Vancouver, Canada, is an intergovernmental organisation created by Commonwealth Heads of Government to encourage the development and sharing of open learning/distance education knowledge, resources and technologies. COL is helping developing nations improve access to quality education and training. Two online databases of learning content that provides support to Commonwealth countries free of charge. Institutions or governments can use these repositories to access a range of free learning content.

Joint Information Systems Committee (JISC) Digital Repositories, United Kingdom

<http://www.jisc.ac.uk/whatwedo/topics/digitalrepositories.aspx>

JISC provides funded for technical and educational projects and is committed to enabling the UK education and research communities to engage in national and global collaborations. It has funded a range of initiatives around the creation and use of digital resources. This has included significant work on digital repositories.

Joint Information Systems Committee (JISC) and Higher Education Academy (HEA) Open Educational Resources programme, United Kingdom

<http://www.jisc.ac.uk/whatwedo/programmes/elearning/oer>

Between April 2009-April 2010 the JISC and the HEA funded a series of pilots and activities to promote the open release of learning resources. Projects were required to make a significant amount of existing learning resources freely available online, licensed in such away to enable them to be used and repurposed worldwide. 29 projects were funded in total, around three themes (individual researcher, institutionally based and subject-based).

Budapest Open Access Initiative, Hungary

<http://www.soros.org/openaccess/read.shtml>

The Budapest Open Access Initiative arises from a meeting convened in Budapest by the Open Society Institute (OSI) on December 1-2, 2001. The purpose of the meeting was to accelerate progress in the international effort to make research articles in all academic fields freely available on the internet. The meeting explored how OSI and other foundations could use their resources most productively to aid the transition to open access and to make open-access publishing economically self-sustaining. The result is the Buda-

pest Open Access Initiative. It is at once a statement of principle, a statement of strategy, and a statement of commitment.

Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, Global

<http://oa.mpg.de/openaccess-berlin/berlindeclaration.html>

In accordance with the spirit of the Declaration of the Budapest Open Access Initiative, the ECHO Charter and the Bethesda Statement on Open Access Publishing, the Berlin Declaration promotes the Internet as a functional instrument for a global scientific knowledge base and human reflection and to specify measures which research policy makers, research institutions, funding agencies, libraries, archives and museums need to consider. The Berlin Declaration states that, 'Establishing open access as a worthwhile procedure ideally requires the active commitment of each and every individual producer of scientific knowledge and holder of cultural heritage'. In signing the "Berlin Declaration", the research organizations advocate consistently using the Internet for scientific communication and publishing. Their recommendations in favour of open access are directed not only at research institutions but also and to the same extent at cultural institutes such as libraries, archives, and museums.

IIEP-UNESCO Wiki of OER repositories, Global

<http://oerwiki.iiep-unesco.org/index.php?title=Repositories>

IIEP-UNESCO hosts a Wiki that offers a list of several portals, gateways and repositories. It offers a list of links to OER initiatives, resources and tools. It was compiled following the first IIEP discussion forum on Open Educational Resources (24 October - 2 December 2005). It offers access to a selection of approximately thirty repositories of open learning objects, mostly at the university level.

Multimedia Educational Resource for Learning and Online Teaching) (MERLOT), North America

<http://www.merlot.org/merlot/index.htm>

MERLOT provides free and open resources designed primarily for faculty and students of higher education. MERLOT is a growing catalogue of online learning materials, peer reviews, learning assignments, and user comments, organized by discipline into specific discipline communities and created to help faculty enhance their instruction, and that anyone can use for free.

OER Commons, North America

<http://www.oercommons.org/>

OER Commons is a teaching and learning network offering a broad selection of high-quality Open Educational Resources that are freely available online to use and, in many cases, to adapt, to support individualized teaching and learning practices. It is the first comprehensive open learning portal where

teachers and professors (from pre-K to graduate school) can access their colleagues' course materials, share their own, and collaborate on affecting today's classrooms. It uses Web 2.0 features (tags, ratings, comments, reviews, and social networking) to create an online experience that engages educators in sharing their best teaching and learning practices.

Open Courseware Directory (OCD)

<http://iberry.com/cms/OCW.htm>

The Open Courseware Directory is an annotated listing of publicly available courseware (lecture notes, handouts, slides, tutorial material, exam questions, quizzes, videos, demonstrations, etc) from the world's universities, colleges and other educational institutions. It was created and is maintained by iberry.com, a non-profit private website, serving the international academic community.

OpenCourseWare Finder, North America

<http://www.ocwconsortium.org/ocw-course-finder/index.php>

The OCW Finder currently shows results from several collections; MIT OCW , Utah State University, Johns Hopkins School of Public Health OCW, Tufts University OCW, Foothill De-Anza SOFIA, and Carnegie Mellon Open Learning Initiative.

ide@s, North America

<http://www.ideas.wisconsin.edu/>

This is an initiative by the University of Wisconsin to identify, evaluate, catalogue, and align to the Wisconsin education standards resources that are already on the Internet, such as lesson plans and reference materials. These resources are then made available from the ide@s search engine for pre-kindergarten to higher education and adult education.

JORUM, United Kingdom

<http://www.jorum.ac.uk/>

JORUM is funded by JISC (the Joint Information Systems Committee), JORUM is a collaborative venture in UK Higher and Further Education to collect and share learning and teaching materials, allowing their reuse and repurposing, and standing as a national statement of the importance of creating interoperable, sustainable materials. Users can access the learning and teaching materials (which cover a range of subject areas) to enhance their students learning experience. Materials range from single assets (documents, images, diagrams) to more comprehensive learning objects (interactive units and content packages). JORUM accepts learning and teaching resources across all subject areas for both Higher and Further education in the UK

Maricopa learning exchange (MLX), North America

<http://www.mccli.dist.maricopa.edu/mlx/>

The Maricopa Learning eXchange (MLX) is an electronic warehouse of ideas, examples, and resources that support student learning for the state of Arizona Maricopa Community Colleges. These resources might include a particular lesson, technique, method, activity, or assignment developed and/or taught.

Monterey Institute for Technology and Education National Repository of Online Courses (NROC), North America

<http://www.montereyinstitute.org/nroc/>

NROC is a growing library of high-quality online courses for students and faculty in higher education, high school and Advanced Placement. Courses in the NROC library are contributed by developers from leading online-learning programs across the US. All courses are assessed to ensure they meet high standards of scholarship, instructional value and presentational impact. NROC works with developers and contributes resources to improve course quality and to provide ongoing maintenance. Courses are designed to cover the breadth and depth of topics based on generally accepted US curricula and can also be customised within a course management system. NROC partners with academic institutions, publishers, teaching organizations, US state and federal agencies, international distributors and others to create a global distribution network to provide courses to students, teachers and the general public at little or no cost.

National Learning Network Materials (NLN), United Kingdom

<http://www.nln.ac.uk/>

Working in partnership with subject experts and commercial developers, BECTA's (British Educational Communications and Technology Agency) the NLN Materials Team has commissioned and managed the development of Further Education e-learning materials for use in Virtual Learning Environments. The materials span the UK post-16 Further Education curriculum and are designed to be fitted easily into existing teaching.

SchoolNet, Canada

<http://www.schoolnet.org.uk/>

In English and French, SchoolNet is a partnership with the provincial and territorial governments, the education community and the private sector in Canada, which promotes the effective use of information and communications technologies (ICT) in learning.

United Nations University (UNU) Open Course Ware, Global

<http://ocw.unu.edu/>

The United Nations University is a member of the OpenCourseWare (OCW) Consortium and is committed to the development of an OCW website that showcases the training and educational programmes implemented by the University in a wide range of areas relevant to the work of the United Nations.

World Lecture Hall (WLH), North America

<http://wlh.webhost.utexas.edu/>

World Lecture Hall is a project of the Center for Instructional Technologies at the University of Texas at Austin. This project publishes links to pages created by faculty worldwide who are using the web to deliver course materials in any language. Some courses can be accessed as full text. Materials include syllabi, course notes, assignments, and audio and video streaming. The WLH contains links to course materials for university-level courses.

Textbook Revolution, Global

http://textbookrevolution.org/index.php/Main_Page

Textbook Revolution is a student-run site dedicated to increasing the use of free educational materials by teachers and professors. The approach is to bring all of the free textbooks together in one place, review them, and let the best rise to the top and find their way into the hands of students in classrooms around the world.

Wisconsin Online Resource Center, North America

<http://www.wisc-online.com/>

The Wisconsin Online Resource Center is a digital library of Web-based learning resources it has been developed primarily by faculty staff from the Wisconsin Technical College System and produced by multimedia technicians who create the learning objects for the online environment.