

Open Educational Resources and Open Education



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Contents

Section	Page
Open Educational Resources and Open Education	4
What will you find here?	4
Finally...	4
Introduction	5
The basics	5
A (very) brief history of OER	6
Openness	7
Accessibility	8
Resources	8
MOOCs	8
Change	9
Commonly asked questions	11
What are OERs?	11
Where can I find OERs and be sure I may use them?	11
What is 'open education'?	12
What are MOOCs?	12
I'm really not sure about copyright and intellectual property and sharing. It's a minefield, isn't it?	12
Can I create my own OER from someone else's openly shared materials? How should it be licensed?	14
Do I need to check the permission to use everything I include in my teaching and want to share?	14
My institution says it owns my teaching materials. What should I do?	14
I work in an area where sensitive materials are used for teaching. Can these be shared?	14
How do OERs affect the quality of learning and teaching?	14
I. What are the benefits of using OERs for my institution?	15
Literature and resources review	16
HEA/JISC	16
Overview	16
Release, cascade and collections of existing materials and practices	17
Case Studies	17
Change and embedding projects	18
Institution-Wide projects:	18
Embedding Projects:	18
Projects for continuing professional development	18
Students and OER	19
Technical and innovation projects	19
Subject-Specific and PSRB projects	19

Top 10 lists	21
10 Places to look for OER	21
10 Things to do	21
10 Twitter feeds to follow	22
10 Essential tools and services	22
Selected bibliography and references	24

Open Educational Resources and Open Education

This toolkit explores open educational resources (OER) and some aspects of open educational practice. As a first working definition, OERs are teaching resources that are created, usable and reusable freely with as few barriers for the end-user as possible (see Commonly asked questions). OERs can include e-textbooks, documents, digital images, videos, collections of files, software tools, coherent 'learning objects' and whole courses, provided that they are freely available for use, and, importantly, reuse. Another umbrella term often used is the open education movement to collectively describe those working within this philosophy in further and higher education.

Barely a week goes by without mention of open education in some form or other in the higher education press. Many colleges and universities are responding to global trends to engage with ever-larger numbers of students by offering free on-line courses using new business models. Teaching staff in further and higher education are encouraged to collaborate on the reuse of resources because of time and financial pressures. All these changes can be seen as different aspects or consequences of the open education movement.

This toolkit resource is designed for those new to teaching and those new to open approaches to resources who may be more generally experienced. The whole section aims to help you begin to navigate these debates, and it provides materials, tips and information to help you understand and engage with OER and open practice straightaway. I have tried to help you find your feet rather than be comprehensive and too verbose.

What will you find here?

A selected range of resources has been distilled and presented for you to explore in your own preferred way, giving you information and links to useful material, repositories and discussions. You will find some straightforward answers to the most common questions asked by those new to OER and open educational practice based on the author's experiences of working with practitioners throughout the UK. There is a useful quick-reference page of top-10 resources, tools and tips for immediate use.

As with other sections of the toolkit, there are reflection points throughout to encourage an active awareness of your own attitudes and knowledge around sharing and open practice; it can be surprising to discover what concerns most in sharing your teaching materials or in using others'.

The OER movement reaches well beyond colleges and universities, but only higher education is covered in any detail here.

Finally...

The current discussions can appear to raise many questions about the role of the teacher, openness, pedagogy, quality control, intellectual property and technology; indeed they do, as you would expect from an approach to teaching that is developing so quickly and globally. However, at the heart of open education are two ideas: a belief that through openly sharing the notion of education as a public good, rather than just a private benefit, can be put into action, with a reduction in transaction costs; and that we all share a commitment to improving the quality of the educational experience of students. Alongside which many institutions are realising benefits from

openness for concerns that are more prosaic: recruitment, economic use of resources, competitive advantage and business planning. There is, therefore, in the OER and the open education movements, a spirit of genuine educational enterprise combined with a desire to make higher education better and a real power for good in the world.

The information here cannot be the whole story because open educational practice is a very dynamic area of higher education with multiple perspectives and strands. Local considerations and policies will make some recommendations more useful than others will be for you; and your own practices may well influence that local context. However, I hope there is enough here to get you started, and at least some suggestions that will work in almost any context. We are always learning from each other and this will always be a work in progress.

Introduction

The following pages cover some of the current discussions, topics and material of most relevance to those new to OER. As with any topic within a large, global academic community of developers and users there is much more material available than can be reasonably surveyed in an introduction. I have, however, attempted to give the reader a good start and some indications under each heading where further guidance can be found. In some cases I have linked to collections of examples for the reader to browse, in others to single examples of effective practice; no judgement on quality should be made inferred from those selection, except that they illustrate the points made in each section below.

The basics

Jumping straight in, there is a vast array of introductory material available on-line covering the basic issues in OER and open education. The following selection is a taster to the wider ranging materials to follow. Each of the links below covers similar foundation questions but with slightly different emphases and will, taken together, give an excellent grounding in the key benefits and considerations of OER generation, use and reuse.

- [7 Things You Should Know About Open Educational Resources](#)
(a pdf resource, covering all the core issues)
- [A staff guide to Open Educational Resources](#)
(a printable guide book)
- [Open Educational Resources - a short guide](#)
(a PowerPoint presentation)
- [OER benefits and myths](#)
(a discussion wiki with links to other resources)
- [A mindmap of the OER use/reuse landscape](#)
- [Exemplary Collection of institutions with OER policy](#)
(a wiki resource)

For a more comprehensive picture of framework issues see the HEA/JISC Infokit wiki, which was designed to support the whole of the HEA/JISC OER programme, and which is referenced below in different contexts.

- [OER InfoKit](#)

The general picture you should have is that there are certain common themes to the way these sources treat OER: free availability, open access, repurposing and adaptation, licensing to address intellectual property issues, an international community, models of change and a commitment to improving the quality of the materials in order to improve the student learning experience. The rest of this page unpacks these themes.

A (very) brief history of OER

Open Education (OE) and OER have their origins in the open source, open knowledge and free sharing movements in the latter part of the twentieth century, although the relationship of those movements to education has been a symbiotic one. Alongside these there were developments in open and distance learning that drew on rapid innovations in technology. In 1994 the term ‘learning object’ was introduced by Wayne Hodgins to describe any packaged digital resource that had defined educational aims and could be shared. This idea has been criticised because it fixes resources to a specific context with no sense of reuse and adaptation. Nevertheless the notion of shared learning resources brought about attempts to define standards for cataloguing and searching for teaching materials online – one of the precursor organisations to the HEA, the Learning and Teaching Support Network, was closely involved in these standards in the UK. A further development grew from the work of one of the leading developers of the early intellectual framework for OER as adaptable and repurposable, David Wiley at Utah State University; he promoted the idea of ‘open content’ (analogously to open sources software) and licencing, which in turn led to the foundation of the Creative Commons in 2001.

These ideas and structures are the basic building blocks of the OER movement today: an understanding of the nature of the teaching resources and their use and repurposing, mechanisms for accurately and consistently describing them in larger collections, and frameworks for dealing with issues around intellectual property rights. Combined with a growing body of pedagogy that draws out the underpinning notions of knowledge, learning and the educational context where resources are always appropriately developed sets the scene for OER.

In 2001 the Massachusetts Institute of Technology (MIT) began its Open Courseware (OCW) initiative, making the vast majority of its teaching materials and courses available freely on-line. This promoted the idea of larger-scale release of teaching resources resulting in the formation of the Open Courseware Consortium (OCWC) to bring together all those engaged in this scale of resource.

In 2002 the term ‘open educational resources’ was adopted by UNESCO, an organisation that has done much to promote OER as driver for educational change across the globe. In 2012 an historic declaration by UNESCO, following a world-wide survey, called on all governments to make all educational materials freely available.

- David Wiley (2006) [Expert Meeting on Open Educational Resources](#) (a pdf paper)
- [MIT OpenCourseWare](#)
- [OpenCourseWare Consortium \(OCWC\)](#)
- [UNESCO: OER](#)
- [UNESCO, Paris declaration 2012](#)
- [OER Africa](#) (a very clear and powerful use-case in terms of international sharing and development)

- [Cape Town declaration on OER](#) (a worldwide initiative from 2007 with thousands of signatories calling for the removal of barriers to educational resources which will lead to 'a global revolution in teaching and learning'.)

In the UK, the idea of OER was rapidly developed by communities of enthusiasts, but was given a considerable boost by HEFCE in 2008 with the funded programme of development through the HEA and JISC (see Part 2 of this review).

Openness

The nature of openness is not always clear-cut; alongside being freely available and intellectual property rights, questions may be asked about the political, social, economic, governance, pedagogic and technological aspects of what openness means in higher education. In a movement that is global in its reach and aims this results in different notions of how openness is understood in specific social contexts. It is for this reason that a simple definition of OER is hard to pin down.

- [Defining OER](#) (a wiki discussion)

A growing body of literature exists on the question of openness and defining OER. One popular attempt to define openness from David Wiley sets out four requirements, the '4R Framework' of reuse, revise, remix and redistribute (Wiley, 2006) – see also his [short video](#) on defining OER. This is an important point, since it says that OER should be more than unchanging learning objects. There is, therefore, in the OER movement a commitment to look at openness beyond just a solution to IPR questions. Tuomi (2006) sets out the case for considering three different aspects of openness: technical, social and the nature of the resource itself.

Technical constraints can be an obvious barrier to openly sharing and reusing resources and have often been at the core of development work. Much work has been done on generating shared standards and platforms and introductory material is available on these questions. The Rapid Innovation strand of the HEA/JISC OER programme (see Part 2 of this review) produced a quick overview of some technical solutions:

- [15 Reusable technical solutions for OER](#) (slideshare presentation)

As many will know, virtual learning environments, such as Blackboard, have been a means of distributing materials to students, but are they able to fulfil all the requirements of the remixing and redistribution of OER?

The following project introduces Moodle as an open source virtual learning environment designed to make accessing resources easy and open:

- [OER Sustainability through Teaching and Research Innovation: Cascading across HEIs \(OSTRICH\)](#)

For a wider understanding of the challenges in reducing technological barriers, do look at the JISC CETIS website ("Supporting innovation and interoperability in educational technology") and in particular a new publication on advanced aspects of OER and technology:

- [JISC CETIS](#)

- [Into the Wild: technology for open educational resources](#) (various free formats can be downloaded)
- [JISC: Open Technologies](#)

If you are interested in the detail of some of these discussions a good place to start is with the Centre for Educational Research and Innovation (CERI) at the Organisation for Economic Co-Operation and Development:

- [OECD: Giving Knowledge for Free: the emergence of open educational resources](#)

Accessibility

Closely related to the question of technological and social openness, accessibility should be a consideration in the making and presentation of any learning and teaching materials. There is no exception for OER. Both the Infokit and JISC TechDis offer valuable advice on ensuring that teaching materials can be used by as many students as possible; they contain links to useful tools.

- [OER Accessibility](#)
- [JISC CETIS: accessibility](#)

Resources

Additionally, 'resources' has multiple interpretations, from material produced and consumed, to what has become known as an 'open fountains of goods' (Tuomi, 2005), where use and adaptation generates further resources with incremental increases in quality without the original being used up. The "revise, remix and redistribute" components of Wiley's definition point to these being essential in OER. Indeed, it has been argued that for OER (as opposed to learning objects) resources that cannot be revised and adapted are not truly OER. The basis of this point being that knowledge is better conceived of as being of the domain of its use, rather than something that can be used "as it stands", as though it were self-contained. Derry (2009) argues for this in the context of ICT more generally. Derry notes that a lazy constructionism fails to address the domain knowledge of real learning, where the domain specifics of teacher and learners come together in a pre-existing situation of information, knowledge and practices that make education possible. Arguably this presents an excellent epistemological basis for the open education movement and an understanding of how open resources should really work. They are domain-specific and only have pedagogic value when adapted to the specific context of the teacher and student. (Other epistemologies are available!) This fits in with the definitional work by David Wiley and others.

To explore this further have a look again at the Wiki-educator site and see how the concepts of openness and the nature of the resource are closely related, but present different challenges for specification of the underlying pedagogy.

- [Defining OER](#) (a wiki discussion)

MOOCs

Massive Open Online Courses are particularly prevalent in the USA, as some of the preceding will have indicated. After the creation of the Open CourseWare Consortium the movement has grown at a tremendous rate. Repositories such as iTunesU also carry significant chunks of courses made freely available. They all serve admirably as promotion tools for their institutions. However, given

the discussions above, a significant question to ask is about their real place in the open education movement. There is no doubt that they are freely available, accessible and contain materials that are cleared for use in any educational or personal context; but to what extent are MOOCs in fact just larger-scale learning objects without the reuse and remix flexibility of OER? The point may well prove to be a significant one as MOOCs are beginning to dominate the arena of what is freely available. On the other hand they do represent alternative business models for HEIs seeking to reach much further than traditional teaching practices allow and usually have other pedagogic grounding (although often with a constructionist bent). In the UK significant investment has been made in MOOC development through the Future learn project, headed up by the Open University. It will be interesting to follow how this work develops over the next few years and the responses and discussion that continue around the pedagogy of OER as a consequence. Check out the following links for MOOCs and more:

- [Coursera](#) – “Take the world’s best courses, online, for free.” Some Problems and Challenges
- [FutureLearn](#) – The development in UK-based MOOCs
- [MIT/edX](#) – “The Future of Online Education”: the consortium website for courses from leading universities in the USA.
- [OpenCourseWare Consortium \(OCWC\)](#)

Given, the conceptual and practical issues highlighted above, it is not surprising to find that the OER movement is not without identified challenges and issues. One challenge is in the scale of the global project envisaged by the UNESCO in 2002. Fred Mulder, UNESCO chair in OER believes it will be some time yet:

- “OER will need 20 to 30 years to reach its ultimate global realization”

Others have argued that without better developed business models and better promotion OER is unlikely to become a mainstream concern (De Langen, 2011). With the entry of more private providers in UK HE there is a need to explore how commercial partnerships could work in the future. Have a look at the following discussion from OER Africa:

- [What does non-commercial mean?](#)

The question is whether the open education movement can stay true to its origins while addressing these issues. What are your thoughts?

Change

More significantly, precisely because OER presents the possibility of transformative change it presents challenges. It would seem to an outside observer that sharing learning and teaching resources in an open and fair way is a “no-brainer”. Yet, as we all know, change and development of innovation in teaching, especially when directed by external policy and the desire to “change the culture” to match imperatives outside of the academy, are poorly taken up and prone to distortion and misuse, even when there is local enthusiasm for innovation, changes in teaching practices and ideas that benefit student learning remain as many of the FDTL projects demonstrated (CHEMS, 2005). Recent work on academic identities and how they are constructed (and are currently threatened) if looked at from a socio-cultural perspective reveals how this apparent resistance comes about; in particular Paul Trowler’s work over the last fifteen years or so, [especially]. (Becher

& Trowler, 2001)] provides many useful pointers to the impact of inappropriate models of change and the need to embed innovations within recognised identities to achieve success.

Fanghanel and Trowler (2008) identified seven 'filters conditioning the way faculty approached conceptualised and related to teaching and learning'; these were:

- the discipline
- the department
- the institution
- pedagogical beliefs
- academic labour; and
- external factors

They conclude:

We have suggested that if enhancement initiatives were underpinned by more sophisticated theories of change allowing for reconstruction, adaptations and agentic responses, more realistic and more useful outcomes would ensue based on contextually relevant reflexive approaches and not on mechanistic moves to jump through quality and regulation hoops. (Fanghanel & Trowler, 2008, 311)

In other words, if changes to culture are to be achieved, as the open education movement intends, then all projects must demonstrate their contextual relevance to the communities they are designed to serve, or they will be regarded as yet another imposed component of an unacknowledged workload. Again, this is mutually supporting with the notion of resources that are flexible and reusable but only make pedagogic sense in a specific domain of knowledge and practice.

In Part 2, many of these ideas are illustrated in application and mediated through real-world negotiation of political and financial constraints. Nevertheless, the abstract ideas covered above, have real implications for the success or failure of OER implementation.

Given the different perspectives on openness, resources – both their nature and their (re)use – and the challenges of finding ways of fully integrating OERs into a diverse higher education context, how do you think they should now be defined?

What sort of approach is best for your own context?

Commonly asked questions

The following questions and answers are designed to provide a quick-fix on some of the core framework for understanding OERs and their use. For more detailed answers please explore the other pages of this toolkit.

What are OERs?

OER stands for Open Educational Resources. There is no single definition of what OER are. There are different ways of conceptualising the underlying models of management, pedagogy and scale involved. These differences are discussed elsewhere in this toolkit. However, central to the idea of OER is openness in the creation, sharing and reuse of learning and teaching materials with barriers of cost or access for the student or end-user reduced as much as possible. They are at the heart of the idea of open education (see 2. below). One useful definition from [Open Commons](#) is:

[Open Educational Resources \(OER\)](#) are teaching and learning materials that are freely available online for anyone to use, whether you are an instructor, student, or self-learner. OER can exist as smaller, stand-alone resources that can be mixed and combined to form larger pieces of content, or as larger course modules or full courses.

This definition locates OER online, but it is arguable that any resource used for teaching and learning that can be freely accessed is an OER. It is usually safe to assume, however, that OER refers to online materials in most contexts. They can range from single file resources (reading lists, image files, video clips), through meaningfully structured collections as single units (sometimes called ‘learning objects’) to textbooks and whole courses. These last two types of resource, open textbooks and whole courses (MOOCs – see below) have their own advocates and models for application. They also include software tools and repositories.

Where can I find OERs and be sure I may use them?

There is an enormous range of sources for OERs within the UK and across the globe. They can be found in specific projects, in institutional offerings and in repositories, which can be specific to a set of disciplines or generalist. Examples of all of these can be found throughout this toolkit, with guidance and notes. There are other general sources listed in the Top 10 section.

Licensing (see question 5, below) provides the most obvious means for checking that teaching materials are available for use; most repositories follow the standards for open licencing of materials. Where licencing is not used, other permissions may be given when the author or owner of materials wishes them to be shared openly.

A quick way to look for materials licensed for use by others and to begin to understand what this means is to use the ‘advanced’ search options in Google (other search engines are available!): a drop down box at the bottom of the Google advanced search page allows you to filter only freely available materials, be they images, videos or other media. But beware, standard, unfiltered searches in search engines will return copyrighted materials. Of course, nothing prevents you from seeking the direct permission of the copyright holder yourself.

What is 'open education'?

Open education (often abbreviated to OE) in higher education is academic practice that stresses a philosophy of sharing freely and openly the ideas, knowledge, methods, platforms, tools, approaches and materials used in learning and teaching. Through shared improvements in resources and techniques, quality can be enhanced to a measurable degree. Open education can also be referred to as 'open educational practice' or simply 'open practice'.

More generally, the open movement covers open source developments in technology, software and standards, open content and knowledge, and it includes open educational practice. The principles underlying all these areas of activity are based on the idea that opening up our work to others' incremental improvements and insights can generate much better materials, technologies and ideas with wider use and application, than in closed environments, where input and use are restricted. Wikipedia is an example of an open 'crowd-sourced' resource created in this way; such resources can also be more specialised in scope and narrower in the collaborative field that chooses to engage with them, for specific tasks. The crucial point is in adaptation and improvement, not just making resources available, because it is here that real value is added as an 'open fountain of goods' (Tuomi, 2013).

The debate around open research and the publication of research outputs (articles, books and presentations) is an on-going one that cannot be covered in detail here, but you can find out about recent developments in non-technical accounts from [The Guardian](#). In addition, have a look at the Research Information Network for the [recommendations of Professor Dame Janet Finch to the government](#) on open research publication.

What are MOOCs?

A MOOC is a Massive Open Online Course. There are a number of different pedagogic and business models for these and they are discussed in the Literature and Resources Review section. The underlying approach is based on the provision of freely available, complete courses or modules online, alongside some limited aspects of educational support, such as automated multiple-choice assessment, chat spaces and interactive on-line activities that multiple users can access. The degree to which teacher support is available varies considerably. In most instances, the aim is to encourage open engagement with the course content and ideas, while often offering students the opportunity to pay for detailed formative and summative feedback, more standard student support, and any potential qualification arising from the study undertaken. The MOOC model has proved popular in the USA and has advocates in the UK as a means of addressing pressures on academic teaching staff, improving engagement and transforming the nature of university education. [Future Learn](#) is a leader in development of MOOCs in the UK. However, the impact of MOOCs may be considerable in the medium to long term, some enthusiasts predicting that MOOCs will finally spell the end for all traditional delivery forms in higher education. The debate on this continues ...

I'm really not sure about copyright and intellectual property and sharing. It's a minefield, isn't it?

This is one of the biggest concerns for those coming to OERs for the first time. However, it need not be as fraught as it appears, and once it is clear precisely what is being shared, what permissions have been given for use and adaptation, and who is the ultimate owner of a resource, most of the other questions that arise will have been answered.

The owner of any resource being shared is the person, group or organisation that created it, either by simply making it, or (through an employment contract) by paying for the time and resources used in its making. In UK higher education the ownership of resources created by an academic will depend on the employment contract the academic works under. In most everyday cases an individual author retains the moral right to be identified as the author, if they wish to assert it. Discussions about intellectual property begin with identification of ownership. However, an owner can give permission to another person to use their resource, which is where licensing comes in.

Licensing is an indication of the kind of permissions given by the owner to others for the use of that resource. Licensing does not affect intellectual property ownership; ownership and the ultimate copyright do not change through licensing or sharing. If they do, or appear to, without consent, then intellectual property fraud and/or plagiarism has occurred. Identifying the intellectual property (ownership) right and ensuring that you do have permission to use a resource is always the first step. A very good place to start with some of the details is '[The Legal Aspects of Open Educational Resources](#)'.

When you are the author of an educational (or, indeed, any online) resource and wish to share your work, an organisation called [Creative Commons](#) (most often abbreviated to CC) has developed an open global legal framework and standards for the open licensing of shared resources and creative output. There are six licenses with varying permissions for the context and the degree to which the owner grants a user the right to adapt or develop the resource. The licences are flexible and easy to generate and apply; they are displayed on the resource and have to be passed on by anyone using the resource, either as it stands or having adapted it in some way (provided permission has been given for this).

This is easy to illustrate with a simplified example. Imagine you start from scratch and record a short video of a demonstration in a laboratory and decide put it together with some accompanying notes you have written. This creates a learning object. You think this learning object is one of the better demonstrations of the technique you have come across, and you want others to see it and use it in their teaching. Let us suppose that your contract of employment states that your university has the rights over your created teaching materials, but nevertheless likes OER licensing for wider dissemination, because of its promotional benefits. Having checked with your dean, you go to the Creative Commons website and generate a licence granting an attribution, non-commercial, non-derivative licence, and add it to the video and notes. This now means anyone else can use the video and notes in their teaching, provided they say who the author and owners are (attribution), do not make financial gain (non-commercial) do not change it (non-derivative). The resource is by you, owned by the university and licensed for non-commercial sharing. You put the video in [JORUM](#), the UK national repository for shared resources for interested teaching academics to make use of, where the license is clearly applied.

Of course, this does not stop anyone from unscrupulously using your resource and removing the licence and your name and then lifting large chunks into their own presentation. However, this is the same kind of theft as plagiarism from articles, the internet or commercially published books. Through licensing, you have stated clearly what you have given permission for; you and your university are within your rights to pursue anyone acting beyond that permission.

Further links and tips on OER and IPR can be found in the top 10 section, but another great place to look for more detail on these issues overall is the [OER IPR Support site](#).

Can I create my own OER from someone else's openly shared materials? How should it be licensed?

Yes, absolutely. The Creative Commons (see above) provides an option for 'Share Alike'. This means that any resources created from something so licenced must be shared under a licence of the same type. You should show the original licence alongside your new one so that anyone seeking the origins of your materials can easily track back to the source materials. But, of course, this is just good practice in creating any learning and teaching or research materials.

Do I need to check the permission to use everything I include in my teaching and want to share?

Yes. Simply put, if you want to share resources and expect to be respected through attribution and acknowledgement, then you should do this for others too. If you include materials produced by someone else in your teaching, you should check that you are free to do so, or have sought direct permission to do so. It comes down to a change in culture where we do not accept plagiarism and unattributed use of materials in a learning and teaching context in the same way we avoid it in research. While this can seem onerous when, for example, images have been copied from the internet in presentations, it is part of good academic practice to give attributions appropriately in any context. A good tool for checking the risk involved in using a resource where you cannot trace the copyright holder is the OER IPR Support [Risk Management Calculator](#).

My institution says it owns my teaching materials. What should I do?

This is entirely possible. Before openly sharing your learning and teaching resources you need to check your institution's policy in this area. Often the difference between your being allowed to share as OER or not will rest on the perceived commercial value of your teaching materials and whether commercially sensitive content is included. Having a clear understanding of the Creative Commons options available is helpful and can be used to make a simple case for OER sharing to your head of department, dean of PVC for Learning and Teaching (or equivalent).

I work in an area where sensitive materials are used for teaching. Can these be shared?

There are other barriers to straightforward sharing teaching materials beyond commercial and contractual concerns. Patient confidentiality, performance permissions, content of a violent or sexual nature, all these raise further questions about ensuring no ethical or legal barriers are breached in sharing teaching materials. However, they are not insurmountable, as they could at first seem. Communities of practitioners have addressed these issues under subject-specific development of their use of OERs. Tools that have been built to address these discipline needs, such as the [MEDEV Risk-kit](#). Other tools can be found in the top 10 section of this kit.

How do OERs affect the quality of learning and teaching?

The benefits of open education to learning and teaching are discussed elsewhere in this toolkit, because they are dependent on the model of delivery used. However, thinking about the quality of OERs themselves raises two separate issues. The first is that an entirely open approach to teaching resources leaves open the possibility that low-grade materials will become available, swamping out anything of value. This might appear a legitimate concern, but it is significantly mitigated by the existence of community-agreed standards and repositories, where accepted levels of quality have developed. As the open education movement is based on communities of practitioners working

together, quality is monitored by that same community. Many repositories include feedback and use commentary options; see, for example [HUMBOX](#) for the humanities. The second issue is about the cumulative benefits of shared and adapted teaching materials and how this is measured. A number of projects have addressed this issue directly, exploring and presenting evidence on the use and cumulative incremental improvement of collaborative teaching materials, see, for example, [Open Learning Network \(OLnet\)](#).

I. What are the benefits of using OERs for my institution?

The benefits to institutions are many. The HEA and JISC have produced a handy guide that lists the following benefits: economies of scale in the production of generic resources, marketing to potential students (the Open University had been a clear exemplar of), effective enrolment and better student choices, increased student satisfaction, better management of intellectual property, and community building. A downloadable version of the [guide for managers](#) is available.

Literature and resources review

HEA/JISC

Between 2009 and 2012 the Higher Education Academy and [JISC](#) were funded by HEFCE (see the [initial announcement](#)) to promote and develop OER awareness, understanding, development and innovation in English higher education. Three phases of a joint programme were funded by HEFCE to a total of around £16 million, each with priorities reflecting the growing community of OER users and developers that the programme inspired and supported. Alongside some commissions and support activities, the vast majority of the money was used to fund projects successfully bidding on open calls to the HE sector in England (with many partners throughout the UK). Each call aimed to address different specific needs in developing the OER movement in the UK. The support services included technical and legal frameworks, with an additional evaluation strand. Several of the issues from Part I of this review are further explored through discussion of the projects and their outputs. The programme has been a major driver of OER engagement in the UK and will shape many aspects of future developments in open education and open practice, since it has transformed the approach to teaching in several institutions and across numerous subject and specialist teams of academics working collaboratively.

Suggestions for how each section might be used are included, but the material is presented so that you can explore it as you feel is appropriate for your needs. The models of change, pedagogic development and technical innovation the programme drew on were quite diverse, to reflect the diverse needs on the sector. No single approach was favoured.

Overview

The best place to start, if you want a quick overview of the programme, is with the main webpages, which give an indication of the scale of the work undertaken:

- [HEA OER Page](#)

The JISC pages are now archived and listed by years:

- [Phase 1 \(pilot\)](#)
- [Phase 2](#)
- [Phase 3](#)

The key learning from all the three phases was captured and analysed by a team at Glasgow Caledonian University, [UK OER Synthesis and Evaluation](#). The team there also generated a common framework and language for collating the data from projects and toolkits for others to use. There is a great deal to explore on that site, covering not just the local evaluation of the OER projects themselves but the impact of the overall programme.

At a higher level, also see the HEFCE OER review, which covers the OER programme and [SCORE](#) (Support Centre for Open Resources in Education) based at the Open University.

The following explores some of the outputs from the projects and work undertaken under roughly the same thematic areas within which they were generated – although some liberties have been taken to the sake of clarity of this guide. The selection is intended to highlight a small sample of the

range of materials available and to provide guidance on where to look for the real experience of others, the issues they faced and the solutions they came up with: there is a great deal of pedagogic innovation and new thinking in OER, even where the technologies are not necessarily brand new. This part of the review builds on the themes in Part I.

In looking at these projects, do be sure to access the reports the project leaders wrote, as they give valuable insights into the real conduct of projects and, in particular, some of the cultural and change issues encountered.

Release, cascade and collections of existing materials and practices

A large share of the funding in the initial pilot and second phases was devoted to projects for the release of existing teaching materials. The aim was encourage a culture of use and reuse. Consequently, many projects sought to find ways of engaging with communities of users, developing platforms for more effective sharing, and developing cultures of open practice tied to specific academic identities.

Use these projects to explore how OER delivery and engagement has generally developed in specific contexts and to find examples of best practice in making OER available to specific communities. Below are links to the main strands of that work together with some selected success stories.

- [OER Release projects](#)
- [OER Cascade projects](#)
- [OER Collections projects](#)
- [Space](#) (a project that released a tool for exploring set design in the performing arts – it’s a lot of fun too!)
- [Pathways to Open Resource Sharing through Convergence in Healthcare Education](#) (PORCHE: a wide-ranging project supporting healthcare education)
- [The Humbox project](#) (a project that developed a humanities repository using approaches to sharing and review recognisable in the users’ culture)

Case studies

Case studies were important throughout the OER programme and in funding their production there were several aims, including the production of reflective accounts of OER creation and use, the sharing of effective practice, and capturing materials not reported elsewhere. Use the case studies as exemplars of the learning that occurs in OER development and how perceptions of OER can change through the use and reuse of shared resources. Included here are links to SCORE projects that were part of the wider UK OER development beyond the HEA/JISC programme, many of which relate to the relationship between OER and academic practice. Again, some selected reports have been highlighted. Case studies are an excellent place to start if you are interested in the development of OERs for your department or institution.

- [HEA OER Case Studies](#)
- [JISC OER case studies](#)
- [Case studies by SCORE Fellows](#)
- [Christine Hocking: Active engagement: a case study of the development and impact of OER on inclusive teaching and academic engagement at the University of Wolverhampton \(a pdf file\)](#)

- [Vivien Rolf and Mark Fowler: How institutional culture can change to adopt open practices \(a pdf file\)](#)
- [Marianne Talbot: OER and public engagement, a case study \(a pdf file\)](#)

Change and embedding projects

Change, in terms of changes in culture, practice and infrastructure, was central to all the OER projects and the programme overall. Some projects were specifically focused on developing change at a level that would transform the practice of whole institutions (honourable mentions to the Universities of Nottingham and Lincoln in this regard, where there are now specific goals in terms of OER engagement for staff). Different change models were used; however, the appropriateness of the change processes in managing OER work in the context of a large institution can make considerable difference to engagement and success – some of these projects worked better than others.

Additionally, some smaller projects from earlier phases were encouraged to reflect on their change processes and the lessons learnt.

Use these projects to explore the different change models used in managing OER. Again, be sure to explore the reports and websites for the projects. Some single examples have been picked out.

Institution-wide projects:

- [A large scale, multi-team project at Lincoln](#) (this project used an HEA ‘Change Academy’ approach)
- [Institutional OER projects](#)
- [Building exchanges for research and learning at Nottingham \(BERLIN\)](#)

Embedding projects:

- [Funded embedding projects](#)
- [University of Leeds, Embedding OER into Student Education Institutionally](#)

Projects for continuing professional development

Another area of work that addressed change concerned approaches to the use of OER in accredited courses and in postgraduate certificates. Here there was a focus on changing attitudes and culture amongst new staff and in conjunction with existing profession development pathways in HEIs, while addressing the need to match staff learning and teaching development to the new UK Professional Standards Framework (UK PSF).

Use these project examples to consider OER and the changing nature of staff learning and teaching development: they provide some good examples of the UK PSF ‘in action’.

- [Open Materials for Accredited Courses \(OMAC\) projects - Phase 2](#) (these were required to be aligned to the UKPSF)
- [Open Materials for Accredited Courses \(OMAC\) projects - Phase 3](#) (these were required to be aligned to the UKPSF)
- [Postgraduate Certificate projects](#) (these are projects supporting PG certificate courses, designed to fit the local contexts)

Students and OER

A significant area of research undertaken by the programme concerned the learner voice in OER. The learners' experiences are a crucial component of OER, as Part I shows. A major review of literature on the learner voice was undertaken by Paul Bacsich, Barry Phillips and Sara Frank Bristow. They found that there is considerable need for further work in this area, but recognised that those involved in OER development often aim to engage students closely. The report is long (around 45,000 words) but is an important starting point in getting to grips with the student perspective on OER:

- Paul Bacsich et al: [Learner Use of Online Educational Resources for Learning \(LUOERL\)](#) (a large Word document, but essential reading)

The following projects are some of those that engaged students in a variety of ways, through surveys or in the creation of OER resources.

Use these projects to consider the different models of possible student engagement in generating new resources, including survey design:

- [Open, transferable technology-enabled educational resources \(OTTER\)](#) (a project, where 71 learners responded to a learner use survey)
- [ChemistryFM](#) (this project has a focus on student-produced videos)
- [OER Art, Design and Media: Practicing Open Education](#)

Technical and innovation projects

One clear theme of OER development in the programme looked at innovations to address technological barriers to openness (see Part I of this review) and develop a better 'digital infrastructure' for sharing and reuse.

- [Rapid Innovation Projects - short development projects](#)
- [Developing Linked Data Infrastructures for OERs](#)
- [Track OER: Tracking Open Educational Resources](#)

Subject-specific and PSRB projects

Many of the projects have a subject-specific or faculty-specific focus, as some of the examples highlighted above show. What was clear from all the projects was an awareness that success and innovation in the use and reuse of resources rested on a cultural fit to academic practice and identities. A barrier to OER engagement is often the false belief that the learning and teaching materials of others cannot be made to fit very tightly focused individual needs. In this context, materials within an identifiable discipline were a core part of initial development of the OER programme. However, discipline themes were prominent throughout the programme and a complete list is available here:

- [UK OER Projects by discipline](#)

In terms of addressing very specific discipline needs, those developed for the life sciences and medicine and dentistry deserve a special mention because they provide examples of a discipline addressing needs that include barriers around patient consent and sensitive materials. Have a look

at what MEDEV and others did in these projects and consider where hidden barriers lie in your own discipline(s).

- [Biology: Open Education Resources](#)
- [MEDEV OER resources and projects](#)

Alongside subject-specific projects the HEA/JISC programme funded work with professional, statutory and regulatory bodies. This was important because it extended the reach of the OER programme to bodies responsible for the professional identity of academic communities, making cultural change more likely. Some excellent subject-specific innovations were produced. A couple of examples are highlighted.

- [OER with PSRBs and Subject Associations](#)
- [Royal College of Veterinary Surgeons Charitable Trust: Aiding the transition from veterinary school to practice](#)
- [Royal Geographical Society: OER](#)

Where would your own teaching most benefit from an open approach? Where are there likely to be challenges?

Which of the projects best fits your own needs and how might the approach taken be best adapted to your context? What barriers would you face and how might they be solved?

Top 10 lists

Useful suggestions for getting the most out of open educational resources

10 places to look for OER

- [DiscoverEd](#) – “Discover the Universe of Open Educational Resources.”
- [Jorum](#) – “Free learning and teaching resources, created and contributed by teaching staff from UK Further and Higher Education Institutions.” The key “go-to” for UK OER.
- [OER Commons](#) – “Find Free-to-Use Teaching and Learning Content from around the World. Organize K-12 Lessons, College Courses, and more.”
- [OER Dynamic Search Engine](#) – a wiki page of OER sites with accompanied search engine (powered by Google Custom Search).
- [Open Learn](#) – “The home of free learning from the Open University.” Free course resources from the learning provider of distance learning in the UK.
- [MIT/edX](#) – “The Future of Online Education”: the consortium website for courses from leading universities in the USA.
- [UNESCO OER Toolkit](#) – links to further useful, annotated resources and repositories.
- [University Learning = OCW+OER = Free custom search engine](#) – a meta-search engine incorporating many different OER repositories (uses Google Custom Search).
- [XPERT](#) – An OER aggregator developed by the University of Nottingham.
- [Coursera](#) – “Take the world’s best courses, online, for free.” A very large collection of MOOCs and MOOC-friendly materials.

10 things to do

- Do develop your own definition of OER and open education. Think through the issues outlined in this toolkit and explore the ways that the various projects included have assumed, used or adapted their own understanding of OER. How appropriate is the analogy with the open source software movement?
- Do look at issues around accessibility in your teaching and the resources you use. Barriers for those with different access needs may be undermining the openness of your OER approach.
- Do discover your institution’s engagement with OER. Has it engaged with the UK OER programme? In England, the chances are it has, since only around half a dozen had no role in any project.
- Do find out what your HEI’s position on sharing teaching materials is. It may well be that the policy is under development, since a number of institutions are in the process of addressing this question.
- Do explore the rich variety of sources for OER materials for you to adapt and use yourself, for example, at Jorum. You don’t have to jump into a MOOC to begin with. Using an openly licensed image and considering how it might be better captioned, or contextualised in an engagement with OER.
- Do make using Creative Commons licensing second nature wherever and whenever possible. Licensing provides the best means of making the intended use of a resource clear and standardised.

- Do look out for the rapidly evolving support and discussions in this field. The current programme of work supported by HEFCE that includes OER and open education is called Changing the Learning Landscape.
- Do research some of the deeper questions around the epistemology of open practices, if you are interested in the connections to pedagogic questions. There are some surprising topics discussed by OER and open education specialists that shed light on and open new dimensions in older questions of education and student learning, as well as teacher expertise.
- Do see what innovations in open technologies work best for your disciplines, by exploring the range of projects this toolkit links to. There is plenty of scope for adapting many of the projects here to your own specific technical needs, be they institution-wide in scale, or for a single module.
- Do promote the benefits of OER to your colleagues: there are plenty of examples for you to showcase and adapt. OER is about on-going conversations, not fixed scripts, so how other engage and respond will determine its future.

10 Twitter feeds to follow

- [@creativecommons](#) – “Creative Commons is a non-profit corporation dedicated to making it easier for people to share and build upon the work of others, consistent with the rules of ©.”
- [@gdinhe](#) – “JISC HEA OER funded project on Global Dimensions in Higher Education. Partnership between Aston, Dundee & Edinburgh Napier Universities.”
- [@jiscsetis](#) – “Providing advice to the UK Higher and Post-16 Education sectors on educational technology and standards.”
- [@JorumTeam](#) – “Jorum is a free online service providing access to teaching and learning resources, for teaching and support staff in UK FE and HE Institutions.”
- [@MERLOTorg](#) – “a free online community of OER resources for faculty & students of higher education from around the world to share learning materials and pedagogy.”
- [@OERCommons](#) – “We tweet news and resources related to Open Educational Resources and edtech. We're busy co-creating the education renaissance.”
- [@opencontent](#) – David Wiley: “BYU faculty trying to educate the world...”
- [@openeducationwk](#) – “Open Education Week is a global, community event that seeks to raise awareness of the benefits of Open Educational Resources and open educational practices.”
- [@openlibhums](#) – “Building a sustainable, open access future for the humanities.”
- [@OpenTapestry](#) – “We've evolved from OER Glue and we're dedicated to making teaching simpler and learning more effective. We help you leverage the web to enhance learning.”

10 essential tools and services

- [FutureLearn](#) – The development in UK-based MOOCs: watch this space for important changes in the UK's on-line delivery of OER and open education.
- [Creative Commons](#) – “Creative Commons helps you share your knowledge and creativity with the world. Creative Commons develops, supports, and stewards legal and technical infrastructure that maximizes digital creativity, sharing, and innovation.”
- [OER Accessibility](#) – Accessibility considerations from the JISC/HEA OER InfoKit. A central plank of making resources truly open.
- [OER Stakeholders and Benefits](#) – An analysis of OER stakeholder and the benefits to different key groups from the JISC/HEA OER InfoKit

- [OER Legal](#) – All the legal considerations for making resources shareable in one place.
- [OER IPR](#) – Information on IPR from the JISC/HEA InfoKit
- [Changing the Learning Landscape](#) – “ ... enabling higher education institutions in England, including colleges of further education providing higher education, to bring about change in their strategic approaches to technology in learning and teaching.” A funded programme of partnership activity from the [Leadership Foundation for HE](#), the [Association for Learning Technology](#), the [HEA](#), [JISC](#) and the [National Union of Students](#).
- [JISC CETIS](#) (Centre for Educational Technology and Interoperability Standards) “JISC CETIS provides advice to UK colleges and universities on the strategic, technical and pedagogic implications of educational technology and standards.”
- [STEM OER Guidance Wiki](#) – A collection of guidance documents on all aspects of Open Educational Resources, part of the pilot phase of the HEA/JISC programme but still useful.
- [OER Infokit Senior Management Guide](#) – On-line advice for senior managers from the JISC/HEA InfoKit.

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