

Project Document Cover Sheet

Project Information			
Project Acronym	BERLiN		
Project Title	Building Exchanges for Research and Learning in Nottingham		
Start Date	April 2009	End Date	April 2010
Lead Institution	The University of Nottingham		
Project Director	Chris Pressler		
Project Manager & contact details	Andy Beggan andy.beggan@nottingham.ac.uk 0115 84 67707		
Partner Institutions			
Project Web URL	http://unow.nottingham.ac.uk/berlin.html		
Programme Name (and number)	JISC/HEA UKOER Programme		
Programme Manager	Heather Williamson		

Document Name			
Document Title	<i>Final Report</i>		
Reporting Period	<i>April 2009 to April 2010</i>		
Author(s) & project role	Andy Beggan - Project Manager, John Horton - Senior Learning Applications Developer, Alison Johnson - Open Learning Technical Support Officer, Steve Stapleton - Open Learning Support Officer		
Date	26/04/2010	Filename	BERLiN Final Report V1.0
URL	<i>if document is posted on project web site</i>		
Access	<input type="checkbox"/> Project and JISC internal		<input checked="" type="radio"/> General dissemination

Document History		
Version	Date	Comments
1.0	26/04/2010	Final Report Submission



JISC



The University of
Nottingham



"Universities are in the business of creating and disseminating knowledge, and historically that's been done through face-to-face contact and the printed word. The internet has changed all that... U-Now gives us the opportunity to provide an alternative source of access to materials for our own students... and take these resources our inspiring educators produce to a much wider audience, here in the UK and internationally."

Professor David Greenaway, Vice Chancellor, The University of Nottingham

Authors – Andy Beggan, Alison Johnson, John Horton, Steve Stapleton.

Date – April 2010

Contents

Project Document Cover Sheet	1
1 Acknowledgements.....	5
2 Executive Summary	5
3 Background.....	6
4 Aims and Objectives	7
4.1 Specific Objectives	7
5 General approach	9
5.1 Engaging the academic community	9
5.2 What's in it for me? Raising awareness of the benefits	10
5.3 Open Learning Conference.....	10
5.4 Open Learning Workshop	11
5.5 Technical Challenges.....	12
5.5.1 Copyright and Metadata.....	12
5.5.2 Packaging Resources – the module framework approach	12
5.5.3 Challenges in allocating credits.....	14
5.5.4 Making resources discoverable.....	14
5.6 Evaluation Plan and Outputs.....	16
<i>Social responsibility</i>	20
<i>Promotional opportunities</i>	20
<i>Cost efficiencies</i>	21
6 Outputs and Results	25
6.1 Issues with copyright.....	25
6.2 Reward and recognition	26
6.3 Student based OER	27
6.4 Leading by Example.....	27
6.5 OER, VLEs and Distance Learning.....	27
6.6 Local Resources	28
6.7 Technical developments	29
6.7.1 Inclusion of a media type filter on U-Now	29
6.7.2 Inclusion of Joint Academic Coding System (JACS) in resource metadata	29
6.7.3 Additions to the U-Now copyright statement.....	30
6.7.4 Enhancements to U-Now RSS feed.....	30
6.7.5 Inclusion of authors' biographical information, time stamping of resources and level of suitable study	30
6.7.6 Possible future improvements.....	31
6.8 Innovations in practices/processes around OER.....	32
6.8.1 Gathered feedback from OER users.....	32
6.8.2 Engaged the wider UK OER community to encourage participation in African Education projects	32
6.8.3 The U-Now workflow	32
General Copyright Information.....	37
6.9 Guidance on OER release and associated issues and processes	41

6.10	Additional OER dissemination channels	42
7	Outcomes and Impact.....	42
7.1	Critical barriers to achieving impact	45
8	Conclusions & Recommendations	46
8.1	Recommendations for research communities.....	46
8.2	Recommendations for teaching communities	47
8.3	Recommendations for JISC/Higher Education Academy	47
9	Implications for the future	48
9.1	Linking resources to prospectus points.....	48
9.2	School based approach	48
9.3	Reward and Recognition.....	49
9.4	Copyright safe search engine	49
10	Appendices.....	49
10.1	Appendix a – The full list of modules published as part of BERLiN	49
10.1.1	Mathematical analysis	49
10.1.2	Immunology basics.....	50
10.1.3	Health promotion	50
10.1.4	Improving the health of the population and evidence based medicine	51
10.1.5	Functional analysis.....	52
10.1.6	Foundations in evidence based practice	52
10.1.7	Understanding global politics	53
10.1.8	Career skills in economics	54
10.1.9	Japan in war and peace	54
10.1.10	Nineteenth and early twentieth century American entertainment culture	55
10.1.11	Film in history/history in film	56
10.1.12	PGCE International	57
10.1.13	Introduction to microeconomics	57
10.1.14	Introduction to macroeconomics	58
10.1.15	Evaluation techniques	58
10.1.16	Introduction to European politics.....	59
10.1.17	Theories and concepts	60
10.1.18	Quantum field theory	61
10.1.19	How and why we do mathematical proofs	62
10.1.20	Consumer law	63
10.1.21	BURN - Biosciences Undergraduate Research at Nottingham	63
10.1.22	Regularity conditions for Banach function algebras.....	64
10.2	Appendix b – Publishing a module framework.....	64
10.3	Appendix c – Evaluation results	64
10.3.1	The BERLiN experience - academic focus group feedback report.....	64
10.3.2	The BERLiN staff survey report	64
10.4	Appendix d - Feedback from OER Africa on U-Now Website.....	64

1 Acknowledgements

The BERLiN project was funded by the HE Academy/JISC UK OER Programme as a part of the institutional strand.

Several people and organisations supported the project and the BERLiN team would like to thank:

- Heather Williamson
- Sharon Waller
- David Kernohan
- Lou McGill
- Jackie Milne
- JISC Legal
- Jorum
- JISC TechDis
- JISC CETIS
- Speakers at the Open Learning Conference
- Institutional project strand partners

2 Executive Summary

BERLiN (Building Exchanges for Research and Learning in Nottingham) was a twelve-month project funded by JISC and the Higher Education Academy (HEA). The central aims being to publish 360 credits of the University of Nottingham's teaching and learning material as Open Educational Resources (OER) and to investigate the issues faced by Higher Education institutions when doing so.

Nottingham has a long standing commitment to OER and has had an open educational repository (U-Now) in use since 2007.

To obtain sufficient teaching material the project team approached academics both individually and at school level through academic boards and teaching and learning committees. The response from the academic community was very favourable with over 600 credits offered for inclusion as part of the project. A number of dissemination activities were undertaken, including holding a national open learning conference, presentation of papers at numerous OER events and running an internal open learning workshop.

A wide range of resources were published, including full modules, podcasts and interactive materials. The major barriers to publication were identified as copyright and intellectual property rights (IPR) issues.

A unique aspect of BERLiN was the connection built with end users of open resources through collaboration with OER Africa. Feedback from OER Africa was integral to enhancements made to the U-Now website.

Evaluation feedback gathered in the form of qualitative focus groups and a quantitative survey informed the implementation of BERLiN and the understanding of key strategic drivers.

Conclusions of the project include the need for increased awareness of how to find, use and attribute web based resources correctly within teaching and learning materials.

Recommendations explore areas such as how teaching and learning communities can influence the sustainability of OER within their institutions through successful use of OER as a marketing tool, the routine use and re-use of OER in module and curriculum design tasks and how institutions benefit from the consideration of end user feedback.

Recommendations also include potential topics for future research in order to help OER practitioners understand whether cost efficiencies, often cited as a central reason for institutional engagement, can in reality be realised.

3 Background

The University of Nottingham has had a consistent commitment to all forms of e-learning since the early 1990s. This commitment has been led by senior management and implemented throughout the whole institution. The establishment of U-Now (one of the UK's first Open Educational Resource repositories) in 2007 by a Pro-Vice-Chancellor was, therefore, very much a continuation of a well-established policy. U-Now's creation should be seen in the context of the JISC funded SHERPA project (on open access institutional repositories, led by Nottingham and begun in 2002) and such contemporaneous developments as YouTube Edu¹, XPERT², OpenCAST³ and the Open Courseware Consortium⁴, in all of which Nottingham has been involved. Internally, Nottingham has been developing the award-winning Xerte⁵ and investigating Second Life. It was against this background of established commitment to open access and senior support for a culture of openness that Nottingham made a bid for funding from JISC and the Higher Education Academy (HEA) to investigate the issues raised in the wider adoption and development of OER. The project was designated BERLiN – Building Exchanges for Research and Learning in Nottingham.

"The great thing about U-Now is that it allows us to interact with different groups internationally in a number of different ways... prospective students can use U-Now to see what teaching and learning is like at the University of Nottingham; partner universities in other countries can use the materials on U-Now to get a sense of what we do and also if they find them useful, to use them in their own teaching. In that sense, U-Now is very consistent with what we say our internationalisation strategy is: 'knowledge without borders' "

Professor Chris Ennew,
Pro-Vice Chancellor for
Internationalisation

¹ <http://www.youtube.com/education?b=400>

² <http://www.nottingham.ac.uk/xpert/>

³ <http://www.opencastproject.org/home>

⁴ <http://www.ocwconsortium.org/>

⁵ <http://www.nottingham.ac.uk/xerte/>

Its central aim was to progress the vision of sustainable open learning by making 360 credits of existing learning resources freely available online by April 2010 and to reinvigorate academic engagement through a programme of work across schools throughout the University.

As part of an institution-wide strategy for engaging with new technologies in innovative and effective ways, there are a number of features of the teaching and learning landscape at Nottingham that lend themselves to helping deliver a sustainable model for OER. In addition, Nottingham's international campuses in China and Malaysia are key strategic drivers for sharing learning resources, fostering use and reuse as well as encouraging mobility.

Before BERLiN began Nottingham had signed a memorandum of understanding with OER Africa⁶ formalising an agreement made by each organisation to support the other in their respective OER goals. As stated on their website OER Africa is "Headquartered in Nairobi, Kenya, under the auspices of the South African Institute for Distance Learning and was established to play a leading role in driving the development and use of OER on the African continent and beyond". This mutually beneficial relationship was seen as a way of bringing together producers and consumers of open learning resources, offering a unique model in the UK at the time.

4 Aims and Objectives

With U-Now already operational for two years when BERLiN began, three of BERLiN's main aims were based around it: review; expansion; and integration with other distribution mechanisms. Further central aims of BERLiN involved the dissemination of experiences (both internally and externally), engagement with the wider UK and international OER community and this final public report, detailing the challenges, benefits and outputs from the project.

The review of U-Now included an examination of existing OER practices, the publication workflow and technical aspects of the U-Now website. Expansion included publishing 360 credits' worth of Nottingham's teaching and learning resources openly. Integration involved ensuring the resources published were available in both the U-Now and JorumOpen repositories.

4.1 Specific Objectives

- Inspire a cultural change within The University of Nottingham, through publishing at least 360 credits of open learning content within the existing institutional repository, U-Now and the JorumOpen repository.
- Review the existing delivery mechanism ensuring open content is presented in a way that supports and encourages reuse

⁶ <http://www.oerafrica.org/>

- Define sustainable processes to ensure continued publication of open content across all faculties and all campuses (including international)
- Investigate institutional attitudes to open learning materials, both as users and contributors
- Explore and document identified barriers to publishing open learning content
- Implement University-wide promotion activities to engage with University community and encourage adoption
- Support individuals and school-based initiatives providing open learning content
- Promote and support a growing community of open content providers
- Widely disseminate outcomes nationally and internationally
- Engage with international OER partners (OER Africa) to explore mechanisms and workflows to enhance the usability and reusability of open content within developing nations
- Communicate lessons learned from international/OER partner institutions to review and refine existing procedures associated with IPR clearance, approval and publishing

5 General approach

5.1 Engaging the academic community

"You are sort of talking about a world or global university aren't you... where you can see there is inefficiency. Let's say there are 10 physiology departments in the country and each of those physiology lecturers will be pretty much doing something similar. So you say instead of doing all that we'll just use that one."

Nottingham has a long-standing commitment to open access, and the release of learning materials openly directly supports the University's internationalisation strategic objective 'knowledge without borders.' Direct links to University strategic drivers are crucial for ongoing sustainable development and support and therefore the BERLiN project team identified key stakeholders within schools to support the strategic drivers and explore ways of engaging the wider academic community. This involved identifying ways of using the existing senior buy-in of the Vice-Chancellor, Pro-Vice-Chancellor for Internationalisation and Director of Teaching and Learning to advocate support of the project throughout the University. It also involved identifying appropriate

communication channels by which to cascade the project goals to and ask for the support of both academic boards and teaching and learning committees within schools.

To this end the Director of Teaching and Learning presented the BERLiN goals at the academic boards at the beginning of the project. This led to a number of requests for the project team to attend teaching and learning committee meetings to address school level management. This enabled wide dissemination of the project goals and in the most successful cases resulted in the teaching and learning committees coordinating a school-wide submission of content to the project. This strategy also allowed individual academics within schools to engage with the project with the full backing of school management, removing any uncertainty over release of material not being officially sanctioned.

One significant success to this approach was the commissioning of an 'open learning' podcast to help promote and encourage wider adoption of OER at Nottingham. This podcast featured the Vice-Chancellor, Pro-Vice-Chancellor for Internationalisation and the Director of Teaching and Learning outlining the institutional drivers for engagement in OER activities. The podcast was released on the University's podcast website and the YouTube Edu site, demonstrating senior level support for the initiative. It was also made available externally to all UK OER Programme projects. The podcast can be viewed at: <http://www.youtube.com/watch?v=E9MBkJr3ba8>

In addition to the top down cascade approach described above, a direct engagement strategy was also implemented. This strategy involved a number of strands and a number of phases. At an early stage of the project the Director of Teaching and Learning

made contact with approximately 100 academics that had been identified⁷ as either having an interest in open learning or e-learning or were seen by the project team as potential ambassadors. The contact included an overview of the project goals and a request for support, both in terms of content submissions and wider dissemination of the project. The initial response was good with a significant number of academics offering content or offering to carry the message to colleagues. As the project progressed, requests to about 50 further academics were made in a second phase.

Approximately 600 credits of teaching and learning resources were offered to the project from these two phases and the school approach.

5.2 What's in it for me? Raising awareness of the benefits

Several dissemination events were held during different stages of the project. These included the kick-off announcement of the project at a University wide e-learning seminar in June 2009, a national Open Learning conference in Nottingham in November 2009 and the delivery of information skills workshops in March and April 2010.

5.3 Open Learning Conference

The national Open Learning Conference⁸ was a significant success of the project. The conference attracted 120 delegates with a wide range of speakers from both the UK and abroad, including OER Africa, The UK National Commission for UNESCO (ISWG), Google and The Open University. Three themes were explored during the day:

1. Open Learning at The University of Nottingham

Professor Christine Ennew, Pro-Vice-Chancellor for Internationalisation and Dr Wyn Morgan, Director of Teaching and Learning highlighted the vision and strategy for making learning materials available openly at The University. Nottingham academics showcased Open Educational Resources they had created and explored the benefits and challenges of doing so.

2. Open Educational Resources Supporting Developing Nations

The Key note speaker Catherine Ngugi, Project Director of OER Africa discussed Open Educational Resources in developing countries and reflected on the nature of

"I've used other people's materials and some stuff you see is terrible and other things you think oh that's a good idea I'll do it like that. You pick and choose, mix it up with your own stuff and I find that an incredibly positive process."

⁷ Identification was established through consultation with the central e-learning support team, Director of Teaching and Learning and list of existing contributors to U-Now.

⁸ Open Learning Conference video playlist:

<http://www.youtube.com/user/NottmUniversity#p/c/1ADDE924D7A740F2>

partnerships for effective collaboration. Neil Butcher, Strategist for OER Africa and Bjoern Hassler of the UK National Commission for UNESCO (ISWG) talked about 'forging meaningful, equal partnerships in OER between the UK and Africa'.

3. The JISC/Higher Education Academy UK OER programme

Presenters from a number of the JISC/HEA supported UK OER programme showcased projects which allowed a cross sectional view of the activities being undertaken across the UK in OER.

5.4 Open Learning Workshop

The aim of the workshop is to provide guidance on how to harness the power of the web, to find, use, attribute, create and publish open educational resources. In essence it is designed to cascade the knowledge gained by the BERLiN team across the University in order to maximise the effectiveness of OER, support cultural change locally through the routine re-purposing of open content and to open up a rich and varied source of content

"I think the important thing is to just hit right at the beginning - PGCHE and things like this where you actually flag up to people that teaching is maybe not what they might themselves have experienced but there is another dimension to it. Showcase some of the good stuff that has been done and get some of the good people who are already doing it just to demonstrate it for 10 or 15 minutes so people have a different perception of teaching."

for use across the institution. It is also designed to help academics understand how to find and re-purpose resources located on the web appropriately and in line with relevant copyright and creative commons licensing.

The workshop was piloted in March and April 2010 and received excellent feedback. The workshop will be made available as a qualifying workshop towards the Postgraduate Certificate in Higher Education (PGCHE), enabling new lecturers to understand the importance of finding and attributing web-based materials correctly and providing a wealth of content to avoid duplication when designing a module. This is one of several examples of a cultural shift in the institution brought about by the project.

A number of OER repositories and image sites are demonstrated and the focus is on where to find items that have been licensed under creative

commons and are therefore available for inclusion in teaching materials. The workshop is one part of the cascade model that will be adopted by the project team during 2010 in order to encourage the routine use and reuse of open resources and to embed the long term sustainability of OER into the fabric of the institution.

5.5 Technical Challenges

5.5.1 Copyright and Metadata

It was expected that difficulties would arise in the area of copyright and metadata. The initial plan was to recruit a specialist to deal with these matters such as clearance of copyright and correct choice of metadata. After two unsuccessful attempts to fill the post, an alternative approach was adopted. The copyright clearance and initial metadata tagging were carried out by a part time specialist and the remaining metadata completed through overtime from the University metadata and cataloguing team.

5.5.2 Packaging Resources – the module framework approach

We expected (correctly) that much of the material offered to us would be electronic versions of paper documents – typically Word, PowerPoint and PDF files. The obvious way to release these as OER, with minimal additional work was to write small linking HTML files. We named the structure that would result from this a “module framework”.

In the longer term, we would like to see academic staff turn their teaching material into module frameworks themselves. We were therefore anxious to find a *simple* XHTML editor – preferably one that was open source – to do this. We investigated those available on the Web and, though we found many candidates, found few that were suitable. We decided in favour of eXe⁹.

In an online OER staff survey (March 2010), respondents listed Powerpoint slides (66%), reading lists (53%) and lecture notes (49%) as the three main types of resources they would *publish* openly, with Powerpoint slides (59%), lecture notes (46%), images (46%) and reading lists (43%) as the main types of resources they wanted to *use* openly.

The benefit of this approach is that it allows a non-technical developer to build web ready learning resources relatively easily. It also allows the incorporation of multiple media types and the production of thematically linked resources.

The first module framework was produced from the Director of Teaching and Learning’s own material¹⁰. This was used as a template for future frameworks and also as an example of senior management engagement during the dissemination events described earlier in section 5.1 of this report.

As it transpired, even eXe was more complex than we needed: the only iDevice (eXe’s name for templates) that we were to use was “Free Text”. Specific items that we liked in eXe were its button bar (for editing text and creating links) and its output options.

⁹ <http://exelearning.org/wiki>

¹⁰ <http://unow.nottingham.ac.uk/resources/resource.aspx?hid=def03de0-2914-6f94-1cd3-f0c9f614accf>

Initially, we thought we could even use its SCORM output option. We discovered, however, that the output from this included no menu; it requires the menu created by Equella¹¹ thus preventing it from being used away from Equella. Such a restriction is not suitable for OER.

One of eXe's other output options, however, is to create a folder that contains all the document files and the linking HTML files. This folder has its own menu (built into the HTML files) and therefore *is* suitable for OER. Equella, on the other hand, will only accept SCORM-compliant files. We therefore used Reload¹² to convert the output from eXe into a SCORM-compliant file suitable for Equella.

To show authors what their material looked like, we built a holding area on our VLE that was visible to them and them only.

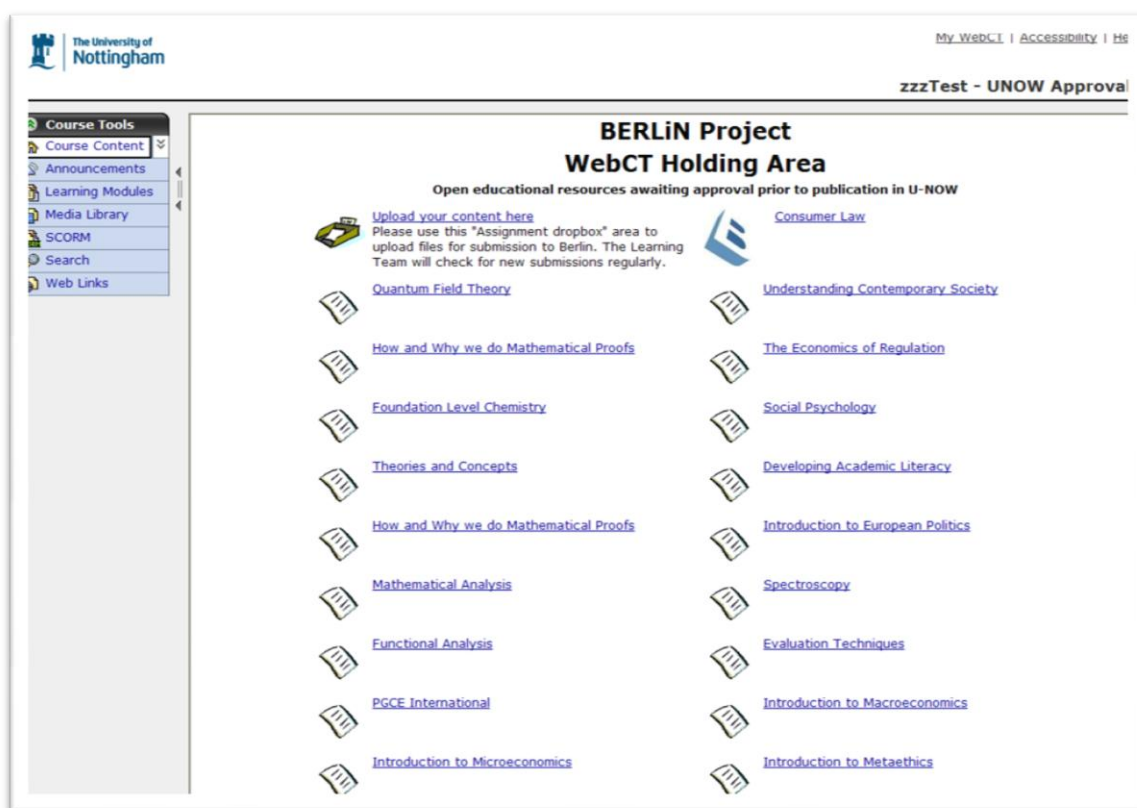


Figure 1: Screen shot of OER holding area within institutional VLE (WebCT)

In general, most of the challenges in creating module frameworks arose from deciding how the lecturer's files should be connected and the time it took to define the best way of presenting the information. Occasional technical problems emerged from failings in eXe. For instance, eXe's native format is a single .ELP file. The multiple HTML linking files already described are simply one form of output: they do not exist until such output is requested. It is therefore not possible to have an internal (working) link as the eXe file is being created. One has to implement such a link before the destination has been created and endure eXe's ensuing wrath. (In spite of this, however, the link does work.)

¹¹ Equella, from The Learning Edge, is the learning content management system used to host U-Now, the institutional OER repository

¹² <http://www.reload.ac.uk/>

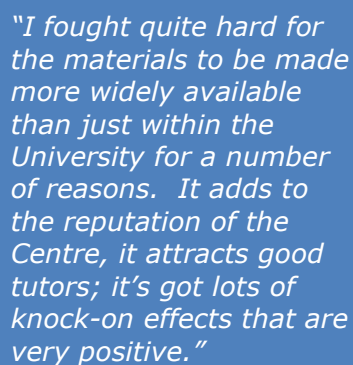
Another problem is that when producing the output folder, eXe gathers together all the files that its own HTML files need. However, if it has links to other HTML files and *these* call files, then eXe is unaware that it needs any of these files and fails to make copies of them. Copies must be supplied to Equella manually.

When reflecting on the usefulness of the final product, module frameworks built in eXe or something similar offer a sensible way forward. They offer a consistent interface to the user. They provide the opportunity to add meaningful descriptions and context to resources. They require little or no technical ability to produce and most importantly allow the inclusion of links to external resources, such as PowerPoint slides, audio files and web pages.

5.5.3 Challenges in allocating credits

As already indicated a major requirement of the project was to release 360 credits worth of teaching and learning resources openly. This created the problem of deciding how to allocate credits to resources. It was decided that the standard method for calculating credits in higher education would be applied.

5.5.4 Making resources discoverable



"I fought quite hard for the materials to be made more widely available than just within the University for a number of reasons. It adds to the reputation of the Centre, it attracts good tutors; it's got lots of knock-on effects that are very positive."

For OER to become reused it must, of course, first be *discovered* by a willing end-user. Scott Berkun (2003)¹³ describes the golden rule of discoverability as "things that most people do, most often, should be prioritized first. Things that some people do, somewhat often, should come second. Things that few people do, infrequently, should come last. That's it." With this in mind, the BERLiN project team sought to increase the discoverability of items on U-Now through a number of differing mechanisms. Firstly, Equella is integrated within the institutional VLE, enabling OER to be discovered during course creation and editing. The U-Now website is also publically

available (and has been since September 2007) and is advertised on the top-level University website under Teaching and Learning¹⁴. In addition, a further programme of work to explore providing links to relevant OER within school webpages and prospectuses remains a target for 2010.

¹³ <http://www.scottberkun.com/essays/26-the-myth-of-discoverability/> (last accessed 15th April 2010)

¹⁴ <http://www.nottingham.ac.uk/studywithus/teachingandlearning/index.aspx>

In terms of external discoverability, Google remains for many the primary route for searching the web. All content on U-Now is 'Google-able'¹⁵ – currently (April 2010) a Google search for 'Open Courseware' returns U-Now third in the list. To support discoverability, U-Now builds on the three most important factors in search engine discoverability: web content; web links; and the HTML code itself. To enhance discoverability by increasing the number of returns yielded by searches, the project team have increased the use of keywords, alt titles in HTML tags, biographical data on web pages and included pedagogic types and JACS. To enhance link density, we have added links to U-Now from OER referral/information sites (e.g. oerwiki¹⁶) as well as maintaining a project Twitter feed. The project however never realised the full benefits of using Twitter as this proved to be a time consuming task, requiring regular commitment of time not readily available during the lifespan of the project. The exploitation of web 2.0 social connectivity tools however remains an objective for the BERLiN project team. The team have decided not to create a Wikipedia page about the project as we felt this would fall under self-advertising, which may result in an adverse response from the Wikipedia user community. A potential future development could also be the reciprocal referral of OER sites within the UKOER programme to enhance discoverability for all involved.

In 2008, The University of Nottingham joined the Open Courseware Consortium (OCWC) and began submitting OER on U-Now to the OCWC via RSS. This has proven to be very successful, resulting in around 30% of the traffic to U-Now in the first quarter of 2010, the largest single referral site. In addition, because Nottingham's OER is now exposed through RSS other OER aggregating sites are able to 'harvest' our RSS feed, further enhancing discoverability with no additional effort from the team at Nottingham (e.g. Discover Ed¹⁷, OER Commons¹⁸ and OER Recommender¹⁹). This process is now used for submission to JorumOpen²⁰. MERLOT²¹, requiring submission via a CSV file, will be explored as an alternative referral site during the summer of 2010.

Nottingham has also been exploring OER discoverability through the open source e-learning development tool, Xerte Online Toolkits and the XPERT²² project. XPERT is a JISC-funded rapid innovation project exploring the potential for delivering and supporting a distributed repository of e-learning resources created and seamlessly published through Xerte Online Toolkits. The aim of XPERT is to progress the vision of a distributed architecture of e-learning resources for sharing and re-use. Creators of learning resources at Nottingham and beyond can contribute to XPERT via RSS feeds created seamlessly through local installations of Xerte Online Toolkits. XPERT has been fully integrated into Xerte Online Toolkits, enabling users to publish open content easily, but also, where permissions allow, to re-purpose interactive multimedia content easily too.

¹⁵ A search for 'Vitamin Village' will return [U-NOW: Resource -Vitamin village](#)

¹⁶ <http://oerwiki.iiep-unesco.org/index.php?title=Repositories>

¹⁷ <http://discovered.creativecommons.org/search/>

¹⁸ <http://www.oercommons.org/>

¹⁹ <http://www.oerrecommender.org/>

²⁰ <http://www.jorum.ac.uk/>

²¹ <http://www.merlot.org/merlot/index.htm>

²² <http://www.nottingham.ac.uk/xpert/>

The benefits and challenges in using RSS for OER submission and aggregation at Nottingham have been documented under the XPERT project²³. However, for U-Now the main benefits have been: easy creation; easy distribution; automatic updates (although not currently possible for JorumOpen); and the potential to filter and target resources. A programme of work to exploit RSS feed aggregation of subject/school based feeds into school websites/prospectuses will be initiated summer 2010 with subject and school based RSS feeds made available as part of the project to enable the use of RSS as the method of deposit with JorumOpen.

"One reason why our School has taken the decision that we do want the material to be on webpages generally accessible is so that potential UCAS students can see the sort of things that we do."

Finally, visibility and awareness of the OER project remains crucial. Throughout the BERLiN project, both national and international dissemination activities have been explored, including the national open learning conference at Nottingham, articles in institutional publications²⁴, as well as exploiting new media tools such as podcasts and YouTube Edu²⁵. The result has seen a steady increase in traffic to the U-Now site with 11,280 unique visitors Q1 2010.

5.6 Evaluation Plan and Outputs

A key aim of the evaluation plan for the BERLiN Project was to review the existing procedures and practices established over the previous two years through U-Now and inform best practice in future. Evaluation was undertaken at all stages of the project and directly informed technical developments. In consultation with the OER synthesis and evaluation team and drawing topic areas and questions from the synthesis framework²⁶, evaluation of the BERLiN project was organised through a number of mutually supportive activities. Key areas explored included: institutional attitudes to open learning, including barriers and opportunities for staff engagement; U-Now review (usability and metadata submission); IPR and copyright standards; and project impact.

To meet the objectives listed above, evaluation activities were organised to assist the BERLiN project team:

1. External end-user feedback (OER Africa)
2. U-Now technical standards review
3. Internal staff focus group feedback
4. End of project on-line staff survey
5. Downloads and web stats

²³ <http://webapps.nottingham.ac.uk/elgg/xpert/files/-1/803/xpert+metadata+final.pdf>

²⁴ http://www.nottingham.ac.uk/courses-office/thehub/The_Hub_Autumn09.pdf

²⁵ http://www.youtube.com/watch?v=E9MBkjr3ba8&feature=player_embedded

²⁶ <http://www.caledonianacademy.net/spaces/oer/index.php?n=Main.GenericFramework>

External end-user feedback is clearly vital for ensuring the usability of any OER material. If potential end-users cannot find, edit or reuse the materials available, then the whole process becomes futile. To that end, Nottingham worked with OER Africa to explore how OER sites such as U-Now can be improved for an external audience. Their feedback was helpful and illuminating (OER Africa Team, 2009)²⁷. Nine members of the OER Africa team completed a usability evaluation of U-Now and the resources available. The categories that were evaluated were:

- First Impressions of the Site
- Clarity of purpose
- Audience
- Usability
- Accessibility
- Clarity of Information
- Amount of Information
- Searching/Browsing Resources
- Range of Materials Available
- Types of Materials Available
- Accessing the Materials
- Formats

"I am possibly quite naïve or altruistic because I have got this feeling that there's people out there who don't have access to education and that they've got access to the internet. Maybe they could use these courses or sessions or the odd video or whatever to just top up what they cannot manage to get from their own poor education system."

Importantly this evaluation was conducted by potential end-users to give insight into the fitness for purpose of U-Now and the resources available. The evaluation highlighted some areas for improvement and also a number of positive elements, in particular that the site is 'clean', 'uncluttered', 'fresh', and 'clear' [design], with the content logically grouped and organised.

The review also included a series of general recommendations. In summary, OER sites need to address multiple audiences simultaneously: students and teaching staff; international, national and regional; low and high bandwidths; and so on. This can create challenges in how best to present the material on a single site. However, given that many OER materials are available from multiple repositories such as OER Commons, Open Courseware Consortium and OpenJorum, it should

be possible for the same content to be aimed at multiple audiences simultaneously, assuming each OER has a different target audience. The use of RSS is one such mechanism, a solution that has already enabled U-Now to publish OER content through a

²⁷ <http://tinyurl.com/oerafrica-u-now-feedback09>

variety of OER search engines with no additional effort (Open Courseware Consortium²⁸, XPERT²⁹, Discover Ed³⁰, OER Commons³¹ and OER Recommender³²).

Each OER item should display the intended level of use and target audience, a brief description, the licence, file size, technical information and publisher, and the downloading instructions. U-Now was rated well here, but level of use is something we needed to add. We also added author biographical information to build on and enhance the reputations of contributors.

OER sites should include several different approaches to navigation including browsing, filtering (under theme, subject, level and type of material), tag clouds and free text searching.

OER materials should encourage use and repurpose: expect and encourage end-users to edit, adapt and recreate. Some OER sites assume a producer-centric model of publishing: materials are provided with little opportunity for end-users to influence what becomes available. To address this failing at Nottingham, we continue to explore end-user collaborations through OER Africa as well as the potential to capture the results from failed searches within our OER tools (XPERT³³) to provide a better understanding of what end-users are looking for and presenting this visually (perhaps in a tag cloud) as a 'wanted' list—however, early tests revealed that some user searches contained terms that may make an automated publication process undesirable. In addition, the need for re-purpose is vital for end-user localisation. However, simply because teaching staff are welcome to re-purpose OER materials under an appropriate Creative Commons licence, are they able to in reality? Technological barriers can be a very real issue to open publishing and additional resources dedicated to content conversion may be required. Nevertheless, the cost benefits of re-use and re-purpose of OER remain, especially where mechanisms to support re-purpose exist. Nottingham's open source e-learning development tool Xerte Online Toolkits is already empowering non-technical teaching staff worldwide to create highly interactive and accessible multimedia learning materials³⁴.

Throughout the BERLiN project a **technical review of standards** was consistently reviewed and updated as required. Pre-existing developments catalogued OER materials within U-Now using UKLOM metadata through a workflow of content submission, preparation, approval, metadata submission and release. Metadata submission required input from content authors, learning technologists and cataloguing teams. This process ensures accurate and rich metadata is associated with every item released on U-Now.

²⁸ <http://www.ocwconsortium.org/>

²⁹ <http://xpert.nottingham.ac.uk/>

³⁰ <http://discovered.creativecommons.org/search/>

³¹ <http://www.oercommons.org/>

³² <http://www.oerrecommender.org/>

³³ <http://www.nottingham.ac.uk/xpert/>

³⁴ <http://www.nottingham.ac.uk/xerte>

In the summer of 2009, a series of **internal academic focus groups** was organized to investigate how the publication and re-use of open learning materials is perceived by Nottingham staff. The focus groups were separated into five group interviews with around 20 members of staff, at all academic levels and representing all faculties at the University.

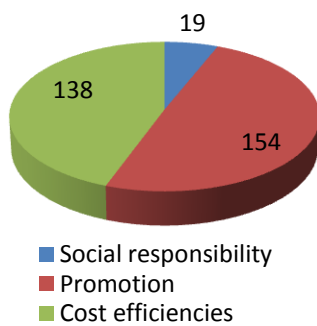


Figure 2: Distribution of focus group feedback

Grouping the comments broadly into one of the three strategic drivers at Nottingham (social responsibility, promotion and cost efficiencies) the focus group feedback reveals that promotional opportunities were discussed most frequently within the groups, followed by cost efficiencies, with only a few direct references to social responsibility. At this point, it appears that staff at Nottingham most readily recognize the ability of OER to provide a marketing vehicle for the University.

Next the focus group comments were grouped under topics within each of the three main themes. From the feedback provided, the three main topics discussed were the potential *development costs* for OER, (possible negative or neutral) impact on *academic promotion* and the potential for providing a *University showcase*. *IPR* was discussed as an issue in all three themes, but not as frequently as expected. In publishing OER materials at Nottingham, IPR is proving to be one of the more challenging areas to navigate. Encouragingly, the potential to *change current practice* was seen as significant for both cost effectiveness and promotional opportunities. However, *academic concerns* around publishing OER within both promotion and cost efficiencies themes remain relevant for many.



Figure 3: Distribution of focus group feedback across topics discussed

Exploring the feedback further under each of the themes, grouping comments as positive, negative or neutral towards open learning, U-Now, or its aims, the following results are obtained.

Social responsibility

Social responsibility in this context can be described as providing high quality resources for students worldwide who would not normally be able to access a tertiary level education—sharing good practice, knowledge and supporting our international strategy of ‘knowledge without borders.’ Under the theme of social responsibility, some comments showed scepticism about the reasons behind OER and

its potential to benefit developing nations, whereas the potential to support a University showcase or positively impact developing nations was more neutral in nature, albeit hopeful in part “*It would be nice to see something going into developing scholarships or whatever. That would be a lot more obvious*”.

One of the key aims of our partnership with OER Africa is to explore opportunities to provide content for named projects across the African continent. To that end, discussions held between UKOER partners, UK Commission for UNESCO and OER Africa in Nottingham in November 2009 sought to establish mechanisms for circulating requests for OER content from HE in Africa more quickly among participating UKOER partners. It is hoped this mechanism will help establish further partnerships across Africa and provide valuable feedback on the usefulness of our OER content. Ultimately, we hope this end-user feedback will not only help improve the quality of our OER provisions but support more effective reuse locally.

Promotional opportunities

Under the theme of promotion, the potential to provide a University showcase was more positively viewed and seen as the major benefit in this theme. However, concerns were raised regarding the potential to provide a route for academic promotion within a

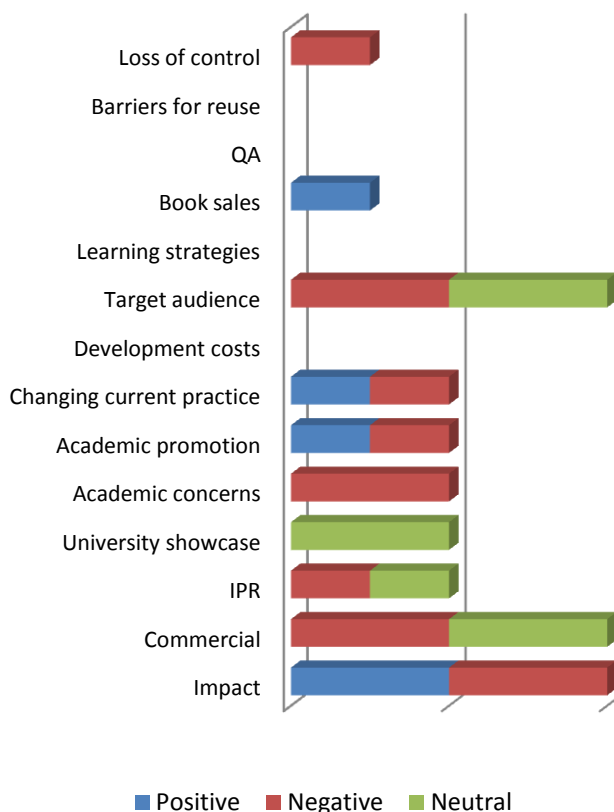


Figure 4: Distribution of focus group feedback under the theme of social responsibility

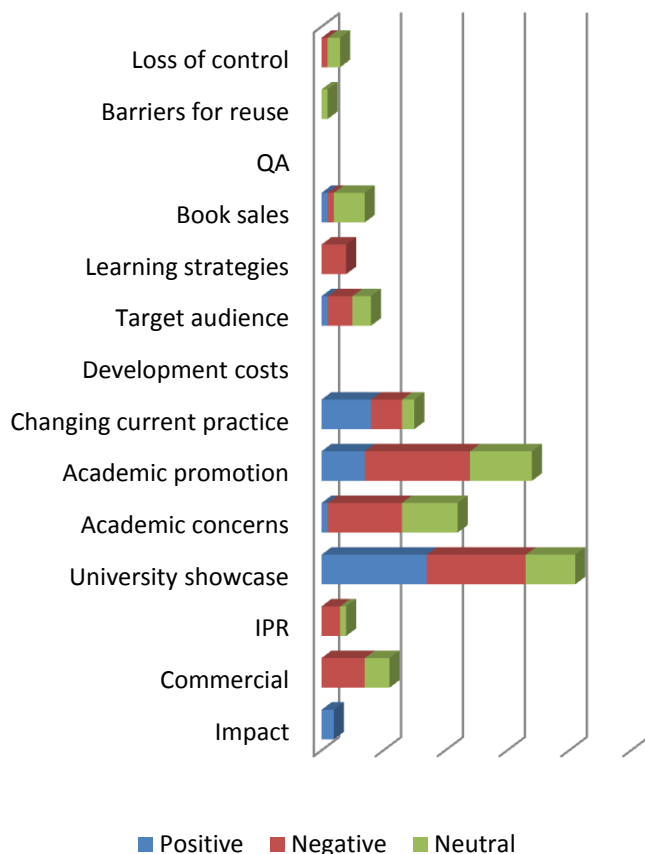


Figure 5: Distribution of focus group feedback under the theme of promotion

research-led institution, with the majority of the comments either negative or neutral. Interestingly, the comments received appear to suggest that there was a largely neutral perception of the potential impact on book sales because of the different natures of the content provided.

At an institutional level, HEI OER sites enable prospective students to explore a taught curriculum when selecting a course. Those in the Nottingham focus groups acknowledged the promotional potential for U-Now as a 'shop window', or an opportunity for the University to demonstrate teaching and learning excellence and encourage potential students to make informed decisions about the type of course or institution that interests them, "One reason why our School has taken the decision that we do want the

material to be on webpages generally accessible is so that potential UCAS students can see the sort of things that we do." However, concerns were raised over whether a single institutional OER site was the best place to realise these benefits, "if I wanted to find some lecture notes on a particular subject then I would look at the School page of whatever university it was." U-Now currently publishes an RSS feed for all content. Creating subject-specific RSS feeds for publication on school websites should encourage central deposit whilst offering widespread distribution opportunities. This will be done in the summer of 2010.

Cost efficiencies

Under the theme of cost efficiencies there was a mixed response to the development costs required to publish OER, with many questioning the support and effort required. Some comments recognized new tools (such as Xerte Online Toolkits) which supports the easy creation of online materials, whilst others discussed the benefits to them in repurposing high quality materials created by others, "but in terms of teaching I'm sure we all teach things that we know less about and that might be the areas that we could gain from." However concerns were raised over the potential to be associated with inaccurate or out-of-date information, "the stuff you present in lectures tends to be

ahead of what's in the public domain. You like to tell people what you've found out last week and then the week after you might find that it was wrong and if it's in the system, then that's a danger". As a result, 'time-stamping' all OER materials became important for the U-Now publication process.

Encouragingly, the ability to change current practice was viewed more positively, "when a colleague put his lectures up he discovered he had more students attending lectures and the way they listened completely changed. They didn't need to take notes in the lecture because when you are taking notes you don't listen. So they were actually listening in a very different way to his lecture." With others embracing the new technologies, despite early hesitation "I always thought recording lectures would make me terribly self-conscious but I did it once just as an experiment and after 90 seconds I had forgotten it was being recorded. As long as you have a portable microphone because anything that makes you be static is bad because that will keep interfering with your contact with the people in the room. As long as you can still interact with them and wander about then I found it fine." Whereas, loss of control, impact on commercial opportunities, encouraging poor learning strategies and possible IPR infringement continue to cause considerable anxiety for some staff.

Ultimately, the results of the focus group suggest that OER publication continues to be a careful balancing act to ensure the needs of both the content providers and end-users are met.

The results obtained from the focus groups proved illuminating and a follow-up end-of-project **online staff survey**, to explore the themes raised in the focus groups, was undertaken in March 2010. The survey was open for two weeks and advertised within the institutional VLE as well as direct email to teaching and learning groups around the University. By the end of the two-week window, the online survey had been completed by 98 members of staff (just over 6 % of the academic staff at Nottingham).

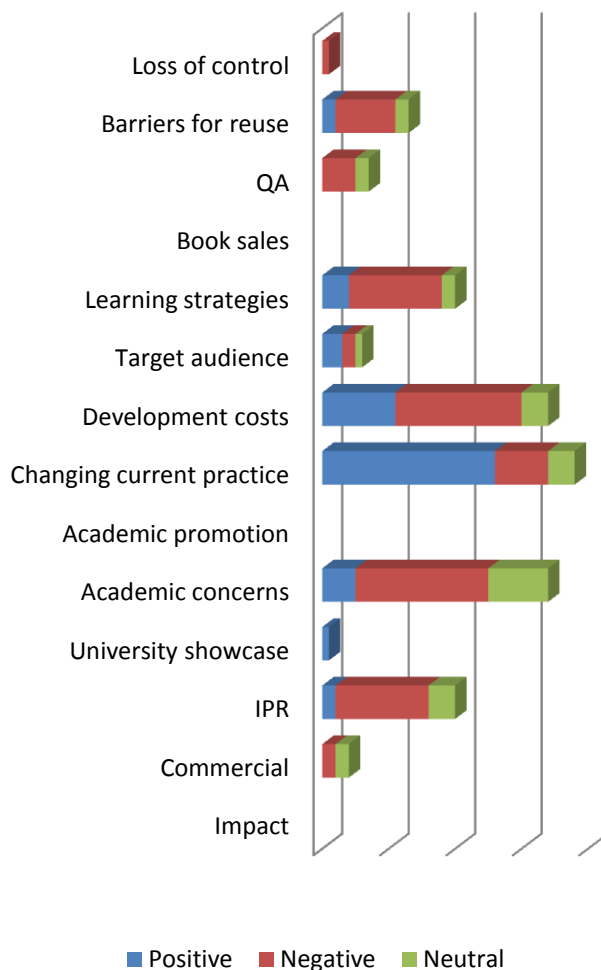


Figure 6: Distribution of focus group feedback under the theme of cost efficiencies

By the end of the BERLiN project (March 2010), there has been encouraging movement towards publishing and using OER content within the University, with an increased number of respondents willing to positively engage with OER; whilst there has also been a significant reduction in numbers unaware or unwilling to engage with the publication or reuse of OER, albeit replaced with some uncertainty. Clearly there is more work to do to move this trend further towards widespread positive engagement.

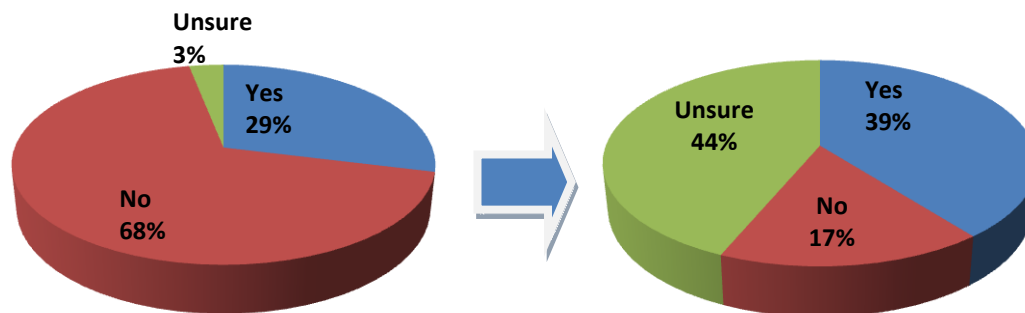


Figure 7: I **have submitted** teaching and learning resources for publication as OER

Figure 8: I **will submit** teaching and learning resources for publication as OER

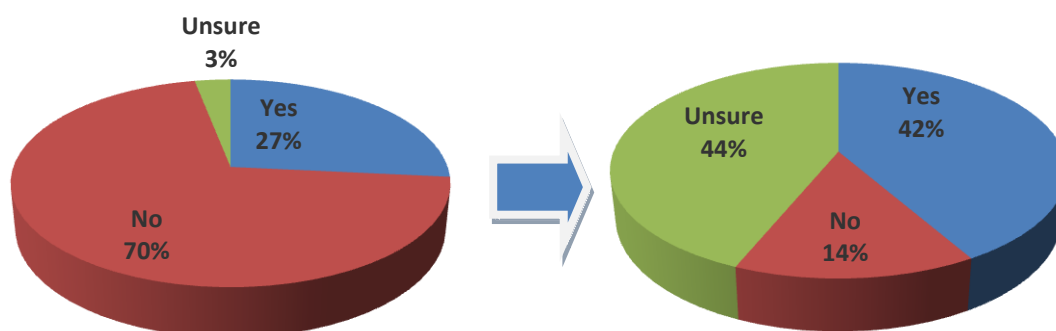


Figure 9: I **have used** OER from other academics in my teaching

Figure 10: I **will use** OER from other academics in my teaching

Within the survey results, 67% of respondents saw OER as a fruitful way of building partnerships with other colleagues and institutions worldwide, with enhancing the University's reputation and attracting better students being cited as a potential benefit by 57% of the respondents. However, 51% were neutral towards OER attracting better academic staff, with a further 54% believing publishing OER would have no impact on their personal promotion prospects.

Time constraints (65%), fear over copyright infringement (58%) and ownership and legal barriers (43%) were cited as the three main barriers for *publishing* OER; whilst awareness of OER repositories (55%), relevancy of materials (40%) and time constraints (26%) were the three main barriers cited against *using* OER.

Respondents listed Powerpoint slides (66%), reading lists (53%) and lecture notes

(49%) as the three main types of resources they would *publish* openly, with Powerpoint slides (59%), lecture notes (46%), images (46%) and reading lists (43%) as the main types of resources they wanted to *use* openly.

Enhancing University reputation (73%), sharing best practice (72%), and supporting students without formal access to HE (66%) were the top three reasons cited for *publishing* OER; whilst respondents cited enhancing users' knowledge of a subject (51%), reducing development costs/time (47%) and sharing best practice (42%) as the three main benefits of *using* OER.

Respondents felt that OER would have no impact on student attendance of lectures (54% disagreeing or strongly disagreeing and 28% neutral), and 48% saw OER as a useful way of improving teaching standards across the University, with a further 55% believing that their students benefit from exposure to the wide range of approaches available through OER.

Finally, OER was cited as a useful means of developing new courses by 50% of the respondents (with only 8% disagreeing), however the ability to repurpose and personalise the OER content for local use was important to 68% of the respondents.

"When a colleague put his lectures up he discovered he had more students attending lectures and the way they listened completely changed. They didn't need to take notes in the lecture because when you are taking notes you don't listen. So they were actually listening in a very different way to his lecture."

So what impact on U-Now has the BERLiN project had? As mandated by the call, 360 credits of OER content have now been made available on U-Now, JorumOpen and a number of alternative OER sites. The profile of OER and U-Now at Nottingham has been enhanced and resulted in top-level endorsement (VC podcast) and international partnerships (OER Africa) providing opportunities for end-user engagement and collaboration. The most popular item on U-Now remains the Anatomist Cookbook³⁵ with over 2000 individual downloads (not including direct web hits). The popularity of the site continues to grow, and U-Now **web stats** reveal 11,280 unique visitors in Q1 2010, a 67% increase over the same period in 2009 (pre BERLiN project). Currently, U-Now receives nearly 100 visitors a day on average, up 54% from 2009. Overall, U-Now received visitors from 147 different countries during Q1 2010, with nearly 27% coming from the USA, around 20% from the UK and over 11% from China. By far, the Open Courseware Consortium remains the largest referral site for U-Now in Q1 2010, resulting in nearly 30% of the traffic to the site. Overall, from May 2009 to April 2010 (the duration of the BERLiN project), U-Now received 27,662 unique visitors.


³⁵ <http://unow.nottingham.ac.uk/resources/resource.aspx?hid=d5e53f62-e650-927f-8ffe-f2f6f72e1381>

6 Outputs and Results

As already stated 360 credits of Nottingham's teaching and learning resources were published as part of the project. A full list of the resources and links to them is available in appendix a, with a summary of the key themes uncovered during publication available below.

6.1 Issues with copyright

All too many lecturers were uncertain of the provenance of many of the images used within their resources. Without an assurance that these had not been taken from the Web or scanned from a book, we were unwilling to propagate a possible infringement of copyright. JISC Legal and our own internal copyright adviser had convinced us of the complexity of copyright law.



"The thing I'd be wary of is the copyright issues because I'm sure we've all got things that could be copyright issues"

Misconceptions of copyright law among teaching staff did nothing to reassure the project team. The most notable of these was that quoting the source of an item, which may prevent accusations of plagiarism also provides a licence for re-use – there is confusion between plagiarism and copyright infringement.

Where there was any risk of copyright infringement (where the University didn't have permission to publish images publically on the web for example), the project team removed the suspect images. Often this did relatively little damage to the pedagogic integrity of the material. In some cases, of course, the approach damaged the resources too much and the decision to release as OER had to be abandoned. Copyright issues are discussed in more detail in section 6.8.3 but some interesting example resources were identified during copyright investigations:

- (1) The School of Veterinary Medicine and Science is licensed by a particular publisher to use diagrams from one of that publisher's books. Veterinary lecturers supplied us with notes from which these licensed diagrams had been removed but replaced by references (e.g. Figure. 5.3, page 227, Smith and Jones) – to be published on U-Now and JorumOpen during the summer of 2010.
- (2) Immunology – The author of this resource was able to obtain permission from the publishers Wiley-Blackwell to include a number of images, tables and figures in the resource. This was one of only a few cases of cooperation by a publisher experienced throughout the project. The images were made available with the licence specification that anyone wishing to re-use the images in further work and publications could only do so after gaining express permission from Wiley-Blackwell³⁶.

³⁶ <http://unow.nottingham.ac.uk/resources/resource.aspx?hid=ca941af6-c782-7c46-1bee-1d141fad2b1d>

6.2 Reward and recognition

On YouTube, Nottingham may be well known for Prof. Poliakoff's Periodic Table of Videos³⁷ and other items on chemistry, but BERLiN and U-Now have brought to light a competitor in maths. Dr Joel Feinstein has been recording his lectures for some years. He was able to supply the recordings and much accompanying material for publication

"I don't think it would make any difference to our reputation as teachers. The whole culture is research. All the promotions and everything are through research."

on U-Now. Notably, Dr Feinstein has not only the notes that he uses in his lectures, but also the notes in the form they take at the *end* of each lecture *i.e.* with his hand annotations made during the lecture. A framework for such a module occupies well over 1 GB³⁸.

Dr Feinstein was awarded a Lord Dearing Award in 2009, an internal Nottingham award established in 1999 for excellence in teaching and learning. However, it is a concern for OER development and release generally that there are relatively few ways

of rewarding excellence in teaching when contrasted with the numerous rewards available to excellent researchers. Including biographical data within published OER materials could help enhance reputations of content providers; even so, concerns were raised that contributing academics could well gain an international teaching reputation yet still fall behind in their research field – a situation that is not unique to Nottingham. Linking institutional funding to open learning publication may help encourage widespread adoption across HE.

"A colleague in our school has done all of his lectures as vodcasts. He's done some podcasts and some vodcasts which were very popular with the students and weirdly it meant that they actually attended the lectures better."

An anecdote connected to the material provided by Dr Feinstein is enlightening. Older members of the School for Mathematical Sciences recalled an edict that teaching material not be made available over the Web. Investigation by the Director of Teaching and Learning revealed such an instruction had once been given ... ten years earlier! In a large, constantly changing university such infelicities are bound to happen occasionally. It is important that initiatives such as U-Now have high level support to overcome such difficulties without waste of effort.

As previously noted within the online staff survey results, 67% of respondents also saw OER as a beneficial way of building fruitful partnerships with other colleagues and institutions worldwide, with enhancing the University's reputation and attracting better students. In addition, the YouTube project 'The Periodic Table of Videos' demonstrates

³⁷ <http://www.youtube.com/user/periodicvideos>

³⁸ <http://unow.nottingham.ac.uk/resources/resource.aspx?hid=c6c045f6-286d-6b9f-b96c-36a998632fc3>

that personal reward can be a significant motivational factor for staff, especially where mechanisms for feedback from end-users exist. For example, Professor Martin Poliakoff cites that just one video on the Periodic Table of Videos has been seen by more people than he has ever lectured to in his entire academic career. The positive feedback and connections with schoolchildren around the world is highly rewarding for the team involved.

6.3 Student based OER

Virtually all of the material we were offered came from teaching staff; of this, much was introductory. The Senior Tutor of the School of Biosciences brought to our attention that school's practice of publishing the best undergraduate projects from each year. He was familiar with matters such as copyright and consent and allowed us to use these projects as BERLiN material. The inclusion of final year student content is an encouraging and exciting development, providing powerful and rewarding promotional opportunities for students and the institution alike.

Biosciences Undergraduate Research at Nottingham (BURN) can be viewed at: <http://unow.nottingham.ac.uk/resources/resource.aspx?hid=f543d342-099d-be89-9fca-5a25f4b6bce2>

6.4 Leading by Example

As already noted, Nottingham had instituted U-Now two years before BERLiN began. This reflects the University's commitment to open learning. It is worth noting that the Director of Teaching and Learning was the first to offer a module to BERLiN and his module framework can be viewed at: <http://unow.nottingham.ac.uk/resources/resource.aspx?hid=def03de0-2914-6f94-1cd3-f0c9f614accf>

6.5 OER, VLEs and Distance Learning

Several frameworks allowed us to examine the relationship between OER, VLEs and distance learning and to discuss our thoughts with academics. We were firm in concluding that there are certain strong differences between OER and distance learning. First, OER is available free of charge – there are no fees to be paid. Secondly, using OER offers no contact with a university's teaching staff. Thirdly, there is no summative assessment and hence no qualification.

Some modules that we were offered were already firmly embedded in our VLE (*e.g.* PGCEi³⁹). This had the advantage of letting us see what we were being offered would look like in an electronic format. Perversely, though, it did have a disadvantage. Much of the material had to be copied from the VLE and then pasted into eXe – no intermediary

³⁹ <http://unow.nottingham.ac.uk/resources/resource.aspx?hid=687ad64d-3c4f-86b1-8a21-663f2309a843>

document existed. In principle, it may be attractive to let the rest of the world into some parts of our VLE without exposing the parts that are confidential (e.g. that contains marked work or licensed material). This flexibility is currently not available within the institutional VLE (WebCT). However, this does raise challenges. Currently, OER released by Nottingham is made available within U-Now as a static snapshot. Content is approved and released as an example of the material at time of publishing, confident that the material will not change without prior approval. Links to dynamic live content by-pass any release process, which is attractive in terms of minimising effort but exposes risks associated with inadvertent copyright infringement. In time, such mechanisms may well become the norm, but confidence in the production and release process needs building.

The Vet School's example was particularly interesting since the contents list is actually the student's week-by-week timetable. This is an interesting alternative approach.

6.6 Local Resources

Nottingham has a considerable collection of manuscripts. This has recently been augmented by the purchase of the Wollaton manuscripts. Items from this are already being included in undergraduate courses including a copy of the *confessio amantis*. Permission to include such material in the OER version of these courses was obtained from the Manuscripts and Special Collections department with suitable copyright notices and acknowledgements. Holding such manuscripts is often done in conjunction with funding from public bodies and use of the material in OER is therefore another example of Nottingham's social responsibility.

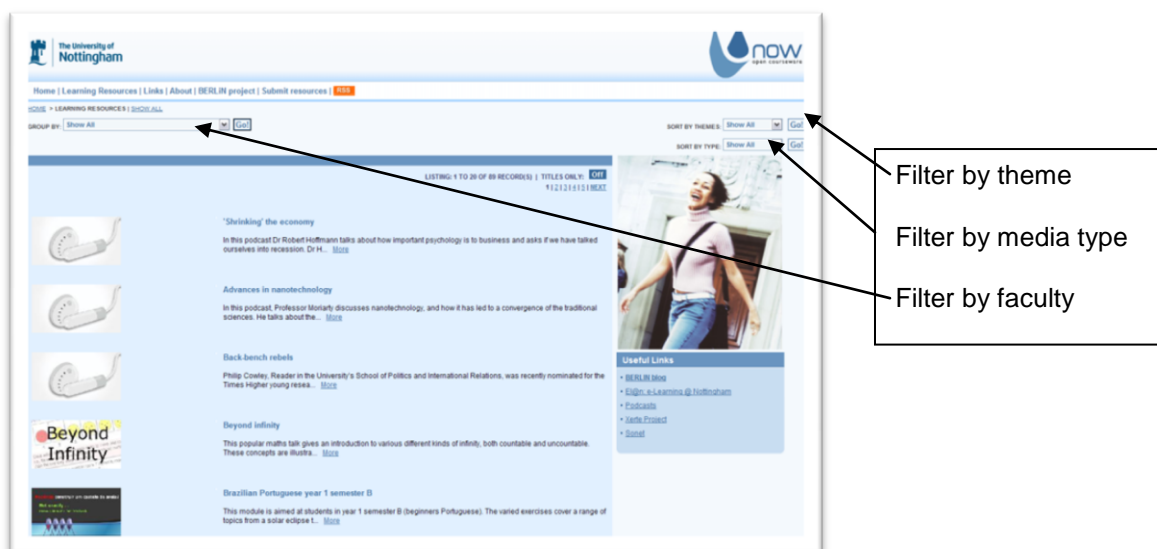
6.7 Technical developments

A number of technical developments were carried out to enhance the U-Now website and to aid discoverability and validity of resources:

6.7.1 Inclusion of a media type filter on U-Now

This enabled users to filter resources by media type. This was deemed important to cater for users with different media needs, e.g. international users with low bandwidth wishing to find document based resources.

The media type filter became the third filter available on U-Now, with filtering resources by 'theme' and 'faculty' already available before the project began. A screen shot of the filters available as of April 2010 can be seen below:



6.7.2 Inclusion of Joint Academic Coding System (JACS) in resource metadata

JACS is used by UK higher education institutions to identify the subject matter of programmes, modules and resources. JACS was included in the Equella repository to provide another level of metadata and potentially improve discoverability of resources. While it is unlikely that high volumes of search engine users will search using specific JACS terminology, it is a nationally recognised standard of subject classification and therefore a valid addition to the metadata schema. Having JACS available is also a strategically sound decision guarding against the potential increase of popularity of use of the coding system, and any resulting requirement to include JACS at a later date and the work that would be involved to retrospectively add it to a large number of resources. Some retrospective work is unavoidable as prior to BERLiN approximately 60 resources had already been published on U-Now, meaning there is a requirement to include the JACS codes in the metadata for those items. This retrospective action was postponed

until after the end of the BERLiN project in order to maintain full team resource availability on higher priority activities.

As of April 2009 only the top level JACS codes are included in the metadata for U-Now learning resources. A full list of JACS codes are available at: http://www.hesa.ac.uk/index.php?option=com_content&task=view&id=158&Itemid=233

6.7.3 Additions to the U-Now copyright statement

The copyright statement on the U-Now website provides visitors to the site with a clear statement of copyright ownership of the resources and content that are available on the site. Additions were made to the copyright statement in order to clarify explanations of what is and isn't appropriate use of U-Now resources. Additions were made in order to allow the project team to include third party materials within published resources without making the third party elements available under a creative commons licence. Additions were also made to protect institutional branding, to provide guidance on the contextual definition of 'commercial use' and to aid users of U-Now to attribute and reference Nottingham resources correctly. The changes were made after consultation with JISC Legal who provided feedback on the current wording and some sample wording for the new statement. The copyright statement can be seen at: <http://unow.nottingham.ac.uk/copyright.aspx>

6.7.4 Enhancements to U-Now RSS feed

A number of enhancements were made to the U-Now RSS feed. More detailed licence and copyright information was added and the resource author/creator was included in the feed as were additional keywords. Forced changes were also made to ensure compatibility with JorumOpen deposit; these included the amendment of the creative commons URL used within the CC:Licence node and also the creation of subject/school specific RSS feeds.

6.7.5 Inclusion of authors' biographical information, time stamping of resources and level of suitable study

As part of the module framework approach it was decided to provide additional background information on each of the resources published as part of the project.

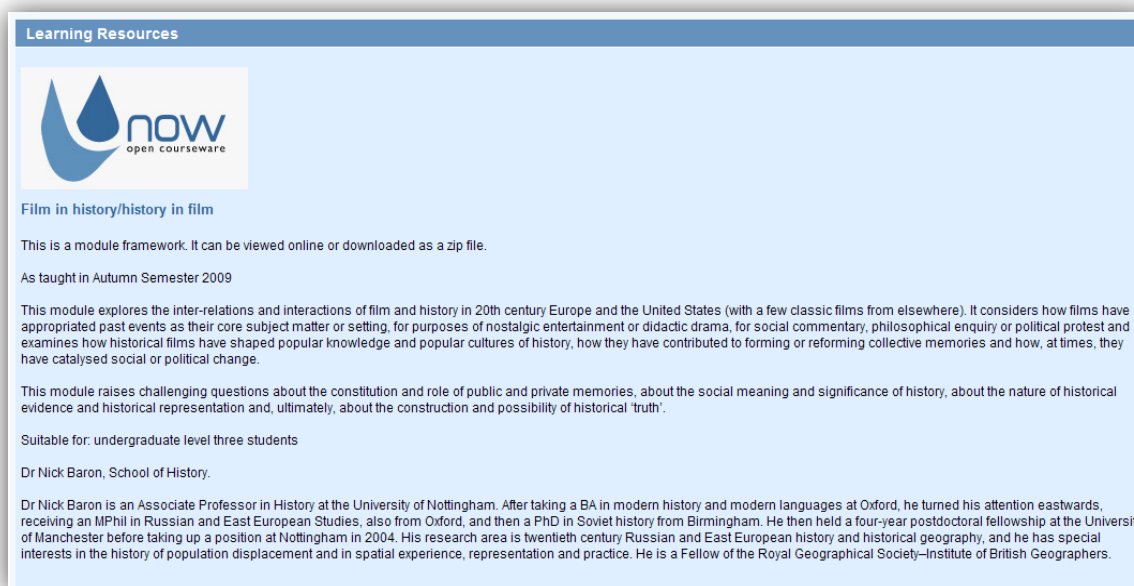
One way was to provide biographical information of the authors. As well as letting users of resources make a better informed assessment regarding the provenance and worthiness of the resource, providing this information also raises the profile of the author and provides the user with a wider understanding of the author's interests, identifying them as experts in their fields and potentially leading to future collaborations with other educators.

Time stamping resources allows users to understand how up-to-date a resource is and demonstrates when it was last used within the organisation. Based on the feedback from OER Africa, this is powerful information to include: resources in current use within

organisations are deemed the most valuable to educators wishing to re-use resources within their own teaching and learning materials.

Providing the educational level of study for resources in the description of the resource gives the user a clear indication whether the resource might be relevant for them without users having to view or download the resource itself.

An example of how the background information is made available in the U-Now resource description can be seen below:



The screenshot shows a web page titled "Learning Resources" with the U-Now logo (open courseware). The main heading is "Film in history/history in film". Below this, it states: "This is a module framework. It can be viewed online or downloaded as a zip file." and "As taught in Autumn Semester 2009". The description follows: "This module explores the inter-relations and interactions of film and history in 20th century Europe and the United States (with a few classic films from elsewhere). It considers how films have appropriated past events as their core subject matter or setting, for purposes of nostalgic entertainment or didactic drama, for social commentary, philosophical enquiry or political protest and examines how historical films have shaped popular knowledge and popular cultures of history, how they have contributed to forming or reforming collective memories and how, at times, they have catalysed social or political change." It then asks: "This module raises challenging questions about the constitution and role of public and private memories, about the social meaning and significance of history, about the nature of historical evidence and historical representation and, ultimately, about the construction and possibility of historical 'truth'." The suitability is noted as "Suitable for: undergraduate level three students" and the author as "Dr Nick Baron, School of History." A detailed biography of Dr Nick Baron is provided at the bottom, mentioning his BA in modern history and modern languages at Oxford, his MPhil in Russian and East European Studies, his PhD in Soviet history from Birmingham, his postdoctoral fellowship at the University of Manchester, and his position at Nottingham in 2004. His research areas include twentieth century Russian and East European history and historical geography, and his special interests are in the history of population displacement and in spatial experience, representation and practice. He is a Fellow of the Royal Geographical Society-Institute of British Geographers.

6.7.6 Possible future improvements

There are a number of future technical developments that could be made in order to improve the U-Now interface. The inclusion of a tag cloud would allow users a quick and easy way of locating resources by subject. The inclusion of a free text search would be the obvious way to improve the discoverability of resources on the site. Both improvements will be made when there are sufficient numbers of resources available in U-Now to avoid failed searches and to allow for a rich tag cloud. There is also the possibility to include a filter based around the JACS subject classifications. The feasibility and usefulness of this will be monitored over the course of 2010.

6.8 Innovations in practices/processes around OER

6.8.1 Gathered feedback from OER users

As already outlined earlier in the report, feedback from end users at OER Africa was provided at the outset of the project. This was an innovative initiative bringing users and consumers of OER together. The UK model of OER seems to be very focussed on resource creation, often overlooking the consumer. Nottingham is attempting to bridge the gap and to think about OER as a consumer centred model.

A number of amendments were made to U-Now based on the feedback as outlined in the evaluation section 5.6 of this report. Further feedback was requested from OER Africa towards the end of the project to find how successful they deemed the amendments to be. At the time of writing this report (April 2010) the new feedback results are not available but will be made available on the BERLiN project website located at <http://unow.nottingham.ac.uk/berlin.html>

6.8.2 Engaged the wider UK OER community to encourage participation in African Education projects

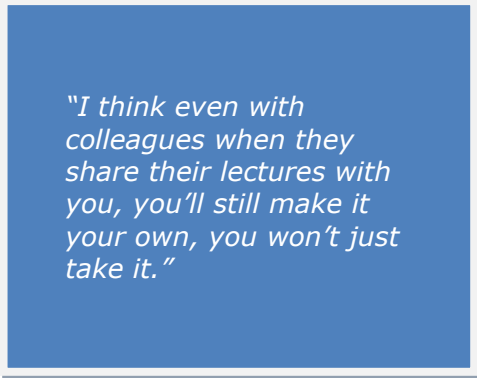
The University of Nottingham is collaborating with OER Africa and the UK National Commission for UNESCO (ISWG) in an attempt to introduce a framework by which educators in Africa can make specific requests for OER content from UK Higher Education institutions (HEIs) with the UK institutions responding in a coordinated manner.

To date a number of UK HEIs have provided content to support the design of an executive MBA programme at Kenyatta University and it is expected that further requests to support additional projects will be circulated by Nottingham to the UK OER community during 2010.

6.8.3 The U-Now workflow

During the project pre-existing workflows for OER submission and the technical standards guiding OER publication via U-Now were reviewed and then monitored. Workflows and standards were continually revised, improved or updated as required, in the light of experience, feedback received or in order to streamline practice and enhance OER discoverability. The project team benefited from the pre-existing workflow and initial adoption of the UKLOM metadata schema set up to guide resource cataloguing and classification. We

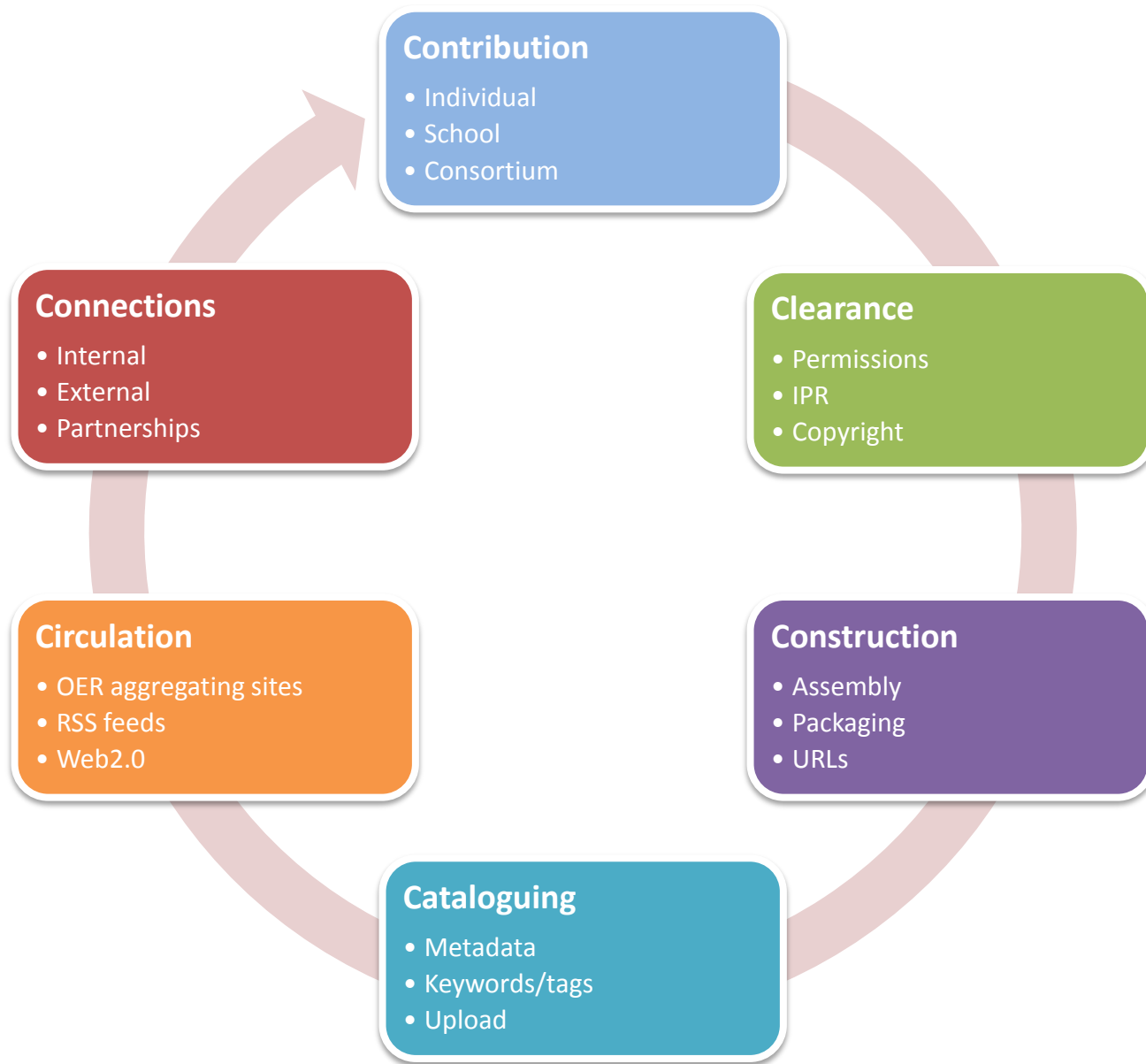
retained UKLOM for resource cataloguing purposes but also adopted JACS subject coding and groupings, increased the number of tags to increase resource discoverability and to offer enhanced browsing capability. The option to browse resources by media type was



"I think even with colleagues when they share their lectures with you, you'll still make it your own, you won't just take it."

also added to the display screen in U-Now. The enhancements to metadata collection inevitably increased cataloguing effort, utilising professional support from the metadata and cataloguing teams. However, the project team felt that the high quality metadata collected provides enhanced discoverability, resource filtering and future proofing for the resources available on U-Now, reducing effort in the longer-term.

The whole OER publication process was revised and updated to follow a new workflow pattern. A diagram outlining the workflow is available overleaf:



A detailed overview of each of the steps within the workflow, including recommendations is available below:

Step 1: Contribution

An academic seeking to make a resource available openly (either independently or via a school or project initiative) submits the resource to the BERLiN project team (either online via the U-Now website or email).

Confirmation (by email) is requested from the author or supplier that they have the intellectual property rights (IPR), copyright clearance and any relevant licences for the material. Where this information is available, it is logged in the copyright register maintained by the BERLiN project team.

Agreement is reached that they are happy for the content to be made available under the attribute – non commercial – share alike creative commons 2.0 licence. This is the licence applied to all U-Now content.

No pedagogical judgements are made about the content submitted for publication on U-Now by the BERLiN project team. The resources are already in use within the University and as such have previously been assessed via other mechanisms for quality assurance. The adoption of institutional QA mechanisms is an important step within the OER release process to avoid duplication of effort and to streamline the process. Any failure to ensure sufficient quality levels would need to be judged by appropriate staff, with expertise in the subject area.

Awareness of U-Now is promoted through local e-learning events. In addition, large scale e-learning projects are supported by the e-learning team on the understanding that the output will be included within U-Now—unless there are pressing ethical or commercial reasons not to.

Step 2: Clearance

For the majority of resources submitted as part of the project there were multiple instances of unspecified copyright provenance. Investigating copyright issues and obtaining copyright clearance for resources was a substantial challenge and as the project progressed it became evident that copyright issues are the biggest single barrier to the up-scaling of open publication of resources for Higher Education Institutions.

Major issues relating to copyright included receiving submissions, making use of images where the copyright status of the images was unknown, or images that we had permission to use within the confines of the University but not permission to publish openly.

One option explored at the earlier stages of the project involved asking for permission from publishers, where they could be traced, to use their images. This was mainly conducted directly by academics who in some cases already had relationships with the

publishers. This proved time consuming and unfruitful, with only one positive outcome. Barriers included publishers wanting to charge for use and publishers not responding at all to requests. While out of scope for this pilot project, a future collaboration between OER practitioners in an attempt to encourage a shift in publisher mindset would be a worthwhile longer term consideration. There are potential benefits for publishers to realise in the area of promotion and a long term goal of the OER movement should be to engage publishers in a coordinated manner in order to communicate goals and identify areas of mutual benefit. It is recognised by the project team that this is an aspiration and potentially unachievable landscape, but identifying and influencing external stakeholders is a sensible long term strategy.

The final solution adopted in dealing with images where the loss of which had no impact on the integrity of the learning was to remove them completely. This met with a mainly positive response from the academic community. If loss of the images did have an impact on the learning, then the project team looked for copyright safe versions where possible. This was sometimes successful and sometimes not and was very time consuming.

Further issues relating to copyright involved submissions that contained third party data where the author had permission to use the data in any standard publication, but when clarification from publishers was sought as to whether this included open publications, the answer was no. This led to the creation of an OER terms of use policy. The policy is designed to allow us to place copyright restrictions in distinct sections of resources whilst licensing the bulk of the resource under the standard creative commons licence.

The policy states that the creative commons licence does not apply to any material in resources which are identified as being authored by a third party and informs the user that where a statutory copyright exception or appropriate licence does not apply, authorisation to reproduce such material must be obtained from the copyright holders concerned. A link to the terms of use policy is included in the copyright licence information, in the metadata for all resources and the licence that users have to agree to before downloading a resource. There is also a clear indication in relevant sections of resources that a copyright restriction applies.

Including third party materials for "reproduction only" means that learners can still view the relevant images within the resource and therefore have access to the learning experience and allows educators to cater for different learning styles. Also those who wish to remix the resource and reuse can also include the images under the same reproduction terms if they secure permission from publishers themselves or if a licence is available online which allows all users the same access rights, as is the case with maps, images and photos from the European Union/European Commission. See legal notice for an example: http://ec.europa.eu/geninfo/legal_notices_en.htm

The terms of use policy also houses information relating to the use of 'The University of Nottingham' Name (Trademark) and definitions of what 'Non-commercial' means in licensing terms: <http://unow.nottingham.ac.uk/copyright.aspx>

JISC legal helped formulate the final text for the copyright terms of use policy and were a helpful source of information on many of our copyright issues.

Copyright issues relating to the use of sourced passages of text and an apparent misunderstanding of the difference between plagiarism and copyright also surfaced. Advice was sought from JISC legal in this area who advised:

"Where a work, or a substantial part of a copyright protected work, is copied without permission, and no statutory exception applies, this will amount to copyright infringement."

"Section 30 of the Copyright, Designs and Patents Act 1988 (CDPA) provides a "fair dealing" exception for the purpose of criticism and review that might apply to content being placed in an OER. Where a short quote is being included for these purposes, it is not likely to be infringing by virtue of that section - http://www.opsi.gov.uk/acts/acts1988/ukpga_19880048_en_3#pt1-ch3-pb2-l1g30."

"The use must be fair, however, so, for example, the inclusion of an excessive extract may go beyond what is permitted. To come under this clause, acknowledgement of the source must be given, and it must come from a work which has already been made available to the public (in print or online, typically). There may also be an argument that a short extract is 'insubstantial' for the purposes of copyright, and therefore copying is not a breach. However, there is little legal authority to define what might be reasonably taken to be insubstantial."

Fair dealing for the purposes of criticism or review is outlined on the Copy-Right Consultants Limited website here - <http://copyrighttoolkit.com/permited.html>."

General Copyright Information

- It is easier to avoid copyright issues by creating resources from new and designing with openness in mind from the beginning.
- Material that has been repurposed for inclusion in a VLE is likely to need further repurposing for open publication—unless directly transferred to another VLE installation
- Repurposing content that is already in use is likely to require some sanitising of information, full sourcing and full copyright clearance of all third party material
- The onus is on the institution to ensure images used have been lawfully included
- Providing source information to avoid plagiarism is not enough to protect from copyright infringement
- Lawful inclusion means using own, copyright free, copyright expired, copyright cleared, copyright licensed (with publisher agreement as appropriate) material

- Tracing copyright owners can be difficult – they may not reply to requests, there may be costs involved, or duration of use clauses imposed and it can be a lengthy process.
- Content licensed under a particular licence (non-derivatives for example) cannot always be combined with content licensed under differing licences (share-alike for example)
- Users might not be able to combine OER that come from different sources, even though both are "Open" Educational Resources. See the UNESCO [licence incompatibility table](#) for more information on licence compatibility.

Step 3: Construction

Given the wide variety of content available on U-Now, this can simply mean linking to a podcast or can involve packaging a SCORM 1.2 compliant module framework containing module structure, lectures notes, PowerPoint presentations, recordings, etc.

An overview to module frameworks is provided in section 5.5.2 of this report and the full process followed when constructing a module framework is available in appendix b

Step 4: Cataloguing

Following author approval, the BERLiN project team publishes the learning resource in U-Now. Part of the publishing process is to provide UKLOM metadata which is provided via content author, BERLiN team and cataloguing department collaboration. Metadata for each resource includes author keywords/tags and biographical data; pedagogical types; level of audience; semester and year that the course was run; copyright statement; Creative Commons licence and file formats.

Finally, the metadata is reviewed and enhanced by the University's Metadata and Cataloguing team before being published on the site. This process ensures accurate and rich metadata is associated with every item released on U-Now. Previously copyright and licence information appeared on the repository website only.

Items uploaded into U-Now are in a 'walled garden' area within the Equella repository, to prevent re-editing following approval and publishing. Re-submission of updated materials will trigger a new submission process and updating of materials held on U-Now.

Features of U-Now include:

- RSS feed (including Dublin Core metadata)
- Weekly update of most downloaded items (top 3)
- Browsible list of items. These can be sorted under subject, themes or media type

- Brief leading introductory text, to give casual user an idea of what the content covers
- A fuller description on each items page (including intended audience). Additional data provided:
 - Level of educational use
 - Technical information
 - Author biography
 - Semester of last use within University
 - Useful links (back to school website for example)
 - Play resource option
 - Download resource option (users have to agree to terms and conditions to continue)
 - Names of publisher and author (the publisher is the University)
- We currently do not employ a rating system for items submitted on U-Now as this raises a number of issues:
 - Who is rating the resource and are they best placed to make a judgement over quality?
 - What impact on uptake will there be if negative ratings are promoted?
 - How independent would U-Now be regarded by an external audience? Should alternative neutral sites such as JorumOpen or MERLOT employ rating systems instead?
- The inclusion of comments on U-Now requires further consideration. There is an email address for feedback to the team, but no option to comment directly on individual items. This may prove to be an attractive feature for contributors, but potentially opens up U-Now to spamming if appropriate restrictions are not employed and any display of comments would need to be monitored. Further exploration of web 2.0 social mechanisms will form part of ongoing developments of U-Now.

A takedown policy is in place which is communicated on U-NOW at: http://unow.nottingham.ac.uk/td_policy.html

To date there has been no cause to use the policy but it would be followed if a complaint was received about an item. The complaint would be acknowledged by email. An assessment would then be made of its validity, and for all but spurious complaints, the item would be removed from the site subject to investigation.

Step 5: Circulation

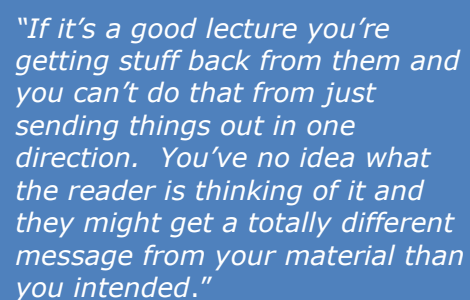
The final step is to publish the items on U-Now and circulate the content widely. Circulation is largely achieved via RSS feeds, enabling circulation to a number of OER aggregating sites at once, including Open Courseware Consortium, OER Commons, Folksemantic and Xpert.

Once a new resource has been published through circulation, the U-Now editorial board is notified. The board is made up of several key stakeholders, including the Director of Teaching and Learning, the Learning Team leader, IPR manager and the Pro-Vice Chancellor for Internationalisation. The board reviews the material to ensure there is nothing detrimental to the reputation of the University. It also raises any concerns it has over potential IPR issues to act as a failsafe in this area. To date no issues have ever been raised.

Initially editorial board review occurred before circulation, however due to the increasing numbers of materials seeking approval, existing review procedures in the clearance phase, and seniority of staff involved (and therefore limited time availability), a pragmatic decision was taken to move editorial board review to post circulation to prevent a 'bottle-neck' in the release process.

Step 6: Connections

As highlighted in the online staff survey, enhancing the University's reputation (73%), sharing best practice (72%), and supporting students without formal access to HE (66%) were the top three reasons cited for *publishing* OER. In addition, 67% of respondents saw OER as a fruitful way of building partnerships with other colleagues and institutions worldwide. End-user feedback is an important motivating factor for many, and ongoing activities with OER Africa, and planned developments to harness web2.0 social tools, will help develop future connections between publishers and end users, completing the feedback 'loop', providing useful evaluation data and ultimately feeding back into the development process to ensure the cost efficiency potential is realised.



"If it's a good lecture you're getting stuff back from them and you can't do that from just sending things out in one direction. You've no idea what the reader is thinking of it and they might get a totally different message from your material than you intended."

Connections may be built internally, across subject areas or externally within communities of practice, institutional partnerships and individual learners.

6.9 Guidance on OER release and associated issues and processes

Guidance has been provided to a number of schools and academics in the following areas:

- Dealing with copyright
- Types of resources that are appropriate for open publication
- Format of resources that are appropriate for open publication
- The publishing process

The BERLiN team are active members of the UK and International OER communities and as such has presented papers at the events listed below.

1. Open Learning Conference , November 2009, The University of Nottingham
2. On-Line Educa Conference, December 2009, Berlin
3. Institution wide E-Learning seminar, June 2009
4. JISC Institutional UK OER Event, February 2010, The University of Nottingham
5. Lord Dearing Memorial Conference (promotional stand), February 2010, The University of Nottingham
6. Institutional E-learning meetings, held monthly
7. Information skills workshops, piloted in March and April 2010
8. OER 10 Conference, March 2010
9. SCORE Regional event, March 2010

Members of the BERLiN team have also been invited to present papers at:

- E-Learning Africa Conference, May 2010
- Open Courseware Consortium Conference, May 2010
- EduLearn10, July 2010

6.10 Additional OER dissemination channels

- Podcast of Vice-Chancellor talking about U-Now and Open Learning at Nottingham, available to view at <http://www.youtube.com/watch?v=E9MBkJr3ba8>
- Vice-Chancellor/PVC for Internationalisation including OER in their presentations at the Lord Dearing Memorial Conference, February 2010
- Steve Stapleton, Open Learning Support Officer releases BERLiN update on You Tube Edu, available at <http://www.youtube.com/watch?v=nJPIFlajS28>
- Articles in institution magazines

Event Sponsor

U-Now was also one of the associate sponsors of the OER10 Conference. (This was not funded by the BERLiN budget.)

7 Outcomes and Impact

When thinking about outcomes and impact it is useful to do so in the context of both programme and project objectives. A summary of the impact achieved including the critical success factors for the project is below, with references provided to the more detailed descriptions in the main body of the report.

1. Inspire a cultural change within The University of Nottingham, through the publishing of at least 360 credits of open learning content within the existing institutional repository, U-Now and the JorumOpen repository.

The target of 360 credits of open learning content was published on both the U-Now and JorumOpen repositories but the success factors under this objective go far beyond simply looking at the numbers. Approximately 150 academics are now engaging with OER release (just under 10% of the academic population), providing a developing community for sustained activities. This active community is a positive outcome of the BERLiN project, and demonstrates a cultural change at Nottingham, as well as an increasing awareness of the benefits of OER across the University. BERLiN has supported the establishment of OER champions and advocates at all levels within the institution and is well placed to continue to develop sustainable practices and policies.

2. Review the existing delivery mechanism ensuring open content is presented in a way that supports and encourages reuse

Through user feedback, and considered development, multiple changes have occurred to the way that open content is presented at Nottingham.

A detailed description of developments to enhance discoverability and usability are available in section 5.5.4 and section 6.7.

3. Define a sustainable process to ensure continued publication of open content across all faculties and all campuses (including international)

The U-Now publication workflow has evolved during the lifespan of the project, establishing a more robust and sustainable model for continued OER release. Open content was published representing all five faculties and content has been submitted for open publication from Nottingham's International Campuses in China and Malaysia – although not yet published – the international campus content will be made available in U-Now and JorumOpen after the conclusion of the project.

A detailed description of the U-Now workflow is available in section 6.8.3 of this report.

4. Investigate institutional attitudes to open learning materials, as users and contributors

There have been significant developments throughout the BERLiN project with both qualitative and quantitative evaluation being undertaken in the form of focus groups and an institutional wide survey.

Details of the results are available in section 5.6 and the full reports are available in appendix c

5. Explore and document identified barriers to publishing open learning content

See point 4 above.

6. Implement University wide promotion activities to engage with University community and encourage adoption

This was a critical success factor in the project and included both University wide seminars and the organisation of the national Open Learning Conference. The conference was a high profile success with international representation and national interest (including presentations from JISC Legal, UKOER partners, Google, OpenLearn and OER Africa). Promotional activities are central to wide dissemination and therefore central to engagement and sustainability.

In addition, institutional dissemination activities include e-learning seminars, community meetings, school presentations, podcasts and digital literacy workshops to promote and support the creation and re-purposing of open content.

Full details of the dissemination activities undertaken as part of the project are available in section 5.1 of this report.

7. Support individuals and school based initiatives providing open learning content

This was a critical success factor to the project. The engagement of some teaching and learning committees and all academic boards allowed for coordinated submissions of resources to the project. In the most successful case over 60 credits worth of materials were submitted by one school, with the offer of more if required. The engagement at school level management is a planned activity over the course of 2010 and a strong recommendation for any institution considering embarking on an OER initiative.

8. Promote and support a growing community of open content providers

Just under 10% of the academic community have engaged with the BERLiN project either in the role of content provider or OER advocates—including support from the VC, PVC for Internationalisation and the Director of Teaching and Learning. This is a tremendously positive outcome of BERLiN building foundations for the up scaling of future activities.

9. Widely disseminate outcomes nationally and internationally

Detailed information on the dissemination activities both nationally and internationally can be seen in section 5.1 and section 6.9 of this report

10. Engage with international OER partners (OER Africa) to explore mechanisms and workflows to enhance the usability and reusability of open content within developing nations

This was a critical success factor of the project. The ability to collect and analyse end user feedback was invaluable. Nottingham remains well placed to continue to explore and support these activities as they develop over the coming years.

11. Communicate lessons learned from international/OER partner institutions to review and refine existing procedures associated with IPR clearance, approval and publishing

The BERLiN project team has regularly contributed to the BERLiN project blog <http://webapps.nottingham.ac.uk/elgg/berlin/>. The project team has also organised a national conference, hosted a UKOER institutional away day, and supported colleagues from other institutions (for example, hosting a meeting with the Otter project). In particular, the BERLiN project team has significantly contributed to discussion around RSS submission, attending JISC Cetus events, online discussions and technical developments. As a result RSS submission to JorumOpen is a major vehicle for contributing to JorumOpen for many UKOER projects.

Existing processes and the U-Now workflow have been enhanced, full details of which are available in section 6.8.3 of this report.

7.1 Critical barriers to achieving impact

As outlined in the evaluation section of the report, respondents cited fear over copyright infringement (58%) and ownership and legal barriers (43%) as main barriers to *publishing* OER; whilst awareness of OER repositories (55%), relevancy of materials (40%) and time constraints (26%) were the three main barriers cited against *using* OER. In order to achieve widespread impact across the institution, each of these factors needs to be understood further and addressed.

In addition, appropriate mechanisms for reward and recognition need careful consideration, especially in a research focussed environment, where the time and effort involved to generate OER can be squeezed. Exploring approaches, both technical and cultural, to support the creation of 'open materials' at the start of the development process will significantly speed-up the release process, and support academic engagement. However, building connections between end-users and contributors, especially where relationships between the two are fluid, will help foster a culture of openness and support ongoing sustainability.

"I certainly wouldn't want to put a lecture on there as a marketing tool. Unless it is whizz bang and exciting..."

There is also a possible tension between OER as a marketing tool and OER as a cost efficiency benefit. The former implies a level of sophistication and polish that can prove a barrier for re-use, due to

technical constraints or an unwillingness to edit 'complete' learning materials. Alternatively, more 'rough and ready' OER materials possibly lend themselves to editing more readily; rather, they necessitate re-purpose for local use. However, there may be a reluctance to release such materials to potential students as promotional vehicles. Certainly the Open University has approached this division through two separate mechanisms, OpenLearn and LabSpace. Releasing single OER content for differing audiences needs careful consideration, educating end-users on what is being presented and building connections to inform ongoing developments based on newly identified user requirements.

"The other side is if we are going to pick our top lecturer giving the most exciting lecture he or she ever gives, then you can raise expectations. They'll think university is going to be all smoke and mirrors and fireworks and it's all going to be fast paced and interactive learning whereas sometimes life isn't like that."

8 Conclusions & Recommendations

In conclusion, the project has affected cultural change at Nottingham in several ways. All objectives of the project have been met and OER activities will continue after the conclusion of the BERLiN project. Nottingham has a long standing commitment to OER and senior support for this on-going initiative. BERLiN has allowed the wide dissemination of OER goals across the institution and has helped to foster an increased culture of openness. Nevertheless there is still work to do and it is essential that resource is dedicated to driving OER development forward. Nottingham's OER initiative ran for two years prior to BERLiN with limited dedicated resource and while much was achieved in the early stages, BERLiN has reinvigorated the process demonstrating what a dedicated driving force can achieve.

Sustainability of OER has been central to the JISC/HEA UK OER programme and there is evidence of sustainable practice at Nottingham and beyond, but the OER community should not expect results overnight. The Director of Research and Learning at Nottingham provided the cautionary insight that it took six years to embed a culture of openness in the area of research: why should a cultural shift in teaching and learning be any different? OER advocates should expect to meet challenges and they should expect to meet opposition. They should expect that sustainability requires senior commitment and dedicated resource, but above all they should expect that with continued focus, change can happen.

A summary of the recommendations highlighted in this report are available below.

8.1 Recommendations for research communities

Research focus on potential cost efficiencies available through the re-use of open resources within institutions would provide hard data to either support or reject this notion. Many feel that cost efficiencies can be leveraged and it was identified in the staff focus groups facilitated during BERLiN as a driver for involvement, but no research data is currently available to contribute to the discussion. If it could be proved that cost efficiencies were possible, it would place OER in a position of strength within institutions. If it were proved cost efficiencies were not realisable, then OER projects would at least have data outlining why, and could work to address the issues or focus on more tangible benefits. Certainly the issues faced around copyright through the clearance phase of release, strongly indicates academic staff are routinely willing to re-use other people's content within their teaching. Therefore, alongside this research, investigations into what content is most useful for re-use would also be beneficial. At Nottingham, the online staff survey in March 2010 indicated that PowerPoint slides (66%), reading lists (53%) and lecture notes (49%) to be the three main types of resources academics would *publish* openly, whereas PowerPoint slides (59%), lecture notes (46%), images (46%) and reading lists (43%) were the main types of resources academics wanted to *reuse* openly. However, further exploration is needed to determine whether these resources are genuinely the most useful in re-use, or simply indicate which resources are the easiest to re-use.

Research into end users of OER would also be valuable, in terms of who they are, what they need and what they consider to be effective resources. Central to this strand is the debate around whether OER can meet the needs of both a promotion-centric approach and a cost-efficiency-centric approach. As discussed, a promotion-centric approach assumes a highly polished end-product and lends itself to the marketing and promotional aspects of OER. On the other hand a cost-efficiency model possibly supports a more 'rough and ready' version of the resource enabling educators and learners to 'break apart', re-contextualise, mix up, and rewrite as their needs dictate. The Open University, the UK's biggest provider of open materials provide areas for both types of users, with OpenLearn⁴⁰ and LabSpace⁴¹ and further research in this area would help inform the longer term strategies for OER active institutions.

8.2 Recommendations for teaching communities

Teaching communities already have at their disposal a rich source of online educational resources. The focus may be best put on helping those involved in teaching and learning to understand what is available, how it can be used appropriately and the benefits that can be realised by doing so. In particular, fostering re-use and repurpose at institutional, school and individual level, harnessing the cost efficiency benefits, supporting the establishment of connections between end-user and provider and developing sustainable models of OER creation and support based on mutual need.

However, it is important to understand the restrictions imposed by copyright law which is the single biggest barrier to publishing and hence reusing OER. In order to address this, it is recommended that institutions consider the delivery of training that focuses on sourcing, using and attributing images and resources correctly. One way of achieving this would be to include in the PGCHE (accredited either locally or nationally) the effective and appropriate use of web and open resources. This would introduce all new lecturers to the issues involved in such use and reuse, and in the longer term increase the number of resources suitable for open publication by institutions.

8.3 Recommendations for JISC/Higher Education Academy

Much of the focus in the area of OER has been placed on the creation and publication of resources. This is a natural starting point and has resulted in a diverse range of materials being made available. To aid the sustainability of OER practices, consideration could be given to initiatives that support the routine use and re-use of resources within institutions. Encouraging institutions to adopt a 're-use' model rather than focussing on a publication model could help institutions and the HE sector understand how to make better use of the so far unproven cost-efficiency benefits. In order to do this JISC/HEA could support initiatives focussed on the creation of tools and frameworks designed to remove existing barriers to wide-spread re-use.

⁴⁰ <http://openlearn.open.ac.uk/>

⁴¹ <http://labspace.open.ac.uk/>

JISC/HEA may also consider discussing the implications of a significant change in the funding of the HE sector through the introduction of a 'teaching excellence framework', akin to that already in the research arena. If funding were more closely linked to teaching quality rather than simply headcount and course completion, institutions would align their strategies to focus more on the quality in teaching. It is recognised that this is a major cultural shift and a significant policy change in this area which is outside the scope of the UKOER programme, but influencing a shift in teaching culture would have an impact on the consideration given to OER (along with other mechanisms) as a vehicle for achieving increased quality.

9 Implications for the future

9.1 Linking resources to prospectus points

One area for future investigation is the inclusion of open content in both electronic and printed prospectuses. This would allow prospective students to view resources and even, in the form of recorded lectures, observe a module that they are considering. This would both provide an additional marketing channel for the University and also allow mechanisms to be put in place to measure whether the availability of OER at an institution has an impact on a student's decision to choose a particular university or course. This hard data is exactly the type of data that institutions should be looking to collect in order to show both a return on their investment and to justify future expenditure.

Marketing also highlights the benefits of having a degree. Thus, whilst publishing introductory university material has its clear attractions as OER, the desirability of displaying final year material produced by students should not be underestimated.

9.2 School based approach

The first OER activity that will be undertaken at Nottingham after BERLiN is the strategic engagement of schools within the University with the aim of implementing a school based-model for OER. This model involves making OER that is both created and relevant to the schools available from their existing school web pages. This addresses two issues. Firstly, outside the active OER community the terms 'repository' and even 'OER' are still largely unknown. The school-based model removes the need to build brand awareness around a repository, which is potentially difficult and requires significant effort. Secondly, making resources available in the places that students, prospective students and academics would naturally look for them – or indeed, be more likely to stumble across them – may facilitate an increase in use and re-use.

9.3 Reward and Recognition

Giving academic staff a compelling reason to engage or stay engaged with OER activities is central to the sustainability of OER within an institution. As discussed, feedback and end-user engagement can be powerful motivators for some. Another more tangible method for consideration in the future would be to link advancement and promotion more closely to contributions made in the area of teaching and learning, and to specifically cite examples of OER engagement as influencing factors. Initially local teaching awards might be made in the same way that Nottingham has introduced the Lord Dearing awards. These were introduced ten years ago and now carry considerable prestige within the University.

9.4 Copyright safe search engine

A further potential development at Nottingham in supporting the wider adoption of OER is the creation of a 'copyright safe' search engine and development tools. The search engine would in effect conduct the advanced searches of multiple OER repositories and image banks, returning only items that were licensed for re-use. These tools would provide quick and easy access to a significant amount of material and would allow users to incorporate appropriately open resources and images into their own teaching and learning materials. The scoping of this tool will be conducted through Spring/Summer of 2010.

10 Appendices

10.1 Appendix a – The full list of modules published as part of BERLiN

10.1.1 [Mathematical analysis](#)

07 April 2010, 17:06:31 | Feinstein Joel F. Dr.

This is a module framework. It can be viewed online or downloaded as a zip file. It is as taught in 2009-2010.

This module introduces mathematical analysis building upon the experience of limits of sequences and properties of real numbers and on calculus. It includes limits and continuity of functions between Euclidean spaces, differentiation and integration. A variety of very important new concepts are introduced by investigating the properties of numerous examples, and developing the associated theory, with a strong emphasis on rigorous proof.

This module is suitable for study at undergraduate level 2.

Dr Joel Feinstein, School of Mathematical Sciences

Dr Joel Feinstein is an Associate Professor in Pure Mathematics at the University of Nottingham. After reading mathematics at Cambridge, he carried out research for his doctorate at Leeds. He held a postdoctoral position in Leeds for one year, and then spent two years as a lecturer at Maynooth (Ireland) before taking up a permanent position at Nottingham. His main research interest is in functional analysis, especially commutative Banach algebras. Dr Feinstein has published two case studies on his use of IT in the teaching of mathematics to undergraduates. In 2009, Dr Feinstein was awarded a University of Nottingham Lord Dearing teaching award for his popular and successful innovations in this area.

10.1.2 [Immunology basics](#)

12 March 2010, 11:41:58 | Todd Ian Dr

This is a module framework. It can be viewed online or downloaded as a zip file.

As taught Autumn semester 2009

Infections are a major cause of morbidity and mortality worldwide. The body fights infection through the functions of the immune system, whose power has been harnessed by the development of vaccination (immunisation).

Suitable for study at: Undergraduate levels 1 and 2.

Dr Ian Todd, School of Molecular Medical Sciences Dr Ian Todd is Associate Professor & Reader in Cellular Immunopathology at The University of Nottingham. After reading Biochemistry at The University of Oxford, he carried out research for his PhD in Immunology at University College London. He then undertook post-doctoral research at The Oregon Health Sciences University and The Middlesex Hospital Medical School. His main research interest is in the molecular and cellular bases of autoimmune and autoinflammatory diseases. He is a Fellow of the Higher Education Academy and a recipient of the Lord Dearing Award for Teaching & Learning. Important Copyright Information: All images, tables and figures in this resource were reproduced from 'Lecture Notes Immunology' April 2010, 6th Edition, published by Wiley-Blackwell and with full permission of the co-author and faculty member, Dr Ian Todd. No image, table or figure in this resource can be reproduced without prior permission from publishers Wiley-Blackwell.

10.1.3 [Health promotion](#)

12 March 2010, 11:03:52 | Myles Puja R. Dr

This is a module framework. It can be viewed online or downloaded as a zip file. As taught in Autumn Semester 2009.

The 'Health Promotion' module is one of the core modules taught on the Masters in Public Health which is offered by the Division of Epidemiology and Public Health at The University of Nottingham.

Suitable for study at: Masters level Dr Puja R Myles, School of Community Health Sciences - Epidemiology and Public Health

Dr. Puja Myles is an Associate Professor of Health Protection and Epidemiology at the University of Nottingham. She trained as a dentist at Panjab University, India and worked as a dentist in India before completing her specialist training in Public Health in the East Midlands. She completed a doctorate in Epidemiology at the University of Nottingham. She is currently part of the Health Protection Research Group at Nottingham and her research is primarily in respiratory disease epidemiology. She is also interested in evaluation methods and is currently involved in some public health service evaluations.

10.1.4 [Improving the health of the population and evidence based medicine](#)

12 March 2010, 10:17:05 | Myles Puja R. Dr

This is a module framework. It can be viewed online or downloaded as a zip file. As taught in Autumn Semester 2009.

This module has two essential components: Evidence-Based Medicine and Public Health. Evidence-Based Medicine was introduced as a new discipline because traditionally the teaching of medicine was heavily reliant on an apprenticeship-type system with emphasis on learning from observing one's teachers. One of the guiding principles in the NHS today is that all health care should be based on research evidence. One of the aims of this module is to cover core concepts in epidemiology and basic statistics so that you are able to understand the evidence presented in research papers and apply it to your clinical practice. The Public Health component of this module will provide you with insight into the factors affecting the health at a population level and how these may be addressed. It also aims to show how these factors may be distributed and how this can contribute to inequalities in health between populations. Suitable for study: Undergraduate level year 1 Dr Puja R Myles, School of Community Health Sciences - Epidemiology and Public Health

Dr Puja Myles is an Associate Professor of Health Protection and Epidemiology at the University of Nottingham. She trained as a dentist at Panjab University, India and worked as a dentist in India before completing her specialist training in Public Health in the East Midlands. She completed a doctorate in Epidemiology at the University of Nottingham. She is currently part of the Health Protection Research Group at Nottingham and her research is primarily in respiratory disease epidemiology. She is also interested in evaluation methods and is currently involved in some public health service evaluations.

10.1.5 [Functional analysis](#)

10 March 2010, 17:52:05 | Feinstein Joel F. Dr

As taught in 2006-2007 and 2007-2008.

Functional analysis begins with a marriage of linear algebra and metric topology. These work together in a highly effective way to elucidate problems arising from differential equations. Solutions are sought in an infinite dimensional space of functions. This module paves the way by establishing the principal theorems (all due in part to the great Polish mathematician Stefan Banach) and exploring their diverse consequences. Topics to be covered will include: – norm topology and topological isomorphism; – boundedness of operators; – compactness and finite dimensionality; – extension of functionals; – weak*-compactness; – sequence spaces and duality; – basic properties of Banach algebras.

Suitable for: Undergraduate students Level Four Dr Joel F. Feinstein School of Mathematical Sciences

Dr Joel Feinstein is an Associate Professor in Pure Mathematics at the University of Nottingham. After reading mathematics at Cambridge, he carried out research for his doctorate at Leeds. He held a postdoctoral position in Leeds for one year, and then spent two years as a lecturer at Maynooth (Ireland) before taking up a permanent position at Nottingham. His main research interest is in functional analysis, especially commutative Banach algebras. Dr Feinstein has published two case studies on his use of IT in the teaching of mathematics to undergraduates. In 2009, Dr Feinstein was awarded a University of Nottingham Lord Dearing teaching award for his popular and successful innovations in this area.

10.1.6 [Foundations in evidence based practice](#)

26 February 2010, 17:14:09

This is a module framework. It can be viewed online for downloaded as a zip file. As taught in Spring Semester 2010.

This module is taught on the Diploma/BSc in Nursing and covers an introduction to evidence-based practice; the nature of evidence; an introduction to the research process; reflective thinking and writing; portfolio development skills; searching/accessing information/literature; summarising literature; referencing literature sources; reviewing literature; an introduction to law and ethics and their links with evidence-based practice; an introduction to accountability and evidence-based practice

Suitable for: Undergraduate year one students School of Nursing, Midwifery & Physiotherapy

The School operates from education centres across Derbyshire, Lincolnshire and Nottinghamshire providing pre-registration, post-registration, degree and higher degree

courses. Learning in practice occurs in acute and community settings within local NHS Health Care Trusts and across the voluntary and social service sectors. Research within the school focuses on supportive and palliative care; education and health informatics; mental health; and child and maternal health. The University received the best possible outcome in all categories within the Major Review of healthcare programmes which took place in 2006

10.1.7 [Understanding global politics](#)

23 February 2010, 16:40:09 | Carey Sabine Dr; Zhang Xiaoke Dr; Pupavac Vanessa Dr

This is a module framework. It can be viewed online or downloaded as a zip file. As taught in Autumn Semester 2009.

This module introduces global politics through the major theoretical, historical and empirical ways of seeing international relations. Different claims, about, for example, human nature, power, war, peace, the state, society, law and politics are offered by thinkers who exercise a major influence on our contemporary understanding. These claims contribute to different approaches to politics in a global context. Suitable for: Undergraduate level one students

Dr Vanessa Pupavac, Dr Xiaoke Zhang, Dr Sabine Carey, School of Politics and International Relations

Dr Vanessa Pupavac is a lecturer in International Relations at the University of Nottingham. She has previously worked for the UN Criminal Tribunal for Former Yugoslavia and other international organisations. Vanessa Pupavac's research encompasses international human rights, children's rights, linguistic rights, humanitarian and development politics. In recent years she has been examining the international politics of trauma, that is, the influence of Western therapy culture on international aid policy and the rise of international psychosocial programmes. She is also currently examining international language rights and language politics. Her research is underpinned by an interest in contemporary subjectivity and the crisis of meaning in international politics.

Dr Xiaoke Zhang is an Associate Professor in political economy and Asian studies in the School of Politics and International Relations, the University of Nottingham. Before joining the School of Politics and International Relations in September 2003, Dr Zhang was a lecturer in the International School of Humanities and Social Sciences and a research fellow in the Amsterdam School of Social Science Research, both at the University of Amsterdam. Dr Xiaoke Zhang's major research interests are in comparative and international political economy, with a regional focus on Asia-Pacific.

Dr Sabine Carey is Lecturer in Political Science and Associate Fellow of the Methods and Data Institute and the Human Rights Law Centre at the University of Nottingham. She holds a PhD in Government from the University of Essex. A summary of her research

interests includes comparative Politics, in particular democratization, domestic political change, human rights, repression and African politics. International Relations, in particular war and conflict, and foreign policy. Political Methodology, in particular time series, pooled cross-sectional time series, VAR modelling and event data analysis.

10.1.8 [Career skills in economics](#)

09 February 2010, 19:27:36 | Harvey David Dr

This is a module framework. It can be viewed online or downloaded as a zip file. As taught in Autumn Semester 2009.

Careers skills is a compulsory module for all Year 2 Economics students. It is not available to students from outside the School. It is one of a number of modules that make up the Nottingham Advantage Award. The Nottingham Advantage Award is a new initiative focusing on student skills, employability and personal and academic development. Initially created for undergraduate students, it aims to develop the kind of competencies, learning and evaluation skills that employers are looking for in talented new graduates.

For more information on the Award you can visit:

<http://www.nottingham.ac.uk/ugstudy/introduction/life/advantageaward>

Suitable For: Undergraduate Year Two Students

Dr David Harvey Dr David Harvey has been a member of staff in the School of Economics since October 2003. He is a Reader in Econometrics. His research interests are in the area of time series econometrics, in particular tests for unit roots and structural change, forecast evaluation and applied time series analysis in general. He has published in journals such as the Journal of Econometrics, Journal of Business and Economic Statistics, Journal of Applied Econometrics, Econometrics Journal, Oxford Bulletin of Economics and Statistics, Journal of Forecasting, International Journal of Forecasting.

10.1.9 [Japan in war and peace](#)

09 February 2010, 18:36:05 | Townsend Susan C. Dr

This is a module framework. It can be viewed online or downloaded as a zip file. As taught in Autumn Semester 2009/2010.

This module consists of a detailed examination of the critical period in Japanese history from the end of the Pacific War through the U.S. Occupation between 1945 and 1952 and recovery in the 1960s and beyond. The lectures and seminars examine the following topics: Japan's Road to War The Japanese experience of war and defeat The A-bomb in history and memory The 'Allied' Occupation of Japan The changing Japanese family Japan's economic recovery in the 1950s and 60s The environmental costs of rapid economic development The Asia-Pacific War in Japanese memory and popular culture

Suitable for: Undergraduate year one students

Dr Susan C. Townsend, School of History.

Dr. Townsend is Associate Professor of Japanese history in the School of History, University of Nottingham. She has published on Japanese intellectual history, including Yanaihara Tadao and Japanese Colonial Policy: Redeeming Empire (Curzon, 2000) and her most recent monograph Miki Kiyoshi 1897-1945: Japan's Itinerant Philosopher (Brill, 2009). She is now developing a major collaborative project entitled Motor Cities: A Comparative History of Nagoya, Japan and Birmingham, England in the Twentieth Century in association with the University of Leicester, Birmingham City University and Nagoya University. A major focus of the project is the role of the motorcar and the automotive industry in city-centre design and regional development.

10.1.10 [Nineteenth and early twentieth century American entertainment culture](#)

09 February 2010, 17:14:06 | Pethers Matthew Dr;Thompson Graham Dr;Grainge Paul Dr;Fagg John Dr

This is a module framework. It can be viewed online or downloaded as a zip file. As taught in Autumn/Spring Semesters 2009/2010.

This resource presents material from four different courses taught across the School of American and Canadian Studies and Film and Television Studies. It addresses various aspects of nineteenth and early twentieth century American entertainment culture. You can view module outlines for 4 modules taught within the school: * American Drama (undergraduate year 3 level) * American Sensations (undergraduate year 3 level) * Film History (undergraduate year 1 level) * Emergence of Mass Culture (undergraduate year 2 level) The information contained within the module outlines includes: module objectives, lecture schedules, reading lists, teaching and learning methods, module resources, modes of assessment and essay questions. This resource also presents examples of materials from each of the modules listed above. The materials available address: * The Sensational Novels of the 1850's (from the American Sensations module) * Mass Market Magazines around 1900 (from the Emergence of Mass Culture module) * The movie Palaces of the 1920's (from the Film History module) * The Depression-Era Theatre of the 1930's (from the American Drama module) Suitable for: undergraduate study years one to three depending upon topic selected (see individual module titles above for more information)

Dr Matthew Pethers, Dr Graham Thompson, Dr Paul Grainge, Dr John Fagg, School of American and Canadian Studies.

Matthew Pethers is a Lecturer in American Intellectual and Cultural History in the School of American Studies. His research largely focuses on the American Enlightenment and early 19th century print culture, but he also has an ongoing interest in the history of the

American stage. Graham Thompson is the author of *Male Sexuality under Surveillance: The Office in American Literature* (2003), *The Business of America: The Cultural Construction of a Post-War Nation* (2004) and *American Culture in the 1980s* (2007). He is currently working on a new research project on Herman Melville's magazine fiction which re-locates Melville within the print culture industry of the 1850s and explores in more detail how magazine publishing developed and operated in order to better understand how cultural products like Melville's fiction were formed and circulated within it.

Paul Grainge is Associate Professor of Film Studies at the University of Nottingham. His teaching and research focuses on Hollywood and contemporary media culture. He is the author of *Brand Hollywood: Selling Entertainment in a Global Media Age* (Routledge, 2008), *Monochrome Memories: Nostalgia and Style in Retro America* (Praeger, 2002), *Memory and Popular Film* (as editor) (Manchester UP, 2003), and *Film Histories: An Introduction and Reader* (as co-editor) (Edinburgh UP, 2007). Within the Institute of Film and Television Studies at Nottingham, he teaches modules on film history, the cultural industries, the New Hollywood, and media memories.

Dr John Fagg is a lecturer in the School of American and Canadian Studies at the University of Nottingham. His research focuses on literature and painting around 1900 and the representation of everyday life. He teaches courses on American Literature, The Emergence of Mass Culture and the art and literature of New York City.

10.1.11 [Film in history/history in film](#)

09 February 2010, 11:45:16 | Baron Nick Dr

This is a module framework. It can be viewed online or downloaded as a zip file. As taught in Autumn Semester 2009.

This module explores the inter-relations and interactions of film and history in 20th century Europe and the United States (with a few classic films from elsewhere). It considers how films have appropriated past events as their core subject matter or setting, for purposes of nostalgic entertainment or didactic drama, for social commentary, philosophical enquiry or political protest and examines how historical films have shaped popular knowledge and popular cultures of history, how they have contributed to forming or reforming collective memories and how, at times, they have catalysed social or political change. This module raises challenging questions about the constitution and role of public and private memories, about the social meaning and significance of history, about the nature of historical evidence and historical representation and, ultimately, about the construction and possibility of historical 'truth'.

Suitable for: undergraduate level three students

Dr Nick Baron, School of History. Dr Nick Baron is an Associate Professor in History at the University of Nottingham. After taking a BA in modern history and modern languages at Oxford, he turned his attention eastwards, receiving an MPhil in Russian and East

European Studies, also from Oxford, and then a PhD in Soviet history from Birmingham. He then held a four-year postdoctoral fellowship at the University of Manchester before taking up a position at Nottingham in 2004. His research area is twentieth century Russian and East European history and historical geography, and he has special interests in the history of population displacement and in spatial experience, representation and practice. He is a Fellow of the Royal Geographical Society–Institute of British Geographers.

10.1.12 [PGCE International](#)

27 January 2010, 12:29:16 | University of Nottingham

This is a module framework. It can be viewed online or downloaded as a zip file. As taught in Autumn Semester 2009/10.

The Postgraduate Certificate in Education (International) is a part-time programme of professional enrichment for teachers working in countries other than the U.K.

Suitable for: Postgraduates

School of Education Nottingham's School of Education is one of the largest and most respected education departments in any British university. Its academics include major national and international figures, who lead courses in a wide variety of subject areas including initial teacher training and professional development for teachers, counsellors and educational practitioners in the caring professions.

10.1.13 [Introduction to microeconomics](#)

25 January 2010, 17:36:25 | Morgan Wyn Dr

This is a module framework. It can be viewed online or downloaded as a zip file. As taught Semester 1 2009/2010.

There are no pre-requisites to taking this module and in particular there is no assumption of any prior knowledge of economics. For those who have taken A-level economics or any other version of economics some of the module content will appear familiar to you. However, the methods of analysis and the approach to teaching will quite probably be very different to anything experienced before and thus it is very important that good lecture notes are made, essays are thoughtfully written and background reading is undertaken. If not, then a degree level of understanding of the material will not be achieved.

This module is suitable for study at undergraduate level 1

Dr Wyn Morgan Dr Wyn Morgan has been a member of staff at Nottingham since 1990 and became Associate Professor in August 1999. His research interests lie in imperfect competition in vertically related markets; price transmission, and futures and commodity markets. Since 2005 he has been an Associate Director in the Centre for Excellence in

Teaching and Learning for Integrative Learning at the University of Nottingham. In 2006 he was appointed to be the University's Director of e-Learning and in August 2007 he became the University's Director of Teaching and Learning. He is also an Associate Director of the Economics Network of the Higher Education Academy and an Associate of the Learning Sciences Research Institute.

10.1.14 [Introduction to macroeconomics](#)

25 January 2010, 16:57:25 | Gathergood John Dr

This is a module framework. It can be viewed online or downloaded as a zip file. As taught in Spring Semester 2010. This module provides an introduction to modern macroeconomic analysis. Macroeconomics is concerned with some of the most pressing and fundamental questions economists can ask, such as: What determines economic growth? Why do economies exhibit expansions ('booms') and contractions ('busts') in output? What drives employment and wages, saving and investment? What causes inflation and why is it a problem? What, if anything, can governments do to improve the performance of an economy? Microeconomics is concerned with the analysis of economic agents and markets at the individual level. Macroeconomics is concerned with the aggregate implications of microeconomic behaviour at the economy-wide level. So there is a clear connect between the actions of individual agents in the economy and the aggregate performance of the economy. This is the starting point for modern macroeconomic analysis - though macroeconomics has not always been understood or taught in these terms, and prior study of macroeconomics at A-level or equivalent is not based on this modern understanding of macroeconomics built on 'microfoundations'. Consequently prior study of economics is not necessary for taking this module and students who have studied macroeconomics previously may have to re-think how they understand the aggregate economy.

This module is suitable for study at Undergraduate level 1

Dr John Gathergood, School of Economics. John Gathergood joined the School of Economics as an ESRC Postdoctoral Research Fellow in July 2008. His main area of research is household finance, with a particular interest in household financial behaviour in relation to housing wealth, participation in credit markets and self-employment.

10.1.15 [Evaluation techniques](#)

25 January 2010, 15:47:42 | Myles Puja R. Dr

This is a module framework. It can be viewed online or downloaded as a zip file. As taught in Autumn Semester 2009/10.

The 'Evaluation Techniques' module is one of the core modules taught on the Masters in Public Health which is offered by the Division of Epidemiology and Public Health at The University of Nottingham. This resource includes an overview of the module, a recommended reading list that supports the module and 3 of the 7 lectures that are delivered.

Suitable for study at Masters Level.

Dr Puja R Myles, School of Community Health Sciences - Epidemiology and Public Health

Dr. Puja Myles is an Associate Professor of Health Protection and Epidemiology at the University of Nottingham. She trained as a dentist at Panjab University, India and worked as a dentist in India before completing her specialist training in Public Health in the East Midlands. She completed a doctorate in Epidemiology at the University of Nottingham. She is currently part of the Health Protection Research Group at Nottingham and her research is primarily in respiratory disease epidemiology. She is also interested in evaluation methods and is currently involved in some public health service evaluations.

10.1.16 [Introduction to European politics](#)

25 January 2010, 13:37:08 | Guerra Simona Dr; Bieler Andreas Prof

This is a module framework. It can be viewed online or downloaded as a zip file. As taught in Spring Semester 2009.

This module seeks to provide students with an understanding of the rationale and key stages of European integration, as well as of the institutions of the European Union and its functioning. Topics covered will include an overview of the History of European integration, key approaches to integration, the main institutions (Council, Commission, Court of Justice, European Parliament) as well as several policy areas (foreign policy, monetary policy, enlargement). Recent developments including the 2008 Treaty of Lisbon will be covered as will be the debates about the alleged democratic deficit of the EU.

Suitable for: Undergraduate Level Year One students Professor Andreas Bieler and Dr Simona Guerra, School of Politics.

Andreas Bieler is Professor of Political Economy and Fellow of the Centre for the Study of Social and Global Justice (CSSGJ) in the School of Politics and International Relations, University of Nottingham/UK. His main research interest is the current struggle over the future economic-political model of the European Union. He is author of *Globalisation and Enlargement of the European Union* (Routledge, 2000) as well as *The Struggle for a Social Europe: Trade unions and EMU in times of global restructuring* (Manchester University Press, 2006). During the academic year 2009/2010, Andreas Bieler is a research fellow at the Helsinki Collegium for Advanced Studies (<http://www.helsinki.fi/collegium/english/>). Simona Guerra is a Teaching Fellow at the University of Nottingham since September 2008. Previously she was a researcher at Cardiff University for the EU-funded project 'Eurosphere', undertaking research on political parties and think tanks. Simona gained her MA in European Studies at the University of Siena, Italy - attending modules at the Instytut Spraw Publicznych, Uniwersytet Jagiellonski in Krakow, Poland, and at the Institut des Hautes Etudes

Europeennes, Université Robert Schuman in Strasbourg, France. She gained her MSc in Social Research Methods at the University of Sussex, where she successfully defended her DPhil research in Contemporary European Studies in September 2008. Her main research interests are on public opinion on European integration and disengagement with politics in Central and Eastern Europe. Among her publications, 'Not Just Europeanization, Not Necessarily Populism: Potential factors underlying the mobilization of populism in Ireland and Poland', forthcoming on Perspectives on European Politics and Society (with John FitzGibbon) and 'The League of Polish Families between East and West, past and present', The Journal of Communist and Post-Communist Studies, 42, 527-549 (with Sarah de Lange). In 2009-10, Simona is also a guest lecturer for the MA in European Studies at the Centre of Research in European Integration (CRIE), Facolta' di Scienze Politiche, University of Siena, where she teaches a module on the fifth EU enlargement ('When East Meets West: l'Unione europea e l'allargamento a Est').

10.1.17 [Theories and concepts](#)

11 December 2009, 17:25:27 | Morton Adam D. Dr

This is a module framework. It can be viewed online or downloaded as a zip file As taught in Autumn Semester 2009/10.

The War on Iraq and the US and British invasion of the country in 2003 has led to huge tensions in geopolitics. At the same time, the supposed 'threat' of international terrorism and continuing financial turmoil in the world economy have both brought to the fore the global politics of co-operation and confrontation. Whilst it might be possible to agree on the significance of these events, the explanation and/or understanding of them is dependent on prior theoretical choices. The purpose of this module is to make students aware of the diversity of approaches to international theory. Within International Relations (IR) theory there exist highly divergent interpretations and applications of key concepts (e.g. power, the state, agency, structure, and world order) as well as contested views about the practical purpose underpinning theories of world politics. The overall aim of the module is to provide students with a solid theoretical and conceptual grounding of this diversity. As a result, it will be possible to recognise not only how international theory informs policy-making and practice but also, perhaps, how truly contested the underlying assumptions of world politics are.

Suitable for Postgraduate Level

Dr Adam D. Morton, School of Politics and International Relations

Dr. Adam D. Morton is Associate Professor of Political Economy within the Centre for the Study of Social and Global Justice (CSSGJ) in the School of Politics and International Relations at the University of Nottingham. His research specialises in the themes of political economy, state theory, historical sociology and development in relation to the making of modern Mexico. His next book is Revolution and State in Modern Mexico: The Political Economy of Uneven Development (Rowman & Littlefield, 2011) and he has published peer-reviewed journal articles on various dimensions of the political economy

of Mexico in Third World Quarterly (2003); Bulletin of Latin American Research (2003); New Political Economy (2005); Journal of Peasant Studies (2007); and Latin American Perspectives (2010). He has also published in many of the major peer-reviewed journals in International Relations and International Political Economy (IPE), including European Journal of International Relations (2001); Review of International Political Economy (2003); Review of International Studies (2005); and International Studies Quarterly (2008). Email: Adam.Morton@nottingham.ac.uk

[Understanding contemporary society](#)

16 November 2009, 17:36:36 | Parker David J. Dr

This is a module framework. It can be viewed online or downloaded as a zip file. This module introduces students to a range of approaches in social analysis. Through introductions to key concepts, theorists and research studies in the disciplines of sociology, cultural studies and social policy, students will be equipped with the skills necessary for more advanced study of contemporary society. Two routes to reading this module's contents are offered. Those who prefer to read on screen can navigate to each section of interest using the links and menus provided whilst a full print version is also available for those who prefer to read offline and from paper.

Suitable for: undergraduate year one level learners.

Dr David J Parker, School of Sociology and Social Policy.

David Parker is a lecturer in Sociology in the School of Sociology and Social Policy, University of Nottingham. His research interests include urban life, social change, ethnic identities, British Chinese communities. His teaching focuses in introductory sociology, classical sociology and urban sociology

10.1.18 [Quantum field theory](#)

16 November 2009, 16:46:29 | Krasnov K. Dr

This is a module framework. It can be viewed online or downloaded as a zip file. Last taught in Spring Semester 2006 A compilation of fourteen lectures in PDF format on the subject of quantum field theory. This module is suitable for 3rd or 4th year undergraduate and postgraduate level learners.

Suitable for year 3/4 undergraduate and postgraduate study. Dr Kirill Krasnov, School of Mathematical Sciences

Dr Kirill Krasnov is a Lecturer at the University of Nottingham. After studying physics in Kiev, Ukraine, he carried out research for his doctorate at Pennsylvania State University, USA and then held post-doctoral positions at University of California, Santa Barbara and Max Planck Institute for Gravitational Physics, Germany. His main research interest is in the field of quantum gravity. Dr Krasnov is a holder of an EPSRC Advanced Fellowship.

10.1.19 [How and why we do mathematical proofs](#)

11 November 2009, 11:31:04 | Feinstein Joel F. Dr

This is a module framework. It can be viewed online or downloaded as a zip file. As taught in Autumn Semester 2009/10.

The aim of this short unit is to motivate students to understand why we might want to do proofs (why proofs are important and how they can help us) and to help students with some of the relatively routine aspects of doing proofs. In particular, the student will learn the following: * proofs can help you to really see why a result is true; * problems that are easy to state can be hard to solve (e.g. Fermat's Last Theorem); * sometimes statements which appear to be intuitively obvious may turn out to be false (e.g. Simpson's paradox); * the answer to a question will often depend crucially on the definitions you are working with; * how to start proofs; * how and when to use definitions and known results. The module is organised into three sections: Why; How (Part I); How (Part II) With practice, students should become fluent in these routine aspects of writing proofs, and this will allow them to focus instead on the more creative and interesting aspects of constructing proofs. A practice sheet is included after students have completed all three sections. Each section is suitable for a different level of audience, as described below:

Suitable for: Foundation, undergraduate year one and undergraduate year two students

Section 1: Why: Anyone with a knowledge of elementary algebra and prime numbers, as may be obtained by studying A level mathematics. (Foundation) Section 2: How (Part I) – Suitable for anyone with a knowledge of elementary algebra (including odd numbers, multiples of eight and the binomial theorem for expanding powers of $(a+b)$), and functions from the set of real numbers to itself (odd functions, even functions, multiplication and composition of functions). (Undergraduate year one) Section 3: How (Part II) – Requires some background knowledge of convergence and divergence of series of real numbers. A revision sheet is available. (Undergraduate year two)

Dr Joel Feinstein, School of Mathematical Sciences Dr Joel Feinstein is an Associate Professor in Pure Mathematics at the University of Nottingham. After reading mathematics at Cambridge, he carried out research for his doctorate at Leeds. He held a postdoctoral position in Leeds for one year, and then spent two years as a lecturer at Maynooth (Ireland) before taking up a permanent position at Nottingham. His main research interest is in functional analysis, especially commutative Banach algebras. Dr Feinstein has published two case studies on his use of IT in the teaching of mathematics to undergraduates. In 2009, Dr Feinstein was awarded a University of Nottingham Lord Dearing teaching award for his popular and successful innovations in this area

10.1.20 [Consumer law](#)

06 November 2009, 15:50:49 | Cartwright Peter R. Professor

This is a module framework. It can be viewed online or downloaded as a zip file. As taught in Autumn Semester 2009/10.

This module looks at the role of the law in regulating business in the interests of consumers.

Suitable for: Second and final year undergraduates Professor P.R Cartwright, School of Law

Peter Cartwright has been Professor of Consumer Protection Law at the University of Nottingham since 2004. He previously worked at the University of Wales, Aberystwyth, where he obtained his Ph.D. Peter is the author of several books including Consumer Protection and the Criminal Law (2001) and Banks Consumers and Regulation (2004). The former won one of the Society of Legal Scholars' prizes for outstanding legal scholarship by a scholar under the age of 40. Peter is a member of the Financial Services Research Forum and of the Editorial Board of the Journal of Banking Regulation. He spent several years as a member of the UK Department of Trade and Industry's Consumer Law Advisory Panel, and as Scientific Director of the European Credit Research Institute, Brussels. Peter has also served as Chair of the Society of Legal Scholars' Consumer Law Panel

10.1.21 [BURN - Biosciences Undergraduate Research at Nottingham](#)

02 October 2009, 13:20:21 | University of Nottingham

This is a module framework. It can be viewed online or downloaded as a zip file. Research produced 2006 - 2009.

BURN brings final year undergraduate research work to public view in a professional and relevant way. The students represented here have risen to the challenges of doing rigorous research and presenting their work to a wider audience. Their articles show the distance they have travelled during their studies. They also demonstrate the inquiry and critical thinking skills that have been developed. As graduates, they will be able to exploit these valuable skills in their careers, whether they continue in science or whatever path they may choose.

Suitable for undergraduate study Coordinated by Dr Martin Luck, School of Biosciences
Dr

Martin Luck is Associate Professor of Animal Physiology at the University of Nottingham. After reading Animal Physiology at Nottingham, he moved to the University of Leeds to complete a Masters in Steroid Endocrinology and a PhD in Physiology. He carried out post-doctoral research at the University of Southampton and then moved to Hamburg, Germany where he led a research group investigating ovarian follicular development. He returned to Nottingham as an academic in 1990. Dr Luck also has a BA in Mathematics,

is a Fellow of the Society of Biology and the Higher Education Academy and is Chair of the Management Board of Bioscience Horizons, the National Undergraduate Research Journal. He has held teaching advisory posts at the University and been a consultant for the Quality Assurance Agency and Higher Education Academy.

10.1.22 [Regularity conditions for Banach function algebras](#)

29 September 2009, 16:44:53 | Feinstein Joel Dr.

In June 2009 the Operator Algebras and Applications International Summer School was held in Lisbon. Dr Joel Feinstein taught one of the four courses available on Regularity conditions for Banach function algebras. He delivered four 90 minute lectures on and this learning object contains the slides, handouts, annotated slides and audio podcasts from each session. Banach function algebras are complete normed algebras of bounded, continuous, complex-valued functions defined on topological spaces.

10.2 Appendix b – Publishing a module framework

The process for how the BERLiN team created and publishes module frameworks using eXe, Reload and the Equella Repository can be seen by visiting <http://tinyurl.com/BERLiNModuleFramework>

10.3 Appendix c – Evaluation results

10.3.1 The BERLiN experience - academic focus group feedback report

The report for the BERLiN experience - academic focus group feedback can be seen by visiting http://unow.nottingham.ac.uk/focus_groups.pdf

10.3.2 The BERLiN staff survey report

The report for the BERLiN staff survey can be seen by visiting <http://tinyurl.com/BERLiNStaffSurvey>

10.4 Appendix d - Feedback from OER Africa on U-Now Website

The feedback provided by OER Africa on the U-Now website can be seen by visiting <http://tinyurl.com/oerafrica-u-now-feedback09>