

Engaging tutors in using e-repositories for learning and teaching

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1. EXECUTIVE SUMMARY

1.1. Are standard repositories suitable for learning and teaching?

Universities which set up online repositories for the management of learning and teaching resources commonly find that uptake is poor. Tutors are often reluctant to upload their materials to e-repositories, even though the same tutors are happy to upload resources to the virtual learning environment (VLE) such as Blackboard, Moodle, or Sakai and also happy to upload their research papers to the university's research publications repository. And a growing number of tutors are happy to upload teaching material to online systems such as YouTube, Flickr and Slideshare. Our paper suggests the reason for this poor uptake is that conventionally structured repositories do not meet the needs of tutors for their everyday teaching materials.

1.2. What we have found

We have recently completed a major project "Developing Repositories at Worcester" which is part of a group of similar projects in the UK funded by the Joint Information Systems Committee (JISC). We have found that it is necessary to embed repository use into institutional working practice, to provide different kinds of repository designed to meet the needs of those using different kinds of learning and teaching resources, and to provide support and management services for those systems. What we have found from our specific experience has been echoed in some recent reports published in the UK: the JISC report *Good intentions: improving the evidence base in support of sharing learning materials* and Ron Cooke's report to a UK government initiative on the future of Higher Education, *Online Innovation in Higher Education*.

1.3. Conclusions

We suggest that tutors will engage with repositories so long as we provide them with systems which fit in with the way tutors work and give personal control over the management and sharing of their materials; this is far better than expecting tutors to work with an "openly searchable archive", which doesn't fit in with the way they work. We propose that the needs of tutors are best met by the development of a Web 2.0 style interface for an e-repository, giving teachers control over access and control over organization. This raises issues such as using tags rather than metadata, social networking for managing access, linking to VLEs etc. This seems the way forward for new development. Conventionally structured repositories still have value for example for archives of centrally managed collections of material, or for nationally published showcases of top quality materials in open resources initiatives. Recognising this variety suggests a vision in which a wide range of levels and types of repository will come into existence to create a rich repository environment. Building this environment and coping with its complexity by developing coherent support and management will be our challenge for the coming years.

2. OUR POINT OF VIEW

2.1. What we have come to believe

We believe that the poor take-up of repositories for teachers' learning and teaching materials is not the fault of the tutors themselves, but rather, we believe that the structure of conventional repositories is not suited to their purpose. Though a conventional repository may be fine for research papers, or certain types of resources, we feel it does not meet the needs of tutors for the standard materials they use daily for e-learning.

The reasons for this are varied. One reason is that the metadata schemes seem both too general and too extensive for a typical item used in teaching. Tutors do not want to spend time giving information that is not particularly helpful to themselves. Another is that many teachers do not want their material to be made available to the open public, they just want the resources to be seen by themselves and their students, and if they wish to share, it may be limited to a specific group of colleagues. There are many other reasons for this which different authors have reported: concerns over copyright and anxieties over presentation quality and academic quality, for example. Overall, an "open archive" system is not the same as a "working tool", and not what tutors need for managing their own materials.

Teachers are happy to upload materials to the university VLE and in many cases to online services such as YouTube, Flickr, and Slideshare. These give teachers control over access and the ability to organize the material their own way. There is evidence that a Web 2.0 style interface to a repository will meet teachers' needs far better.

That is not to say we think that conventionally structured repositories are of no use for teaching materials. Centrally managed collections of materials such as a collection of photographs, digitized maps, archive of local history documents and photos lend themselves to being organized as an archive with standard metadata for searching. Similarly collections of students' dissertations, or past exam papers are suitable. Also at a national level, a collection of open educational resources, items of high quality submitted by academics made available on a national or even international level are best stored as an archive with thorough metadata.

However, these are not the majority of the resources. Most of the learning materials used in teaching are those produced by hundreds, indeed thousands, of lecturers on a daily basis. Such resources we feel would be best managed within a system where the tutor can apply their own personal organization, via tags perhaps, and can control access themselves.

Our vision is a future where there will be a variety of repositories and repository types available to university staff. This contrasts with the early model in which people envisaged each university having a single repository, perhaps linked to one or two national ones. We can foresee institutional repositories for research papers, perhaps different ones for research data, others to house collections of learning materials, or student-generated content and resources and a Web 2.0 style repository for day to day management of teachers' items. At national level there will be further repositories of different levels and styles - one set up by a subject interest group for learning materials on a specific academic field, another a national collection of high quality teaching resources supplied by experts in their discipline. The boundaries between these repositories will be unclear, and there will be a network of links between them. This sounds as if it might be unmanageable, but that's not necessarily the case! After all the web itself consists of many separate yet linked resources and services and we cope happily. So long as each of the individual systems and services provide a good service to its particular community of users, this will be better than the "one size fits all" approach, and the repository environment will provide a valuable and rich tool.

2.2. How did we come to this viewpoint?

How did we reach this opinion? The rest of article will explain! We have ourselves worked on repository development projects and gained personal experience, and we have found that our experience fits in with reports from work done at a national level. The evidence for our viewpoint is set out in the main part of this article.

In the final section of the article we present a scenario of how individual tutors might in future work with their resources in learning and teaching.

3. THE DEVELOPING REPOSITORIES AT WORCESTER (DRaW) PROJECT

3.1. The project

The DRaW project at the University of Worcester ran from April 2007 to March 2009 and was part-funded by the UK JISC as part of a wider programme of funding for repository development called the Repository Start-up and Enhancements (SuE) Strand of the Repositories and Preservation Programme. Further details can be accessed at:-

<http://www.jisc.ac.uk/whatwedo/programmes/reppres/sue.aspx>. Its formal title was *Extending and Embedding the University Repository Service*. The DRaW project team consisted of: Andrew Rothery (Project Director), Sarah Hayes (Project Manager), Janet Davidson, Debbie Offen, Ann Craig, Mark Adams, and Clive Kennard. Its web site is <http://worc.ac.uk/drawproject> .

3.2. What we did and why

The DRaW project helped the university to establish repository use within its working practices and create an environment where there are options for staff to choose the appropriate repository suited to particular purposes, and a coherent service for support and management. The most successful area of development was the creation of a repository for research and related publications; and the most difficult area to cope with was that of learning and teaching materials. Indeed the project team feels there is still need for new initiatives in respect of e-learning resources.

When the project started in the Summer of 2007, the university had already installed software for two separate repositories, one based on EPrints software (<http://www.eprints.org>) and the other based on CoRE (<http://learning.covcollege.ac.uk/demo>) . Following experience of an earlier project called WM Share which investigated the sharing of resources regionally, the project team realised that engaging staff with repository use would require considerable work, and so one key objective of the DRaW project was to customise and promote the use of these repositories.

In addition, the project team felt that the repositories should not be left as separate entities and the development of a repository culture would be assisted by some kind of integrated approach. Other kinds of repository might be added too: there was in 2007 much talk of using the national system JORUM (<http://www.jorum.ac.uk/>) and of developing an in-house system for media files. So a typical university environment would include access to several repositories! Clearly these cannot be integrated seamlessly as software but the DRaW project set out to at least develop an integrated approach to their support and management so that users had a coherent route into their use of repositories. Moreover, we were anxious to maintain sustainability: we wanted the support to remain in place after the end of the project so made one of the project objectives building the support structure.

3.3. Research and publications

After the software interface had been customised to university style and requirements, the Worcester Research and Publications (WRaP) repository was launched at an event in October 2007. Added support was given by the Vice Chancellor who declared that all newly published publications should be uploaded. However, this was in itself not enough to get people using the system: much of the hard work of advocacy was done on a day to day basis by members of the university Information and Learning Services and the project team. This involved speaking to individuals and groups and arranging substantial amounts of help in starting to use WRaP. There were debates on copyright and how to avoid problems; a whole range of general issues had to be argued with individuals. The initial number of deposits was small but now after just over a year, we recently achieved our 500th item which for a small university, we feel, is good.

On reflection it now seems that academic staff do readily accept that using WRaP will improve the “visibility” of their work, and improve the reputation of the university by making its outputs public. WRaP provides a useful archive as well as a way of publicising the papers. There is still however a need to constantly remind staff about WRaP and for those supporting the repository, a need to connect with any university initiatives, such as the Research Assessment Exercise, and in the case of Worcester, the university’s bid for Research Degree Awarding Powers (RDAP).

3.4. Learning and teaching materials

Our repository for learning and teaching materials (CoRE) did not have the same positive response despite similar, indeed, rather more energetic campaigns to promote use. The project team has set up events, training and meetings but the take-up from tutors was extremely low. Yet the same tutors are happy to upload papers to WRaP, and to upload teaching materials to the VLE, and indeed to public services such as Flickr or YouTube. But not to CoRE. As a result of this experience we are convinced that it is not the tutors who are to blame, but the repository itself is not meeting their needs. The project team organised a JISC Programme level event in June 2008 to host a meeting of representatives from the other projects in the Programme involved with repositories for learning and teaching. Everyone shared similar problems and there was a common agreement over what was happening, leading to the publication of an event report called *Repositories for Learning and Teaching: our recipe for success* (Rothery A., Hayes S., 2008A)

We had identified many reasons why repositories for learning and teaching differed from those for research publications. (Rothery A., Hayes S., 2008B)

For a range of reasons, the conventional repository structure and metadata system does not seem suitable for the management and interactive use of the day to day learning and teaching resources used by tutors. However, that is not to say that a conventional repository is no good. For centrally managed resources which are publicly available, the metadata system and the unrestricted openness is fine. At Worcester we have tested out the use for undergraduate dissertations and also some audio/video files; other projects have developed more extensive collections of materials. However, for material belonging to tutors we believe that a more personal approach is needed, something more akin to a Web 2.0 service, replacing metadata by tags perhaps, stressing personal management and very controlled sharing, perhaps more like social networking software. By way of example, the Faroes project (<http://www.faroes.ecs.soton.ac.uk/index.php>) has developed something along these lines; a completely new, fresh approach is needed.

Though not exactly a repository the university ILS developed a system called “Release” which is used to manage and deliver video and other material. This is rather like YouTube in that tutors upload media files which can then be played via a url or embedded code in the VLE or web site being used to present material to the students. It is not like a conventional repository in that it is a delivery mechanism rather than an archive, and it performs the added service of converting media files into a consistent format for viewing. This was launched early in 2009 and is already being put to good use. We mention this to indicate that tutors are not against uploading material to online systems but the repository they need has to be a new type!

3.5. Integrated repository environment

The project team had in mind the idea of an “integrated repository environment”. Recognising that different types of material being deposited will need different types of repository, how can staff nevertheless avoid being confused and how can they be guided to the right place? The project team designed a web page which aims to provide, in one place, all the information needed to describe what is available at the university; and in future will include any relevant external repositories. This will become a vehicle for presentation of training and awareness materials and videos, together with contact details for obtaining help. However, more than this, we developed a coherent approach to support using a team within ILS.

At Worcester the ILS underwent a major restructuring at the end of 2008, and the DRaW team took advantage of this to be able to negotiate new roles and responsibilities of ILS staff for the management and support of the repositories. This was not as easy as it might seem, because introducing new systems raises concerns about the changing nature of staff jobs, who does what, and who does extra? We finally arrived at a solution in which the ILS Research Team manages, promotes and provides expert level of support for WRaP, and the ILS Learning and Teaching Technology Support Unit for systems which manage learning resources. They work in collaboration with the ILS Academic Liaison Team whose staff work with subject departments and are able to advise, promote and answer queries on any repository, referring more complex matters to the abovementioned teams. In addition Worcester has set up a Repository Development Steering group so that as time goes on, there is a group responsible for additions to the repository service, both new software and new services.

The support approach seems to be very suitable for us here at Worcester; clearly other universities might have different structures to work in. The DRaW project team would suggest to anyone embarking on setting up a repository that they give serious attention to changing the roles of the support staff at different levels. It is not easy, takes time and lots of negotiation, but is very important to the sustainability of the work once the project initiative is over. We would also recommend that ample attention is given to the substantial effort needed to promote and give help to initial users to get things off the ground. And we would warn that for learning and teaching materials, the situation is quite complex; the different types of resources, owners and audiences require a very flexible approach. We think it inevitable that several different repository systems might be involved, so it is vital to look at, and deal with, the entire repository environment as a whole.

3.6. The future at Worcester

The project team will hand over responsibility for overseeing future progress to the ILS Repository Development Steering Group. There is work to be done during Summer 2009 in updating and extending the material on the web page for repository information and guidance, and the production of training/awareness videos for WRaP. Within the area of learning and teaching new systems are becoming available: the ILS “Release” media streaming system is now available for use and the JISC national repository JORUM is to be re-designed and relaunched as OpenJORUM. And the ILS has been successful in attracting further project funding from JISC to enable it to develop a new Web 2.0 style system for learning and teaching material, now generally seen as the best way forward to manage tutors’ educational resources.

3.7 Comparing developments at Aston

One of the authors of this paper, Sarah Hayes, has recently taken up a post at Aston University as a Learning Technologist within the School of Languages and Social Sciences. A repository for the capture of institutional teaching materials has recently been established at Aston, using the Equella system <http://www.thelearningedge.com.au/products.php>. This digital repository has been integrated with the Blackboard VLE to enable tutor materials to be deposited as part of the upload process. Currently only lecturers may access these resources. The School of Languages and Social

Sciences hope to work with repository staff to extend the range of possibilities Equella offers, to include allowing students to search certain collections within the repository, including collections of film, video and TV documentaries as well as student-generated media and materials.

In addition to investigating the possibilities for use of Equella, the School of Languages and Social Sciences at Aston is collaborating with projects funded by JISC and the Higher Education Academy under the Open Educational Resources (OER) call. This collaboration will involve releasing tutor materials for open access into new Web 2.0 style repositories developed by the Faroes project to cater for the subject areas of Languages, Humanities and the Social Sciences.

The ‘Good Intentions’ report discussed in the next section presents findings that further reinforce the position to move towards the sharing of teaching materials through new Web 2.0 style systems.

4. JOINT INFORMATION SYSTEMS COMMITTEE (JISC) REPORTS

4.1. Good Intentions

The report *Good intentions: Improving the evidence base in support of sharing learning materials* (Heery R., 2008) examined the changing landscape and current trends in both the UK and elsewhere with regard to the sharing of learning resources.

Whilst continuing to present the case for the benefits of sharing teaching materials at global, national, regional and individual levels, the authors recognize that there may also be many different models emerging to support this. So whilst the end goal may remain the same, the different routes that might be taken to achieve this must be acknowledged, and if possible articulated, to support actual institutionally recognized ‘business cases’ for sharing materials.

There has in the past been a fundamental assumption that people want to share and re-purpose each others materials. Informally, we know that this takes place amongst colleagues when a need arises. However, rather than expect that the motivation to upload materials alone to repositories is to share, it may be more likely that teachers would first be prepared to share information about their practice, which could then lead to the sharing of the related materials.

Further research is recommended on how people do share within, across and outside of institutions. This would need to examine the motivations of students, teachers, learning technologists and employers. One stumbling block to the progress of sharing teaching resources has been the closed environment of the VLE, which may have other advantages, but does not help the natural ‘flow’ of materials between courses, individuals and external projects.

Acknowledging the potential of social networking tools, such as Flickr, Facebook and blogs to support learning in a Web 2.0 environment can remind us of the further possibilities that sharing student-generated content might present. Indeed the motivations that students have to deposit materials in the public domain using such tools may provide additional evidence to support the use of Web 2.0 tools in the context of re-use of resources.

There are both complexities and cost in time to acknowledge, as well as a need to recognize many unique and special situations within institutions and cultural practices. Organisational strategies and objectives will also play a part. For individual academics there is the dilemma of *where* to place their resources, when faced with different deposit choices, but what they decide to do is likely to be driven by their particular situation and preferences, funding, community of practice or institutional guidelines.

It cannot therefore be assumed that educators are aware of the benefits of global sharing. Offering a range of choice to encourage initial buy-in is recommended. The question of useful and sustainable business models and drivers such as cost-efficiency, resource management and enhancing teaching and learning remain and these are discussed further within the Ron Cooke report: *On-line Innovation in Higher Education* which calls for openly available and high quality teaching resources.

4.2. Online Innovation in Higher Education, Prof Sir Ron Cooke, JISC

On-line Innovation in Higher Education (Cooke, 2008) makes the case for a new approach to virtual education based on a corpus of open learning content:

"A comprehensive national resource of freely available open learning content should be established in a coherent way to support on-line and blended learning by all higher education institutions and to make it more widely available in non-HE environments."

This report advocates the UK working in collaboration with other countries: ranging from countries that are currently strong in providing e-learning, to the developing world where significant benefits can be expected. The level of investment should be sufficient to create high quality resources that are freely available and attract re-use.

There is also the call for more to be done to understand and benefit from Web 2.0 technologies to improve learning effectiveness, engage with pedagogic practice and institutional learning and teaching strategies, and to meet changing student expectations.

The focus is to engender a long term cultural change on the part of teachers, institutions and students and to establish how such content, once gathered, can be effectively used. There is also the challenge to foster appropriate academic skills and the associated online tutoring and support skills to exploit the open learning content to add value to the higher education experience.

An interesting observation is that it is taken for granted in the research process that one builds on the work of others; can the same culture be encouraged in creating, sharing and re-using learning materials?

4.3. Digital Repositories Roadmap Review

The following recommendations from the JISC-funded *Digital Repositories Roadmap Review: towards a vision for research and learning in 2013* (Heery, 2009) link with the topics we have discussed in this paper for developing the use of learning and teaching repositories:-

- Be guided by researchers and lecturers use of the Web
- Incorporate feedback from HE staff and students on the vision for enhanced scholarly communication
- Demonstrate the innovative use of repositories e.g. group repository, individual repository, transitory repository
- Incorporate repository usage into users' workflows
- Map out the roles repositories might play, particularly as regards the management of digital resources, open access and re-use.
- Seek ways of improving institutional management of learning material
- Repositories as an example of the transition from project to service

Such recommendations link with the ideas already discussed, with regard to embedding a *range of options* that fit well with current and developing practices. Our paper now concludes with a scenario intended to illustrate some of these needs that support the case for a range of practical solutions.

5. CONCLUSION: DOWN THE CORRIDOR

5.1. How tutors will use repositories: future scenarios

In our scenario, looking into the future, we see a corridor in a university building where different tutors have their offices. How are the different tutors using repositories for learning and teaching?

Dr. X is using a new Web 2.0 style university repository for storing his own teaching materials. Each item is tagged according to topics he personally needs: research methods, ME101, reports, schizophrenia, etc. Using the social networking features of the software he shares access with a group of colleagues at the same university who teach the same subject.

Prof. Y had developed a series of high quality short videos which she uploaded to YouTube and used with her students. Now Prof. Y has used Articulate multimedia software to integrate more materials and interactive activities with the videos. These will be uploaded to JORUM Open, the UK national repository where they will be available to everyone nationally and internationally. Prof. Y is proud of her work and keen to publish it openly, both as a service to others and as a way of improving her reputation and standing in her field.

Dr. Z has used a university licensing agreement to obtain a collection of video and documentary material from UK TV channels. This has been stored in an institutional archive-style repository with a conventional metadata structure, and access for students is provided via the VLE. Using the VLE enables the university to restrict access to particular groups of students and particular locations according to what is permitted by the licence agreement.

Dr. A teaches modern languages and uses a repository dedicated to modern languages materials, shared by language tutors in a number of different universities. Dr A has her own area where her resources are displayed, providing a portfolio of her material. All those who contribute material to this system allow the other contributors to have access and to use their items. Dr A's personal portfolio has allowed her to show off her work and has led to a number of professional contacts and collaborations from colleagues in other universities.

Dr B makes use of a media player system, rather like YouTube but created in-house within his department. This has enabled him to embed urls in the VLE so that students can view the video material directly without needing special software on their computers. Dr B also keeps an entry for these materials in the institutional repository where they can be tagged and organized for his own use; none are shared with other tutors.

A group of social science students produce short videos as part of their course and are required to make these available for viewing by the other students on the course. Dr. C has given students access to an institutional repository where they can each upload their videos and search and view the entire collection.

5.2. The broad repository environment

The different ways in which repository systems are used in the above scenarios show how the underpinning repository environment will consist of a range of different systems, each suited to its own purpose and to the needs of the tutor. This illustrates how the “repository environment” will evolve, and how its complexity will be both a delight and a challenge to us in the years to come.

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