Open Repositories 2010 - Learning and Culture

The last couple of days of the Open Repositories conference were devoted to the user-group streams, splitting the community into the Duraspace crowd and the ePrints devotees. You can move between them, of course, but some of the stuff that's in those sessions is not really software specific, and I think that it would be good to have a bit more cross-fertilisation between the software platforms (assuming they don't all end up under one big foundation :). But I know from talking to a couple of people from the program committee over dinner that streaming this conference is a very difficult balancing act. Some people will only come for 'their' software sessions, and others only want the general sessions.

I attended a few talks on the use of repositories in eLearning (in Dspace and in ePrints) and on using ePrints for creative-arts outputs. I was interested to see what others are doing, as these are both areas where our team is working very actively at USQ. What I saw really reinforced for me that the work we're doing at ADFI is on the right track.

In this post I want to talk briefly about one of the main issues that repository designers are facing as they move away from hosting mainly articles, mainly in PDF, into learning and creative-arts resources; the need for packaging and its impact on repository architecture, and then look to the opportunities that we have at USQ to apply some of our repository expertise – which has mostly been on the research-outputs side – to learning resources.

Issue: packaging

Packaging is important; learning resources and creative-arts outputs need to be organised into ordered , hierarchical sets or resources that people can click through in a comfortable way. A screen-full of PDF files to download is not optimal.. In the learning world that's why there are standards like IMS content packaging and SCORM. And for the creative arts there are lots of use-cases around organising things into exhibitions and portfolios. Exhibitions might travel around, and have different makeup in different places. Not to mention complexities like a photo in your repository that depicts more than one painting, all of which Duncan Dickinson at ADFI has been looking at modelling using CCO: "Cataloging Cultural Objects".

The thing is, this business of packaging things is putting pressure on the data models inherent in IR software like Eprints and DSpace which grew up around discrete 'items' that have a metadata page, with click-to-download files. When we start looking at an exhibition of photographs this model is put under a fair bit of strain.

In the session on Kultur – the Eprints extension for creative arts output; Stephanie Meece showed some of the extensions that improve the metadata page in Eprints for exhibitions. While it does provide a basic way to show-off a large number of images, I think her talk showed up some of the architectural issues really well – she noted that sometimes the repository manager has to add circa fifty images files to an 'exhibition' item, using an interface that requires a lot of scrolling backwards and forwards. I talked to her afterwards, and found that there is no real way, yet, to deal with exhibitions that change over time, or to re-use items across portfolios (the Eprints team did say that there is a collections feature now that could be used for this). One thing that Kultur did achieve is to work out the basis for metadata for creative-arts metadata; work that has been re-used in Australia. This is informing our work at USQ, and we have helped disseminate it via CAIRSS.

Back in the day, on the RUBRIC project, I was a vocal critic of the notion of 'hard' collections I don't like the way DSpace was designed around 'communities' and 'collections' and I argued that for most of the use-cases people were talking about then were better served by 'soft' metadata-driven collections. If you want to look at all your theses, for example that should just be a 'slice' of the repository based on a query not some process of hand-curating a list, or having to deposit items into a particular collection.

But as I noted above there are cases where you do need to hand-curate sets of items.

In our current work on The Fascinator, Duncan Dickinson is leading the team in efforts to capture creative-arts outputs, partly for the ERA assessment where exhibitions are particularly important. Bron Chandler is managing the media repository project, where courseware media objects (video, audio that sort of thing) that need to be grouped into course-materials packages along with the traditional long-form course books for which USQ is famous. This work has led us to create a flexible architecture where you can either:

1. Add a manifest/table of contents to a single compound repository item containing lots of stuff; for example we have pre-populated a repository with all of USQ's current course offerings from ICE and each course can be considered one item.

2. Group several discrete items together into a package.

Oh, and you can package packages too – something we're going to have to think about very hard when it comes to user-interfaces.

One output of this work is some web-interface code for navigating and managing packages, called Paquete. Paquete can build a table of contents and forward/back links to a set of web resources using a simple JSON table of contents. It's like having a pure web-based eBook or IMS package reader. We're thinking it could be deployed in all sorts of places, such as on top of ePrints, or in WordPress, and, of course in a learning management system. One use would be in JorumOpen, the DSpace-based OER repository which is in need of a way to view IMS packages. It would be easy to add an IMS organiser support to Paquete, or produce a standalone tool to add a Paquete manifest to an IMS content package.

You can see a simple demo of an early version Paquete at our demo site. Note that each part of the package, which behind the scenes is a separate HTML page, has a proper URL, so I can send you direct to the intro, or to the bit about JSON. The idea is that on an HTML 5 device like an iPhone, you could use 'save as App' to grab a copy of an entire resource, via the HTML 5 manifest, and the stable URLs mean we can combine it with our annotation software that allows tags and discussion to take place in-line.

Using Paquete, it won't matter to users whether the resources on show are spread out across several repository items or all jammed into one big item. So, for an exhibition, you could put ALL the pictures into a single ePrints object, then make multiple new items which consisted of slightly different packages representing variants of the exhibition. Or, each picture could be a first-class item with a number of exhibition items that simply reference them.

There's lots more we can do with this viewer with a bit more coding– to make it show pictures and videos gracefully, and to work in presentation mode like PowerPoint. Speaking of PPT, why not render each slide as a JPEG and then let people flip through them there in the repository without having to download? (We're very close to this in our work on The Fascinator). It could also be made easier to use on mobile devices, mimicking the tap-to-page-turn behaviour of eBook apps like Stanza or Kindle along the lines of this thing that Russell Beattie did. Contributions are welcome if any of this sounds like something you can do. I'd be really happy if someone with some Eprints skills was able to do a plugin that can recognize where there's a Pacquet or IMS manifest present and show the HTML resource in-line.

There's **a lot more to say about this packaging stuff,** and how we might be able to use the ePUB format to ship repository content around, I'll come back to this in a future series of posts.

An idea for USQ

One of the repositories on show at OR10 in a session led by Yvonne Howard was an effort at Southampton to provide an open platform for sharing: EdShare. This is an ePrints repository that's being built-in behind the Learning management System / Virtual Learning Environment they use at Southampton. I think the idea is that eventually, there will be seamless integration with BlackBoard so that resources can show up as part of the course-experience there, but be sitting in an open content repository behind.

There's an interesting design pattern here; a sharing oriented repository that's also hooked in to an access-controlled learning environment. At Southampton the emphasis is on low-barrier to participation so that lecturers can get stuff up as quickly as possible, with the downside that some of the metadata provided can

be a bit lacking and many of the resources end up being quite fragmented. For example in the HumBox site for sharing humanities resources last Friday, the latest uploads were a bunch of individual PDF files that didn't mean much on their own. Fom my point of view as someone discovering stuff I would have preferred them to be in one bundle so I could begin to make sense of them.

At USQ, on the other hand, where a large number of our courses go through a production process in which many people collaborate with the course writer to bake-in pedagogy, get the referencing right, and deal with licensing for readings and other supplementary materials, we are well on the way to having v**ery well-described well-organised materials already in a repository**. It would be so easy to tag a course as 'ok for Open Access' and have it flow through to an externally-facing site as a high quality Open Educational Resource (OER).

There are lots of reasons that we might want to go open, even just a little bit. I'll rehearse them here, yet again:

1. **For prospective students:** I bet high-quality courseware would bring lots of traffic from people searching for stuff . Some of them might enrol, particularly if we lower the barriers to participation.

2. **For staff:** open resources can be good for a lecturer's profile – even better if we can work out a way to build in a genuine peer review process that helps some kinds of resources also count as research outputs (which = $$$$ and prestige in a way that learning resources currently just don't). OERs would mean that you get to take your work with you to the next institution.

   There are some things to think about re copyright, too. At the moment USQ owns the courseware, but in new models there might be ways to let authors keep their copyright, with an agreement that they license it openly.

3. **For USQ** there's that thing about many eyeballs. Back when we first looked at open courseware, some senior people wondered if we wanted to expose some of the content. A bit of sunlight should work wonders if there are substandard bits of courseware (I'm not saying there are). Feedback and re-use has the potential to help us improve our materials.

   When we first launched our minimal set of OERs at USQ Prof. Jim Taylor was working on a project to get volunteer tutors (focusing on retired academics) to help learners in an LMS environment. That project didn't come off, but I am wondering if there might not be some people willing to review courseware[1].

Those are just some of the reasons we might open our courseware, there are other stories about why we might use stuff created elsewhere.

It sounds silly, but at the moment **we can't even share our own courseware with our own students**. As I said not long ago, we should at least open up all the resources to our existing students so they can (a) go back to prerequisite stuff they missed or forgot and (b) discover new things to enrol in.

To bring this back to Open Repositories – there's a research project around the idea of having two channels into our course materials, one via the existing institutional systems we use for students and staff; the Moodle LMS and the course production systems, but with a public-facing discovery system that lets us expose at least some of our resources under open licenses so we can see if the potential benefits are realised and work out what the various stakeholders can do with openly licensed quality-controlled learning materials.

This post was written in OpenOffice.org, using templates and tools provided by the Integrated Content Environment project and published to WordPress using The Fascinator.

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[1] I know one retired physics lecturer, for example who can't resist pointing out, er, issues with the way physics is presented to students. Why in Year 12 he once 'marked' an entire textbook I'd been set; the textbook didn't do very well.