



## Project Document Cover Sheet

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## JISC Final Report - CURVE

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### **Executive Summary**

CURVE provides a single repository for the university's digital academic content and is used for both teaching and research objects. The policy decision to develop a single repository brought with it a number of major challenges. It needed to serve the diverse needs of a broad range of stakeholders (the Library, faculty members, researchers, students, teachers, specialist research groups etc). The balance between providing a centralised and fully supported high quality service which also promoted the degree of local ownership and control which would promote and incentivise individuals to deposit their content was a major challenge, all within the context of a complex IPR/DRM environment was a major challenge. The third major set of issues contingent raised was the need to integrate CURVE with a wide range of other systems, notably *CUOnline* (the learning and teaching environment), library systems, the e-research environment and access/authentication systems. CURVE was developed over a two year period leading to full release to the university in June 2008.

### **Background**

The Coventry University Repository Virtual Environment, CURVE, is the bridge between the e-learning environment (CUOnline) and the information environment provided by the CU university library. It is based on the Equella system from The Learning Edge International.

CURVE is intended to provide easy discoverability, management and access to a wide variety of digital assets including some important archive material. The short-term aim of CURVE is to explore the issues in creating a 'blended' repository, having a range of functions and types of digital asset, a single institutional repository for e-theses, research outputs, media objects and learning objects.

Repository development was already a central part of the e-Learning strategy at Coventry University, embedded in the Library Development Plan, the Applied Research Strategy and approved by the Information Architecture Group before the project started. It is also important at the Faculty level;

three (out of four) faculties (Art and Design, Health and Life Sciences and Business and the Environment) had expressed a need for repositories in their area. Given the support for this development internally, we aimed, through CURVE, to enhance the repository for use across these areas, and suggest how a blended repository could work, covering issues for its set-up and also integration with a network of other repositories containing resources of use in these faculties.

## Aims and Objectives

Since the completion of our evaluation report, we have reordered the aims and objectives into two sets. Set one lists aims that are technically and procedurally challenging but have a clear approach:

1. Ensure that the IR meets the highest technical standards appropriate for its purposes and can be shared more widely.
2. To develop a set of digitised dance objects for teaching and learning alongside the AHRC project, which is developing research objects.
3. Establish the IR for CU produced research objects such as e-theses, working papers, etc.
4. To make project outcomes known outside the University and publicise the benefits to the community.
5. To improve access to and use of library assets critical to teaching and learning through making them available digitally.

Whereas, set two were challenging in the sense that there was scope for several different approaches, and it has been less clear how to assess their successful achievement:

6. Develop means of incentivising staff to develop and deposit learning and research objects.
7. Establish policies and methods for progressive population of the repository to reach a momentum of its own, in that it contains a critical mass of quality content as soon as possible.
8. To establish the IR as a resource for the University's FE partners to enhance their HE work as it links to CU.
9. Build on the work of the CIPeL, by extending the experience gained and lessons learned into other areas where collaboration between professions is a feature.

## Methodology

CURVE aimed, over the course of 18 months, to create a substantial corpus of research and learning outputs from across the institution by building on an established institutional repository which complies with the Open Archives Initiative (OAI) Protocol for Metadata Harvesting (OAI PMH) and UK LOM Core for learning resource metadata. In particular we have expertise in the dance, and product, automotive and transport design areas.

The population, enhancement and management of the repository formed the core of the project work. Learning outcomes from these activities have been shared with the community. In addition to the creation of the repository itself, we carried out investigations into the usefulness of the learning objects deposited in it.

Our methodology had two important additional elements. Firstly, as is our practice whenever feasible, the production and development environments were kept separate. This allowed us to do some limited early release production work whilst not compromising our development base. Our second element of development methodology is facilitated by the first. We called for a number of volunteers to undertake small self-suggested pilot projects on CURVE. Twenty-seven such projects were forthcoming, many in areas which we had not anticipated. These small scale projects are invaluable for testing purposes.

## Implementation

The evaluation report concluded that project could be understood as having three major components:

1. Workpackages that aimed to integrate the repository technically into the CU information environment.
2. Workpackages that aimed to populate the repository with content.

3. Workpackages that were aimed at the sustainability of the concept, at engaging the active support of CU staff and students, and at building the reputation more widely of CU as a leading edge player in technology enhanced provision and support.

### **Workpackage 1 – Project Management**

In terms of project management, only the obvious can be stated about ensuring project outputs – create a detailed plan of tasks in advance, schedule carefully, organise management and steering group meetings early on in the project so that participants have an idea of the level of commitment required of them, and, above all, make good communication and a shared understanding of project goals a key aim. On the latter point, it is worth noting that this is always an ongoing process.

### **Technical integration workpackages**

#### **Workpackage 2 - Enhancing the integrated local information environment**

As originally defined this workpackage was concerned with both technical implementation issues and infrastructure and with creating content; as such it relates to both strands 1 and 2 above. This workpackage sought to improve access to, and use of library resources by exploiting the interoperability of systems including Aleph library catalogue, Talis List reading list software and CU online.

The initial stages of this workpackage considered the digitisation of distinctly different materials (high demand text, ERA licensed video recordings and an archival photographic collection), the digitisation methods to be used, and policies relating both to content and to access. Where appropriate material such as the Lanchester photographs were sent to external digitisation agencies, and the British Library digitisation service was considered as a means of digitising material to be used under the CLA license. However, so far demand has not gone beyond what can be dealt with in-house, and it was found that the quality of images and graphics could be variable using this service. Video material was digitised in-house.

Library staff took responsibility for different areas of this workpackage and liaised with colleagues within the institution as well as system providers to effectively manage and drive development. This worked well and drew on the knowledge and strengths of staff with regard to the different materials to be digitised and managed.

For the CLA Digitised Collection the policy was to concentrate on the modules with large numbers of students, distance learning courses and placement students. The workload was prioritised accordingly with distance learning courses generating greatest demand. Although the Equella system is set up to deal with the requirements of the Australian Copyright Agency, additional metadata fields have been added to accommodate the requirements of the UK Copyright Licensing Agency. The main problems relating to this collection have concerned the migration to different versions of the Equella system and using the reporting tool to generate the CLA spreadsheet. At the moment this can only be completed manually. However, Equella are developing a CLA plug-in to include a template for the CLA report; this would be of great benefit to the HE community.

The level of security required regarding student access of this material reinforced the idea that the repository would be the best place to store this material, with links via Talis List for the students on the appropriate courses. A similar approach, in which the repository was to be used to access digitised video, was also adopted. The project to integrate CUOnline (the VLE), Talis List and CURVE has proved successful, though at times has required in-house technical solutions to specific 'linking' problems.

Underpinning the building of these digitised collections was the need to establish appropriate metadata schema. Building on existing schema, and taking account of various report and licensing requirements, it was decided that a single scheme, from which different input templates could be generated, would be adopted for use with all material deposited in CURVE other than for the research collections (see below). The LOM scheme was adapted for this purpose.

The promotion of digitised services via CURVE to provide multiple access to high demand materials has had a positive effect on both academic and student use of the relevant systems. Regrettably however, it has not been possible to obtain statistics of use directly from CURVE. It is expected that this will be resolved with the next upgrade to the Equella software.

## **Content Population workpackages**

### **Workpackage 4 - HE/FE Collaboration and sharing of learning objects**

Warwickshire College identified the main stakeholders in the area of HE/FE collaboration as: teaching staff; learning resource centre staff; students; and, the wider FE Community.

As a follow on from the HEA Pathfinder project, WC concentrated on staff and students from three programme areas:

- Sports & Exercise Science;
- ICT & Business;
- Motorsports;

in their investigations into development of the student experience and repository resources to support a more seamless progression from FE to HE from a student perspective.

The main repository resources that were considered as beneficial following a consultation exercise were:

- A lecturers' web where CU lecturers express their academic expectations of students joining CU courses of study. In conjunction with this an area where Warwickshire College lecturers outline their academic expectations and levels of support offered to students on WC courses.
- A student web where first year students from CU outline their experiences at joining University course and how this differs from their experiences at Warwickshire College (there is an ideal opportunity to identify these differences with students on the Foundation Degree Motorsports course, the majority of whom continue with CU for a full degree)
- A generic student web outlining the key elements of living and studying at Coventry University and how they differ from the Warwickshire College experiences.

Further consultations with other FE institutions have endorsed the value of the above webs to improve a more seamless approach along the life long learning path.

For learning resource staff WC consulted CU library staff to implement elements of a common resource cataloguing hierarchy and common meta-tagging procedures which will apply to the WC institutional repository. This should allow effective data searching should it prove possible at a future time for the repositories to be 'blended'. Again the FDis Motorsports course offers a unique opportunity to share resources with Coventry University.

### **Workpackage 5 - Learning Objects for Dance**

The ten questions posed by the CDLOR<sup>1</sup> guidelines provided a useful framework around which to focus the development of this workpackage. The pedagogic approach of the dance course at Coventry is essentially praxis (practice and theory integration), and for theory and analytical studies there is a discursive approach with the intention for understanding and interpretation. In consultation with Natalie Garrett, Course Director, six Level 1 and Level 2 modules deemed the most appropriate were selected and potential learning objects identified. The notion of Trigger Objects as opposed to Knowledge Objects was embraced, and example choreographies and other potential assets from the AHRC-funded Siobhan Davies Digital Archive project identified.

Two student research tasks were piloted using assets in CURVE and delivered through CUOnline (VLE). The support provided by David Bennett was key to simplifying the process for the tutors, not only in the technical requirements to source and upload materials to CURVE and CUOnline but also in having a shared understanding of the purpose of the tasks.

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<sup>1</sup> The CDLOR project was funded by UK JISC to identify and analyse the barriers and enablers that influence implementation and use of learning object repositories (LORs) within a range of learning communities. (see <http://academy.gcal.ac.uk/cd-lor/index.html>)

Garrett also supplied a list of key choreographers, in addition to Siobhan Davies, as other sources for exemplar choreographies. Issues around copyright were also investigated and a search through the University's media library catalogue, as well as the BUFVC's TRILT<sup>2</sup> database, identified further dance works to be added to CURVE (via the Library's video streaming server) which are covered by the ERA Plus Licence<sup>3</sup>.

## **Workpackage 6 - Interprofessional Learning Objects**

The Centre for Interprofessional e-Learning (CIPeL) consulted with a member of staff from the Centre for the Study of Higher Education, to develop a work package suitable for the CIPeL learning objects being stored within them. This included developing a channel to sort and catalogue materials into their various interest groups/professional input. Specifically, the collection's input form now includes conditional branching, which means that sections of the form not relevant to a given submission are not displayed when items are added to the collection. Furthermore, the collection's input form is structured in such a way as to facilitate future modification and additional branching of the form itself, as it is anticipated that CIPeL Learning Objects relating to domains other than Health and Social Care will become available in the near future.

The majority of materials CIPeL store are more complex than administrative documents such as PowerPoint, and often contained various types of media such as flash based content, interactive elements and videos. Lessons emerged from this in the process of creating learning objects and therefore a quality mechanism protocol was developed which enables developers of materials to think early on about the content they wished to store in CURVE, its purpose, format, length; aim and ultimately how it can be reused in different contexts. This takes the format of a 'learning object inventory' which is used throughout the development of the materials and on depositing learning objects into CURVE.

Another area of work was to concentrate on the levels of permissions of materials within CURVE, due to the resources being made available both nationally and internationally, some with sensitive material. A system integrated into the Learning Object Inventory allows the developer to identify who should be able to see these materials dependent on the content and authenticity of some real life accounts.

## **Workpackage 7 - Research Objects**

This Work Package focussed around two major projects which were being undertaken outside the CURVE project. The first project related to research outputs was the preparation and submission for the Research Assessment Exercise (RAE2008) and the response to the proposal for the Research Excellence Framework (REF). The second project was the decision to radically change the research degrees administrative systems and regulations. These two important projects enabled most of the information required to be focused around activities that academic and other staff would see real value in contribution to the project.

With regard to the research output element of the work, the data collection required to support the RAE submission provided a representative sample of all the various types of research outputs used across the institution. At the start of the data collection exercise, approximately 40% of all members of staff submitted did not have complete and correct citation information about all of their four chosen outputs. Surprisingly approximately 18% did not have physical copies of their selected outputs. Reasons given included they had been mislaid, they had given away their last copy or had never received a copy from the publisher. The most common reason given in creative subjects was they had sold the artwork and had not taken a photographic copy. By the end of the data collection process we had resolved all of the issues or had substituted equivalent outputs. This highlighted the need for a systematic process to collect all outputs as they are generated and store them in a repository.

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<sup>2</sup> The British Universities Film & Video Council (BUFVC) is a representative body which promotes the production, study and use of moving image, sound and related media in higher education and research. The Television and Radio Index for Learning and Teaching (TRILT) is an extensive database of British radio and television from 1995 onwards.

<sup>3</sup> See [www.era.org.uk](http://www.era.org.uk)

The initial work on the development of the research and theses collections began later in the project and started with defining the nature and scope of the collection, considering these collections alongside the others in the repository lead to the clarification of policies, and closer consideration of the purpose and content of the repository. Following this the first task was to identify an appropriate metadata scheme for these collections. It was felt that the Qualified Dublin Core metadata scheme would be more appropriate for these collections in order to support interoperability and the harvesting of metadata by external search services. It was necessary to add a number of additional fields to collect data required by the Research office in order to be able to support additional administration process in the future.

Storing and recording traditional research outputs (journal papers, conferences papers, presentations, books etc) required for the RAE and other purposes are relatively simple to achieve in a constant and meaningful way for most academic disciplines. However, information gathered during the preparation for the RAE2008 indicated that there are significant problems in recording and storing consistently the range of outputs required in the creative area e.g. art, design, performance, music etc. This has resulted in an ongoing project to fully define the range of potential outputs for the creative area. Most of the work revolves around the definition and the creation of new reference types within CUCV (Coventry University Academic CV system) e.g. curatorship, performance, exhibition etc.

Once the collection definition and wizard had been set up, metadata for the 2008 RAE submission is being added to the collection. This process is on going and as records are added publisher's policies regarding deposit, copyright and versions are checked, so that the appropriate version can be requested from the author with little inconvenience to them; This ensures that there is material available in the research collection across all faculties as the Research and Theses Collections are promoted over the next academic year. CURVE plans to work with the subject librarians to promote the research repository alongside the digitisation service and other relevant developments; working within existing channels to identify 'champions' and interested groups, including new researchers and PhD students.

An unexpected problem discovered during the RAE and after the submission date was the use of Digital Object Identifiers (DOI) to reference published research outputs. Some academic staff were not aware of their existence or intended use. Whenever a DOI was submitted it had to be checked immediately since experience showed that a high portion of references were wrong, inaccessible or incomplete. Despite assurances from the RAE organisers that they had arrangements in place to access all published outputs with a DOI, from about March 2008 onwards CURVE staff were regularly contacted by them to obtain electronic copies as they had been unable to access the output. In many cases a correct DOI had been given and it could be accessed from the University because the library had a subscription to the journal. In other cases the electronic copy of the output had to be resent again, highlighting the need to store all output in a repository.

The potential use within the REF of metrics based on citation analysis and the subsequent delays introduced by the REF pilot exercise and the definitions of what will be used to determine the metrics has created a reluctance among research-active staff to include technical reports, working series papers and pre-prints within a repository which is open to the Internet because of a fear of split citations. Their argument is that if they make the article available on the Internet, it may be cited by other researchers rather than the final published output which will split the citation and therefore dilute the value of the published outputs citation score. This is a serious concern since most published outputs have zero or low numbers of citations anyway. Some staff are also concerned that making the output discoverable by search from the Internet because an author in a hurry may use this as the basis for a reference in a published article.

In terms of the use of a repository to record and store research degree theses, the project forced the University to confront a number of regulatory issues related to the use and storage of research students' theses in the repository. As part of the project, the Research Degrees regulations were revised to make the definitive copy the e-thesis stored in the repository rather than the physical copy stored in the Library. The changes to the regulations still include the production of a physical copy of the final thesis to allow spot checking of the validity of the e-thesis by the Registry Research Unit at submission and sign off. This will be removed as we gain more confidence in the e-thesis submission process.

The move to electronic submission resulted in considerable debate within the University to clarify the procedures and documentation related to: thesis copyright, authorisation to use copyright materials within the thesis, confidentiality, plagiarism detection, the point at which research degree examiners are notified of a suspected case of plagiarism, determination that the submission of a plagiarised e-thesis will become subject to the normal plagiarism procedures only after it has been formally examined. Further work is required to ensure current and future students are informed of the issues related to electronic submission and deposit in CURVE.

We have integrated the UK-ETD-DC metadata schema, recommended by EThOS for this collection to ensure that the EThOS service will be able to harvest material from our repository to further disseminate and share the PhD research undertaken at the University.

## **Sustainability workpackages**

### **Workpackage 8 – Cultural change**

Cultural change is taking longer than our original (optimistic) estimates. However we are confident that it is occurring and our continuation of work on CURVE, particularly in the advocacy arena, will promote this.

Some development has been hindered by the difficulties in aligning new versions of the softwares which we have integrated as part of the project. For example we faced unexpected delays due to the need to wait for a new version of TalisList before we could make the changes needed to the Equella interfaces. In the longer term such issues should be easier to manage, but within the short time frame of a project they have a major influence.

In the case of some of the research objects, lecturers could not necessarily lead CURVE staff to the most appropriate copy of a resource for submission into the repository.

In terms of lessons learnt as a project team, we have been surprised that users have come up with all sorts of things to use the repository for that had not occurred to us. Whilst some of these uses clearly fell within the spirit and scope of the CURVE project, others did not. At this stage it was very helpful to have an already developed policy on the scope of the repository to refer to, and the decision to develop such a policy early in the life of the project proved a good one. In particular some people wanted to use CURVE as a document storage system (for example for administrative documents, committee minutes etc), which Equella software is not designed for and cuts across the idea of CURVE being an academic asset. In addition our strategy is that CURVE should be open as possible, and openness is not always possible with administrative documents.

## **Outputs and Results**

During the integration of CURVE into the local information environment, the following outputs were highlighted:

- The development of accessible collections of digitised text, video, and archival material;
- A digitisation service available to University staff;
- Proven integration of information systems: CUOnline, Talis List, Equella, Aleph across the institution.

The Dance objects team carried out a case study evaluation, which found that:

- The tutors had a sense of selection as to what students looked at, and steered their viewing within a well defined framework; the tutor as curator
- The simplicity of accessing the chosen work, over a period of time, was identified as very beneficial to the student learning experience
- The tasks opened up students' awareness of artists and their work in a specific area of dance making, instilling students with confidence in their own creative practice and as starting points for their own research.

The dance objects team has found that the issue of ongoing support needs to be resolved, and will need careful planning if more modules are to adopt similar approaches. The role of a

subject/discipline-specific Learning Technologist would greatly enhance the support the tutors will need to gain the full benefits that a repository can offer.

It was found that the ERA Plus Licence simplified the copyright issues for dance resources for educational use; however the availability of recordings limited the choice of artist/works. The Arts Council have granted permission to use recordings of works they have supported and hold the copyright, with the proviso that appropriate credits are clearly stated. All other recordings will require permission from the copyright holder.

Three reports have been produced by CIPeL that highlight the issues raised in this area with regard to using CURVE:

- CIPeL Learning Object Reuse Strategy. Ursula Rutherford, November 2007
- CIPeL IPeLO diagrams: Inter-professional e-Learning Objects presented diagrammatically. Ursula Rutherford, September 2007
- CIPeL Learning Objects (Workflow). Kathy Courtney, May 2007

The reports reflect concerns with evaluating how best to deposit resources efficiently, defining metadata and considering reuse. User testing is ongoing as resources are deposited and used by academic colleagues.

Given that it is preferable to house resources within CURVE rather than downloading them one issue to arise is the ease with which students can be given access to a specific resource. The default for 'viewing access' of CIPeL Learning Objects is now set to 'normal', which means that if the LO is made available to an audience by someone with the required permission, the audience gains direct access to the LO without having to provide a password. This means that CIPeL guest users who have password protected access to the CIPeL collection can identify objects of interest and make these available to students who do themselves not have access to the repository. This modification has been essential in order to make CIPeL objects available in educational contexts beyond Coventry University.

Workpackage 7, regarding Research Objects, had four objectives, which had the following outputs:

- Objective 1

It is clear that Curve can easily store the range of traditional and innovative research outputs that were identified during the project. Most traditional research outputs can be classified as documents, images video and audio objects. The most innovative research outputs were large 3D models and animations and the only concern was the size of the file and the potential upload and download time.

The task of linking to CUCV, the Coventry University research database of academic CVs, qualifications, publications and research activity did not prove to be a problem as it is a web-based product and it contains field entries both for DOI and URL which easily allow linking to both internal and external repositories. The real issue identified was the lack of appropriate reference types within CUCV to store outputs from the creative areas. Curve can certainly store the outputs but there are no existing reference types within CUCV which adequately cover the range of creative research activity. The core of the problem is that there is also no wide scale agreement within the creative discipline about a definitive list of research outputs and the information that needs to be stored related to them. This is the subject of an ongoing project to define a range of agreed research outputs within CUCV that adequately covers the creative disciplines.

There was also no problem in linking Curve to ResearchNet, the University's web presence for research activity. We have chosen not to do this at the moment due to the concern about the potential harm caused by citation splitting referred to earlier. As part of the project we have defined a short and long CV template that can be used to automatically generate web pages from CUCV which in turn can be used to pull data from the Curve repository. Resolution of this issue depends on the outcome of the REF pilot studies and further advice from HEFCE.

- Objective 2

Consultation with stakeholders on their needs and requirements for the research objects repository primarily focused on researchers, librarians, the research section and students. The consultation took the form of working groups, individual discussions, production of draft regulations and debate in a range of research-related committees up to Academic Board level. The least contentious element of this Work Package was the changes to Research Degree regulations required to introduce e-thesis as

the definitive version. However, while it was warmly welcomed across the University the final debate in Academic Board resulted in the decision to retain a paper copy to allow potential verification that the electronic copy is valid through random page audits.

Similarly while there is a perceived need for Curve to store research outputs, consultation with key researchers and reviews of the use of CUCV indicated that, when they have to enter the data themselves the uptake can be quite low. Consultation with external collaborators with more experience of using these systems indicated that a substantial core of staff, while seeing the value of the system, will not enter their data or papers directly or keep them up to date. Based on this the next phase of the project is to look at methods to automatically capture the citation data either from the output itself or from external systems such as Web of Science. This would appear to be an essential element of the data capture required to support the REF.

- Objective 3

The concerns regarding citation spitting put on hold the development of the working series papers until the outcome of the REF pilot study provides more information on the system to be used. The system for submission, marking and retrieval of e-theses by research degree students and higher doctorates candidates has been established. However, the system will use both paper and e-thesis systems to address a number of concerns identified during the requirements capture. The main concerns which prevented the use of a complete e-thesis system are:

- Examiners will not accept the need to printout a thesis which normally runs to 250 to 350 A4 pages but would prefer to receive a bound copy in the post.
- The final e-thesis needs to be an identical copy of the paper copy of the approved thesis and needs to be capable of being subjected to random audit.

- Objective 4

Workshops to explain both the new curriculum framework for research degrees and the new e-thesis system were carried out during July and September 2008.

## Outcomes

The CURVE project has achieved its strategic goal of gaining strong institutional commitment to the development of a repository approach. The other main outcomes are:

- A high level of awareness achieved at senior level;
- All faculties now on board with repository development;
- A shift in approach away from a VLE-centric e-learning platform towards a repository-centric one, which allows much greater scope for constructive interaction with partners;
- Development of a project management methodology which has worked well within the Coventry context;
- Development of a strong consensus on repository development amongst internal stakeholders.

We have confirmed that CURVE can store the range of traditional and innovative research outputs required.

CURVE specific collections include the Lanchester Archive which is now more widely available to scholars and researchers and the CIPeL (Centre for Inter-professional e-Learning) collection of e-learning objects which are being shared with the wider health teaching community.

CURVE reduces the amount of time spent by learners in discovering and accessing learning content. This is particularly important for the many students who visit the campus only rarely or not at all. Prior to the introduction of CURVE it was difficult for lecturer to re-use their learning content in different courses (modules). Now lecturers can develop and maintain a single definitive copy in a variety of formats (thus promoting accessibility) which can be re-used by simply pointing to it.

## Conclusions

The CURVE project has developed a single institutional repository for the academic assets of the university. In doing so we have had to find a balance between the needs, approaches and aims of the

wide range of internal stakeholders. Information professionals such as library staff, researchers, teachers, e-learning developers, IT systems staff and administrative professionals have all been accommodated. Whilst it is tempting to believe that all stakeholders are equal our experience is that some groups probably have the power to veto developments if they are unhappy. For example universities are quite likely to rely on the expertise of library staff in IPR matters. It is therefore vital to bring all stakeholders on board very early and to respect the diverse perspectives of different groups.

It has helped greatly that CURVE allows us to create separate instances of repositories using the same infrastructure and support systems. In at least two cases during the life of the project we have discovered other plans in the university to develop repositories for specific purposes. In both cases we have been able to accommodate those aspirations quickly, effectively and at very low cost within CURVE developments.

## Implications

Perhaps the major challenge in the next phase of CURVE development is to give depositors the confidence to make their material more widely available. Whilst this is not a barrier where research deposits are concerned there is a greater degree of caution with learning objects. Encouraging greater openness within the university is a first step to encouraging open content on a wider scale.

This raises the question of incentives to deposit. Whilst the incentives to deposit research objects are broadly understood and openness has advantages to individual staff, it is less obvious that there are clear incentives for staff to develop and make available learning objects.

## Appendix 1

All background documents are available on the CURVE website (<http://cuba.coventry.ac.uk/curve>) but the following may be particularly useful for others:

Terry Mayes' evaluation report

<http://cuba.coventry.ac.uk/curve/category/plans-and-reports/>

Kathy Courtney's paper on transferring learning objects between a VLE and a repository:

<http://cuba.coventry.ac.uk/curve/2008/08/25/transferring-content-to-curve-from-a-vle/>

Ursula Rutherford's paper on Learning Object Re-Use Strategy:

<http://cuba.coventry.ac.uk/curve/category/cipel-reports/>

The CURVE Content and Use Policy:

<http://cuba.coventry.ac.uk/curve/2008/04/15/curve-purpose-and-content-policies/>