Integrating library content into the university’s online learning environment

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eAgenda

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Introduction

The provision of high quality online learning environments is a major strategic objective in higher education institutions. Within a relatively short period of time institutions have been required to deal with issues of policy development, selection of technical solutions, change management, reskilling and training of academic staff, development of new structures, curricula and online course content, and access management. Much of this work has occurred within existing organisational structures while we simultaneously found a home for these new roles and responsibilities. Flexible Learning departments and libraries are now both heavily involved in the development and provision of access to online content. An issue facing our institutions is to bring together the locally developed online content provided by the flexible learning department via the learning management system (eg BlackBoard, WebCT) together with the externally sourced (purchased or subscribed) content provided by the university library (in print or via the Library Catalogue and Library Web site).

Universities spend millions of dollars per annum on print and digital library content. Digital library collections need not be stand alone services used as information gateways designed to facilitate resource discovery (to unknown information items) supporting research and student assignment work. Library content can also be more fully integrated into the online learning environment to provide seamless access to specific items of information at the point of need, to enrich and improve the student learning experience. Collaboration between flexible learning and library organisations is imperative if this is to be achieved and if our institutions and students are to receive the maximum benefit and value for money from our library collections.

The issues of organisational structure and staffing profiles, digital libraries content, copyright and license management, effective linking strategies, and technological integration are explored in relation to integrating library content into the online learning environment.

New structures and staffing profiles

The digital environment has brought about a convergence of information professions and roles. The traditional organisational structures of Information Technology, Flexible Learning and Library departments commonly [formerly] found in educational institutions are being continually challenged. The roles once played solely by information technologists, educational designers, web designers, librarians and teachers are merging and cutting in new ways. Staff are required to learn new skills and to be more aware of the responsibilities, priorities and technologies of other work areas. High quality work produced within budget and timelines requires structures and staff to work more cooperatively and flexibly than they once did.

Organisations are responding to these demands by either implementing new structures and/or by facilitating improved means of permanent or project based collaboration between the traditional structures or roles. Information Services at Griffith University underwent a major re-alignment two years ago in response to such pressures. The major benefits of the realignment have been:

- The creation of new organisational structures to better meet the demands for flexible learning and library services
• Greater levels of cross-skilling and collaboration between educational designers, web developers, librarians, teachers and also information technologists, working together in subject based teams
• Responding to priorities, new efficiencies have been found, and resources are being better aligned to university needs
• Improved client focus and simplified customer service points

The subject team based approach has been central to the successful implementation of collaborative projects requiring a cross-skilled workforce.

Communities of practice are being established for ‘educational design and development’, ‘systems design and development, and ‘library and information science’ to facilitate improved communication and cross skill ing. While the new organisational structure has forged new collaborations amongst staff groups, these collaborative communities are being implemented to maintain communication between staff who once worked together pre-realignment. These communities also promote continuing development of professional practice.

Digital libraries

Large libraries in Australian higher education institutions have been long been leaders in the adoption of digital collections in lieu of print. The combination of inflation, a low Australian dollar, mostly stagnant funding levels, and the Australian people’s early adoption of new technologies, have driven our libraries to be risk taking and innovative in areas of collection development and access. Many university libraries now boast that more than half of their collection development budget is allocated to electronic resources. Griffith University allocated 52% of its $5.3 million library resources budget to electronic resources in 2003, and is aiming for 60% (of $6 million) in 2004 and up to 70% by 2006.

Our libraries are now vast, complex and often confusing to clients. Griffith provides access to 500+ library databases, 30,000 ejournal titles, an e-reference collection, 7,000 ebooks, 9,000 digital course readings, digital exams, and 171 digital theses, in addition to 765,000 print monographs and 6,000+ current print serials scattered across six libraries on five different campuses. Libraries are also the logical purchasing centre within tertiary institutions for the acquisition and management of the hundreds of thousands of non-bibliographic digital learning objects our institutions will be buying rather than developing in-house to support online courses over the next ten years.

Clients are expected to be able to navigate this information treasure chest using the Library Catalogue, the Web site, and a multitude of vastly idiosyncratic and varied database interfaces remotely hosted by a variety of publishers and vendors.

Our digital libraries are actually many digital libraries, and it has become difficult for students, academics and even library staff to be fully aware of, or even know how to ascertain, the full breadth and depth of information available. Nonetheless, usage levels are staggering with many millions of hits to digital library services per year resulting in the use of millions of abstracts and fulltext documents per annum. Our libraries are clearly being used but there is more that we can do.

The provision of digital information has drastically changed and arguably reduced the cost of delivery of information. The proliferation of alternative publishing models, and the ongoing funding and inflation crises we have grown accustomed to, are slowly starting to chip away at the old publishing models. As alternative, cheaper
information sources begin to satisfy a larger percentage of our institutions' information needs, therein lies the possibility of libraries starting to make some savings. We have moved through the ‘content phase’ where we craved any digital content we could get, into the ‘value’ phase where we are re-establishing value for money, and into the ‘accessibility’ phase where we will be making our digital libraries easier to use. We will be spending less on content and more on access and integration technologies.

**Local digital collections**

A growing number of digital collections for a growing number of applications are now featuring in our institutions. These are typically managed by either library, flexible learning or office of research departments within Australian institutions and may commonly include:

- Digitised readings of copyright materials such as journal articles and books chapters supporting courses, developed and administered under the AVCC-CAL agreement
- Other learning objects supporting courses, usually under copyright of the home institution
- Theses
- Image collections such as art or medical slides
- Research paper collections such as ePrint repositories
- Research data collections
- Exam papers
- Administrative documents, policies, contracts etc
- Library databases, ejournals, ebook, data collections

The many important issues faced by universities in managing these collections include:

- Selection and development of technological solutions
- Integration with other technological services
- Copyright compliance management
- License and contract management
- Intellectual property policy and management
- Object evaluation, relevance, and validity
- Re-use of objects
- Granularity of objects
- Version control
- Timeliness of objects and time release control
- Object quality
- Accessibility standards
- Metadata schemas and searchability
- Change management, client acceptance, training and empowerment

In a somewhat brave move to develop a single common technological solution and repository system for all these digital collection and applications, Griffith University has taken a far-reaching approach by partnering with HarvestRoad [http://www.harvestroad.com](http://www.harvestroad.com) in the development of the ‘Hive’ digital repository product. Hive is a scalable, independent, federated digital repository system. Griffith is currently developing policies and procedures for the above issues.
Integrating library content

Some essential elements for integrating library content into the online learning environment, aside from the more general elements required to create the digital collections, are suggested below.

Bring the experts together

Bring faculty (subject) librarians together with educational designers and web developers. Put them into teams and co-locate them if possible. Without the input of expert subject librarians into the development of new online course materials, educational designers will tend to re-invent or re-source learning objects that are already otherwise available within the digital library. Librarians can advise on the availability of suitable online content, or suitable alternative content. Librarians also advise academics on the selection of content that can best be, or is licensed to be, used in online learning environments. It is not pro-active enough for flexible learning and library departments to bestow this selection task solely upon the academic staff. Academics are not in a position to know the complexities and ins and outs of our massive digital collections so how can we expect them to identify the right learning objects and be able to apply our database license agreements to the application of these objects into online course content? By embarking on information literacy programs we admit there is a problem here, but more often than not we do not offer to help the academics at this coal face. Our librarians must not only select information resources for purchase and assimilation into the library collection, they must also select information resources from within the collection for further assimilation into the online learning environment. This is critical to the integration of library and learning.

Educational Designers and Faculty Librarians’ knowledge of the information requirements for online course development can also feed into the selection processes for the acquisition of new library resources. In this way the library is purchasing information resources to equally support information resource ‘feeding’ and information resource ‘discovery’.

Implement policies and procedures for copyright compliance and license management

Ensuring copyright compliance is one of the major issues being faced by our institutions at present, with some institutions being further advanced down this path than others. The Copyright Act - Digital Agenda and the CAL – AVCC agreement make provision for Australian higher education institutions to digitise materials to be made available to current staff and students of the institution.

Both centralised models (those that identify a corporate structure as having prime responsibility for copyright policy, enforcement and compliance) and decentralised models (that distribute responsibility among academic elements and academics) are commonly used. A quick glance at what is being achieved by various universities suggests the centralised model is producing quality results more quickly and efficiently. The centralised model certainly better supports the integration of library content into the online learning environment.

Some perceived benefits of the centralised model of responsibility include:

- Acknowledges copyright compliance in terms of its legal importance and the level of risk to the institution
• encourages institutions to resource the policies, procedures and policing of copyright compliance
• acknowledges that the lack of resourcing or institutional policy supporting copyright compliance will be no defence in a court of law should disputes arise
• mirrors the hosting model adopted by many institutions whereby the LMS, Library System, and Digital Repository system are centralised
• allows for more thorough compliancy monitoring and policing
• allows for more thorough reporting to the university or CAL
• leverages the specialist skills of individuals and the information professions to manage complex issues
• does not rely on thousands of academics to all have the required expertise to understand aware of complex copyright law, to know what and how much to digitise or make available in print, and to know what copyright materials every other academic in the institution is using in print or digital format
• leverages the benefits of many library database license agreements in preference to copyright based use of other materials, thus achieving improved value for money from the library’s collections

Libraries purchase or subscribe to almost all digital content under license or contract. The centralised copyright compliance model greatly supports the integration of digital library content into the online learning environment. Library database licenses are complex and changing creatures. There is no way to teach 2000+ academic staff the intricacies of 500 database licenses. The alternative to a centralised service is that academics either unknowingly break license agreements or digital library content does not get integrated.

Library database license agreements are legal documents that override copyright. It is very important that institutions adopt a standard approach to these documents and seek to systematically negotiate the best terms of trade regarding who can use the materials and how and when they can be used. Many of these considerations should directly relate to the integration of library content into courses, such as the right to link to a resource, to use a resource to a greater extent (measured by articles, chapters, words) than otherwise allowable under copyright, the right to locally host a digital document, or make multiple hardcopies to be integrated into print coursepacks, permanent ownership of materials, and permanent and stable URLs to online content (so that content links do not break).

License management also requires the institution to develop a knowledgebase of the attributes of all contracts and licenses. Specific key features of each license should be summarised for the convenience of staff. These license summaries and PDF copies of the actual signed licenses should be made available to academic staff via the corporate intranet because only by accessing these summaries and licenses can developers and academics best work together and understand how each resource is licensed to be used.

Develop policies and procedures for linking

Detailed procedures covering how best to link to digital content need to be developed. The importance of this is not so evident in the short term, but it will save the institution considerable work and stress in the long term. Most publishers guarantee a specific URL algorithm to create permanent and stable URLs (PURLs) to the abstract level. The student then needs to make one click to reach the fulltext.
Staff creating course content need to be trained in these procedures. It is human nature to cut through complexity and to link direct to the fulltext. Without training or a centralised linking service, academics will slowly build themselves a 'linking time bomb' whereby the university will find that in 2009 4,000 links to database X no longer work and students are stranded three weeks before exams (yes I am being dramatic to prove a point).

There are a number of standards/initiatives in existence designed to facilitate stable linking including:

- Open URL Standard
- Digital Object Identifiers (DOI) – used by many publishers
- CrossRef – a consortium of major STM publishers promoting article level linking within pooled resources

A relatively new suite of products have emerged commonly called Federated Search and Open URL Resolvers, examples being ExLibris MetaLib/SFX; Innovative Interfaces Inc. Millennium Access Plus, Endeavour ENCompass, Ovid LinkSolver, Ebsco LinkSource amongst many more. These are designed to allow varied digital library content to be used as a single digital library resource. Federated searching allows searching across a number of selected databases while URL Resolvers allows article-to-article level linking across databases regardless of host platforms.

**Bringing it all together**

The above issues and potential solutions need to be pulled together into a more seamless technological solution if academics and flexible learning / library staff are going to be expected to not only assemble online courses, but also if students are required to use the materials.

Integration between learning management systems, digital repository systems, library catalogue systems, federated search and URL resolver services, and the corporate web environment is required.

Examples of integration could include:

- The academic administrative interface to the LMS should also provide the interface to the functional elements of the other systems such as the digital repository system
- For example the following additional functionality is being considered for future development into the academic administrative interface to Learning@Griffith:
  - enter metadata and load digital objects into the Hive digital repository
  - access the database/ejournal/ebook license summary data
  - access online forms to request the digitisation of print materials, and alternative materials should the preferred resource not be copyright compliant
  - access online forms to make requests for the purchase of library books, journals etc via library supply partner's online interfaces such as Blackwell's Book Services Collection Manager
  - access forms to make requests for the purchase of traditionally non-library type non-bibliographic digital objects
  - easily search for library content using the federated search / URL resolver service, and to select items for inclusion into online courses
- check for the copyright compliance of digitised items the academic wishes to use, against the database of items currently in use
- connect academics who wish to use the same digitised item (such as a reading) to negotiate shared time release use of the item for their courses

Institutions are also developing their own web-based super-presence service. These services are being designed as the premier umbrella interface to a range of university services including My@Institution X administrative access, email, online learning environment, library catalogue, federated search etc. Griffith is implementing a new enterprise portal system for this purpose.

A number of new products are also starting to emerge on the market that are taking integration to new levels. Library system suppliers such as Endeavor are now offering integrated library system / digital repository / license management / federated search and URL resolver services. The Sentient DISCOVER http://www.sentientlearning.com system also brings these aspects together by adding an additional user interface layer to the systems and functions above.

Surveying these issues highlights the amount of work required to successfully integrate library content into the online learning environment at Griffith University. Identification of the issues, planning and collaboration, and an institutional commitment to achieve integration will see universities such as Griffith reach this goal.