

Teaching using online resources: accessing or creating the needed online resources

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Teaching effectively now makes use of online resources. Surveys show that teaching and learning is more effective with resources to support it, with students preferring online resources. Students prefer the ability to manipulate information, the 24 / 7 availability of materials and the innovation possible as compared to paper equivalents.

The digital nature of the material means, from the academic side, that online resources have added value over paper based equivalents. As soon as the material is online, the ability to layer materials so that students can choose how they access and learn becomes available. For instance, not only are the lecture slides available on line, they are interlinked with another layer of source material so that students can learn more deeply.¹ Or the materials are rearranged and then interfaced with the teaching to allow better access and use.² Indeed, the material can even be used to self test and allow reflection as well as learning.³

These benefits, both from the student and teaching perspective, are premised on the fact that the materials are available. Different approaches have been taken to creating or accessing the needed on line databases. Within University of Sydney, academics have accessed the free databases or have accessed the commercial databases. Others have worked within the copyright regime and university copyright agreements and built online resources for use in teaching. Yet another approach used is a private agreement with publishers to gain access to materials. Each method has its unique set of problems.

This paper looks at the methods used at University of Sydney and assesses the ease as well as the problems created by each method. It will look at the promise among the perils. This paper will outline each method used and follow this by a review of the effectiveness and problems inherent in that method. The paper will conclude with an overview of the issues involved in "getting things online".

Publicly available material – non-commercial databases

In some of the units within the School of Business, teaching resources were linked with materials already on the internet. Where material was available, the links provided seamless integration of quality source reference material such as legislation, cases, standards and so on.

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¹ For layering of materials at University of Sydney, Faculty of Economics and Business, see [click on preview to gain access]
http://courseinfo/@@a495cef93fc34cd92f73f590dd6372d9/courses/1/CLAW2006_JU_LY/content/28242_1/powerpoints52.ppt .

² For detailed use of online materials at University of Sydney, Faculty of Economics and Business, see <http://blackboard.econ.usyd.edu.au/> [click on preview to gain access] from the unit list select Auditing

³ For use of materials interwoven with assessment at University of Sydney, Faculty of Economics and Business, see <http://blackboard.econ.usyd.edu.au/> [click on preview to gain access] from the unit list select [click on preview to gain access] from the unit list select Information Systems Foundations

The benefits of this approach were two fold. First, since the materials had already been placed on the Internet, the academic did not need to get them there. Someone else had done that, often immense, job. Second, there was no issue of copyright infringement. Using only publicly available databases meant that copyright was avoided.

The down side to this approach is that the academic is limited to what is available. Where it is not on the Internet, it could not be used. In the legal area, for instance, Austlii serves as a wonderful resource for legislation but when it comes to cases it is not as complete.⁴ For some jurisdictions and courts as little as ten per cent of the available cases are on line. This is not a criticism of Austlii, rather it is a recognition of the need for better funding of the free public databases available and a warning that while this method for utilising online materials has distinct advantages, it has a down side until the databases can be better resourced and can then do what they were set up to do.

Publicly available material – commercial databases

The commercial “mega databases” provide the same two benefits as the non-commercial databases with a complete set of materials. The disadvantage of lack of completeness is removed but is replaced by different issues. Student access, particularly universal access, is not fully available. At University of Sydney, while the mega databases are available,⁵ universal access is not. Some databases are only available to staff, others to staff and law students or a subset of law students such as postgraduate students only. Access for non-law commercial law students from other faculties is difficult if not impossible.

In order to use materials as an online resource, all students must be able to access the materials equally and efficiently. Where some students can only access them from inside the university or even not at all, an academic loses the ability to use those materials. In order to be fair and treat all students equally, I have been forced to not use the commercial databases since not all students could access them. It is either all in or none in, other wise equity issues arise.

Purchasing adequate and universal student access to the commercial databases will correct this deficiency but comes down to a resource issue of university and library funding and should perhaps best be avoided at the present.⁶

Publisher supplied materials

Another approach which avoids copyright issues and still provides ease of creation is the use of publisher created materials. At the University of Sydney the unit Business Information Systems Foundations has been developed which uses both publisher supplied online resources and online techniques that we have developed in-house.

Business Information Systems Foundations teaches two separate, but related, concepts – management information systems (MIS) and proper programming techniques through VBA for Excel (VBA). *Management Information Systems for the Information Age, 4th Edition*, by Haag et al., (2004) published by McGraw-Irwin was the text for the MIS portion of the course. The following on-line aids were utilized on the unit web page:

- a. A glossary of terms by chapter (terminology in IT often is difficult for non-IT people to remember),
- b. Chapter outlines and overviews,
- c. E-Commerce topics related to the topics in the chapter,

⁴ <http://www.austlii.edu.au/databases.html> shows the information available at Austlii. While legislation is complete, cases are not. High Court cases are now complete but not so for other courts.

⁵ See <http://www.library.usyd.edu.au/libraries/law/databases.html#mega>

⁶ The issue of correct government funding for universities is presently becoming an election and industrial relations issue.

- d. Sample group projects for students that wished to expand their knowledge beyond that which was required,
- e. Current news updated daily by the textbook publisher and therefore not subject to our copyright issues,
- f. Current magazine articles.
- g. Sample multiple choice and true-false quizzes by chapter

None of the additional features mentioned above were required but were added to aid students in their comprehension.

The publisher also provided a test bank of questions. From this test bank we chose appropriate questions for quizzes and developed 10 quizzes to be used in the semester. The quizzes were given in computer labs, on-line, and each student was randomly given 10 questions to answer from the test bank for that quiz; therefore cheating was minimized. Results were given to the students immediately upon submission. The most difficult questions, as determined by the students' results, were posted onto the Blackboard site so that any student could learn from those questions, whether or not the question was in his/her particular randomly selected questions. By using computer techniques, we could provide excellent feedback even though we had 903 students.

In the VBA portion of the unit, students were given tasks to complete in computer workshops and tutorials; their progress on these tasks were submitted by them, via their computer, marked instantaneously by a program developed in-house and the results given to them. Additionally, our workshop assistants and tutors could monitor the progress of individual students with these tasks online.

Two VBA tests were given during the semester; these were marked by a computer program that was based on the output of the students' programs. Manual intervention in the marking was necessary on a small minority of the submission. The end result was the marking of approximately 1800 computer programs in a fraction of the time it would take to analyse the programs visually; in addition the marking was much more consistent than would have otherwise been possible.

With the large number of students we had a potential problem with the number of assessments causing an unmanageable number of make-up quizzes due to valid student reasons. We overcame this issue by stating that students could eliminate the lowest two results in the quizzes and we would not have make-up quizzes. The students were happy with this solution.

The following problems were encountered:

1. Since our quizzes were electronically based, we were subject to power outages and internet problems. This type of problem happened twice which necessitated a large number of students doing a quiz at an unusual time.
2. Manual intervention was still necessary with program marking in the VBA portion of the course since some student programs would not run at all, but they still had some value.
3. The amount of information put on Blackboard intimidated some students even though the use of it was discretionary.

Overall, we view the use of on-line resources a major success; the failure rate in the course was no higher than more normal commerce courses even though many of the students had no initial desire to learn programming or even MIS.

The material provided was very easy to use and to load into the computer systems. Further, they were already collected, edited and formatted. It did require an authorization level in Blackboard, the online learning system used in the faculty, that academics did not have, but the administrator of the Online learning system was able to load the material quickly.

The materials that served as the database came packaged with the text book. Finding the materials was not an issue at all – the publisher made sure our attention was drawn to them. The materials will remain current as long as the text book remains the same and will remain current, when a new edition emerges there will be new materials which will need to be reloaded. There is definite ease of use with this approach. The only downside is that not all textbooks or publishers provide a service like this one.

Materials custom created – within the standard university copyright agreement

One approach that has been used to incorporate electronic resources into our teaching programs is using copyright material that is provided by the university's library under the statutory licence provision as set out in Part VB of the *Copyright Act 1968 (Aust)*.

In a number of courses that use a reading list that comprises mostly newspaper and scholarly journal articles (and the occasional chapter of a book), a dynamic "html" link is provided from the reading list reference directly to the document. Students within the university network can link to these resources via the library after being authorized by an "on or via campus" TCP/IP address. External internet users must use a library borrowers card ID and password to achieve the same level of access.

Once authorised, the user has access to resources stored in the library and via external database providers or the publisher of source materials. In some circumstances the university library either scans or downloads articles on to its e-reserve server with the appropriate copyright declaration. In other cases on-line information vendors such as Lexis-Nexis, Ebsco's Business Source Premier or UMI's Proquest provide the information. Where the library has an on-line subscription to a journal the link may be to a publisher's web site such as Blackwell-Synergy or Science Direct from Elsevier Science.

This approach seems to be generally well accepted by students who had previously been sold a package of readings, collected and produced in advance. Using this method the reading lists and lecture examples can be updated with current news or research findings on the topics studied. This flexibility and contemporaneous approach is enjoyed by students and instructors alike. Once reading list links are created there can be great benefits on repeat offerings of the course⁷. Notwithstanding this, there is still a lot of work setting up the linkages, either by the course coordinator finding the articles (and links) themselves or in coordinating with librarians to discover the links. Where material is not easily sourced in the library, there is often a delay while the material is obtained, scanned where necessary and then loaded to e-reserve.

On the negative side, there are problems with the speed of access, particularly with students accessing large (often scanned) information or via slow off-site data lines. Another issue is that some of the on-line vendors do not provide a permanent or persistent link to the information. Due to the way they store the information it is accessed through live searches and any URL produced lasts only hours or days. Thus a link created from these URLs works initially, but later fails to link to the documents. A far better solution being implemented by some publishers is the DOI (Digital Object Identifier), these links will continue to resolve even if the resource is moved from its location on one web site to another location or even another web site.

Another issue lies with the Copyright Agreement with the university itself⁸. While an entire article may be digitised and linked to, only one portion from a book may be used. If another academic in another unit wishes to use a different section, the second academic cannot do so until the first section has been removed! This requirement has necessitated the setting up of a central unit⁹ to digitize and record all copying so that records can be kept and checked of just what has been digitized under the agreement. While of benefit to academics – they do not need to do the copying – it has meant more funding was needed to set up the unit. Further, since it is one unit for an entire University, delays in getting materials posted sometimes happens. Another issue, as yet unreached at University of Sydney, is what if two academics each want a section of a book posted at the same time - and no agreement can be reached. Who gets preference? The University can then either post both sections and pay

⁷ The benefit with repeat usage is slightly lessened where links "break" because someone external has changed the location of the source file. Some repeats are seamless with no breaks. Others are not.

⁸ See Appendix A for an extract of the copyright agreement.

⁹ At University of Sydney, the central library has taken on this load, specifically the e-reserve unit. (CORS, Course Online Reading Service)

extra to the copyright authorities or allow the academics or the central unit to sort it out themselves. More perplexing is that if an earlier chapter was removed so that a later section could be added, the earlier chapter is not available to students for review or other study purposes. Unless students are completely up to date¹⁰

Materials custom created – individual permission from copyright owners

Another approach used, perhaps the most comprehensive in terms of materials created, has been to obtain private permission from the copyright holder to copy and access materials and use the materials thus made available to create a customised e-learning environment. The Faculty of Economics and Business at Sydney University has been involved, over the past 24 months, in the pilot implementation of a sustainable and scalable infrastructure for the deployment of an e-learning shell with an integrated digital library. The infrastructure is offered by Global Library Services Network (GLSN).

To date we have focussed on Graduate and Post Graduate programs in Auditing.

The project has been undertaken in four phases:

Phase 1 was the deployment of material on the Faculty Intranet, using E-Book (Reader) technology (without digital rights) in order to understand how the students would use the material and whether it was of any direct benefit.

Phase 2 was the integration of the separate E-Books into a digital library with extended deployment through CD-ROM to support offline use. The digital library offered:

- full-text search and context search; and
- copyright compliance under the Act;

Phase 3 was the integration of knowledge assimilation functionality wherein material was available to allow the students to undertake self-examination through an integrated “multiple choice” module. Further it included:

- integration with other systems through a single login (LDAP);
- integrated language support for foreign students;

Phase 4, deployed the fully integrated system with several extensions:

- integrated multi-lingual glossary;
- support for numerous copyright licensing models;
- internal peer group management in respect of “entity” identification and cataloguing;
- integrated support from publishers – searchable digital index of prescribed textbook;
- deployment of e-enabled Case Study templates for offline use;
- integrated E-Mentor program for upload of offline answers to central learning management system (Blackboard)

Throughout the project considerable effort has been expended to understand the workflow and maintenance issues to ensure ongoing scalability, sustainability and acceptance by teaching staff. Overall the system offers the Faculty an integrated solution to online and offline learning, with several innovative extensions that have been well accepted by the students.

The cost of this approach may well serve as a limit to the wide spread use of this approach. This trial has been made possible through the generosity of the copyright owners¹¹ who permitted and has worked with the academics to produce the e-book and associated ventures. Similarly, a very large amount of time has been needed to set up the detail and useability that

¹⁰ This is possible but unlikely. Some students are up – to date in their study. The majority, certainly in Australia, are not. This means that if material is removed, those students do not have access to it.

¹¹ Permissions were received from the software owners as well as content owners such as the HIH Royal Commission.

has been created. The result, however, from a student viewpoint illustrates how useful on-line resources can be.

Overview

The issues raised in “getting materials” online for use in teaching include:

- ease of use for academics
- ease of use for students
- ability or inability to locate materials and time taken to do so
- copyright

These issues are not unique and will be faced by anyone locating and using materials for online use.

The copyright limits faced may well be unique to Australia. The Australian *Copyright Act* is not that dissimilar to Copyright Acts in other countries both in scope and in implementation of recent amendments covering digital and Internet issues¹². The individual agreement reached between the copyright authorities and the University of Sydney, however, is unique. It is that agreement that is limiting the quantity and length of time that materials can be placed on the Internet and made available to students as well as the time delays and so on in getting materials online. While the agreement is between the copyright authorities and University of Sydney, the agreement is typical of the agreements reached with other universities in Australia. In countries where a different regime has been struck between the copyright authorities and the universities these problems will not arise so that more of the benefits can flow.

¹²

In Australia, the *Digital Agenda Copyright Amendments* in 2004 implemented the communication right and other international changes.

Appendix A

Extract from The University of Sydney, Course Online Readings Service:

<http://www.library.usyd.edu.au/cors/>

How much can I copy or scan?

The copying of copyright material for educational purposes is governed by the statutory licence provision set out in Part VB of the Copyright Act. This allows the University to make multiple copies of material for student course work in return for a royalty payment.

The Act specifies the 'reasonable portion' of a copyright work or periodical publication which can be copied or communicated for educational purposes.

For works other than periodical articles this is defined as:

- hard copy to digital copying of works: 10% of the number of pages in a work, or if the work is divided into chapters, one chapter.
- more can be copied if the work is out of print. Library staff will assist you in determining this.
- Digital-to-digital copying of works: 10% of the number of words in a work, or if the work is divided into chapters, one chapter.
- more than 10% of an electronic literary, dramatic or musical work can be copied if the work is not available in electronic form within a reasonable time at an ordinary commercial price.
- the whole or part of a literary or dramatic work in a published anthology if not more than 15 pages;
- an artistic work which accompanies a literary or dramatic work for the purpose of explaining or illustrating text;
- the whole or part of an artistic work if it is not separately published or is unobtainable in a reasonable time.

For periodical publications the following can be copied or scanned:

- one article per issue of a periodical publication (whether copied in hard copy or digital format).
- two or more articles can be copied from the same issue of a periodical provided they relate to the same specific subject matter.

Note that the right to reproduce and communicate electronic material may be limited if the Library or University has signed a licence agreement specifying stricter limitations on copying and stricter conditions of access. On the other hand licence conditions may allow us to reproduce more than the Copyright Act permits. Library staff will provide advise on licence conditions governing the various full-text databases to which the Library subscribes.

All requests to scan and communicate materials will be checked for copyright compliance. You will be notified if your request is deemed to infringe copyright, and the Library staff will suggest alternative access methods to meet the information needs of your students.