THE WEB OF COLLABORATION: TEAMWORK BEHIND THE SCENES OF THE ONLINE LEARNING EXPERIENCE

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ABSTRACT

The emergence and expansion of e-learning as an independent study mode places new demands on universities and requires staff to collaborate with various departments to design and deliver educationally robust solutions to online learning.

The Graduate School of Business (GSB) at Curtin University has been delivering an online MBA program since 2001, using a sound pedagogical approach with a focus on creating a collaborative online learning environment. At the same time, the digital copyright act resulted in an increased emphasis on Curtin's e-reserve digital repository and a growth in content.

This paper examines the collaboration between GSB and the university library in designing and delivering the online MBA program. The integral use of the e-reserve digital repository in content design has resulted in a wealth of materials available contextually to online students and ensures these students aren't disadvantaged by their location or lack of traditional library facilities. The paper concludes with the outcomes of this initiative, and how it has led to current and planned collaborative developments between GSB and other university departments.

1 INTRODUCTION

How much collaboration is required behind the scenes of an online course for the student to have an educationally robust and interactive online experience?

In a traditional university setting, various schools and departments tend to work in isolation, with no or very little inter-departmental communication. However, the emergence and expansion of e-learning as an independent study mode places new demands on universities – staff must collaborate with various other departments of the university in order to design and deliver educationally robust solutions to online learning.

The Graduate School of Business (GSB) at Curtin University has been delivering an online MBA program since 2001. This award-winning program is designed using a sound pedagogical approach, with a focus on creating a collaborative online learning environment.

This paper explores the challenges faced in providing external resources seamlessly to online students, through collaborating with different departments to understand the policies, requirements and implications of providing these resources via the learning management system.

Firstly the background, structure and quality of the online MBA is discussed. Then the original challenges of providing resource materials in an online course are outlined, followed by the original solutions. The paper then outlines the developments in e-reserve, brought about by the 2001 Digital Agenda Act, Australia and how this was implemented for the online MBA. The paper concludes with the outcomes of this initiative, and how it has led to current and planned collaborative developments between GSB and other university departments.

2 BACKGROUND

The Graduate School of Business (GSB), Curtin University of Technology, is situated in Perth, Western Australia. One of the seven teaching faculties within Curtin Business School, it was established in 1993 and has developed into a world class graduate school. In 2003, the GSB succeeded in achieving an Association of MBAs accreditation, has qualified for the European Quality Improvement System (EQUIS) award from the European Foundation for Management Development and was listed by the Economist Intelligence Unit as having one of the top 100 MBA programs internationally.

However, being one of the best graduate business schools is not enough, as local geographical conditions in Western Australia (WA) are particularly challenging. Perth – the capital of WA - is one of the most remote cities on Earth and the area of WA is about 2.5 million square kms – one third of the whole Australian continent, enough to fit five countries the size of Spain. Its population, on the other hand, is less than one-tenth of the whole of Australia – about 2 million, half of which lives in the capital of Perth. In addition, WA is a mining state, and a relatively large percentage of the workforce have "fly in-fly out" arrangements, commonly on two-week on, one week off schedules. Naturally, such schedules do not suit a traditional face-to-face mode of learning, but a traditional mail-based distance education with its notoriously high attrition rate does not seem to be a fitting solution.

The implementation of on-line learning at the GSB followed on from research conducted by Ladyshewsky and Nowak (2000). The research found that students wanted more flexibility in delivery of their education. The GSB also recognised the importance of providing an alternative delivery method of education to students with access and equity issues.

The GSB began its online offering in 2001 using a mixed-mode model, where online students were still required to attend a number of face-to-face classes throughout the trimester. This changed in 2003 when the School moved to fully online delivery, with optional face-to-face classes only. This expanded the reach of the course to those students unable to attend any classes.

While the GSB was progressing on its journey to provide flexible learning opportunities for its students, the Curtin Library was also developing an electronic reserve system to provide a digital repository mirroring the traditional reserve section of a library, however with much wider access and flexibility for users.

The coming into force of the Australian Copyright Amendment (Digital Agenda) Act 2000 (Digital Agenda Act) from March 2001 changed the landscape in terms of providing access to copyrighted digital objects, heralding a partnership between the GSB and the Curtin Library to provide seamless flexible access to electronic course materials in line with the requirements of the Act.

3 ONLINE UNIT DESIGN: PEDAGOGY AND OUTCOMES

From the very beginning, the GSB was conscious of designing its online units based on sound pedagogical principles and undertook thorough research of existing best practices in delivering education via the Internet. A social constructivist approach was adopted (Walker & Jeurissen, 2003) and critical importance was given to developing a clear structure and critical pathway for the students.

Learning effectiveness in web-based learning systems is influenced by a number of variables:

- contribution of the web-based learning resources to the acquisition of knowledge and skills with respect to their learning objectives;
- time spent on task using the system;
- computer mediated interactions with peers and instructors, and means of communication;
- the quality of the learning resources (instructional material);
- the learner's profile (learning style, previous experience, etc); and
- the preferred mode of study (with or without the use of web technology).

Psaromiligkos and Retalis (2003, pp 9-10)

The use of quality web-based learning resources was seen as integral to pedagogically sound content development, along with recognition that to maximize time spent on knowledge acquisition, time spent using the system to find and retrieve information should be minimized.

This approach has proven to be successful, and a number of studies in recent years confirm that the online students achieve similar results to face-to-face students (Morales, Cory & Bozell, 2001; Hiltz & Turoff, 2002; Katz & Yablon, 2003).

A two-year study of nine post-graduate business units, undertaken in the GSB (Ladyshewsky, 2004), has demonstrated similar results. The units selected for the study were taught both face-to-face and online. They had the same educational content, similar assessment structure, similar class sizes (between 10 and 40 students) and the same unit controllers. The students who undertook face-to-face classes amounted to 77.5% of the total, with 22.5% for online classes.

The findings demonstrated that there was no significant difference in either learning mode on individual unit level and no significant difference in academic achievements by gender. When taking the average of all student grades across all units, online students did significantly better; however, the effect size indicator of 0.11 suggests small practical significance. Perhaps the most interesting finding was that at the one percent level of significance, the students experiencing both online and face-to-face modes of study did significantly better in e-Learning.

Even accounting for some limitations of the study (i.e., certain incongruity in comparing the two modes of study, using 'grade' as a single measure of outcome, sample size differences across 2 groups and possible student learning style bias), the research gives some assurances that well-designed and facilitated online course can deliver academic quality outcomes equal to or exceeding that of the traditional face-to-face class.

These results demonstrate that the GSB's approach to design of online units has achieved the desired results and the use of quality, easily accessible learning resources is key to these outcomes.

4 ONLINE UNITS: STRUCTURE

The GSB initially developed a template for designing its online units, to make it easier for subject matter experts to develop their content within a framework, and also to provide students with a clear pathway through the unit content and also a familiar experience as they progressed from unit to unit.
As each unit consists of twelve learning modules delivered over the course of twelve weeks (one trimester), the template contains a placeholder for each module. A typical placeholder contains areas for the following content:

1. module overview;
2. list of readings and links;
3. practical activity; and
4. discussion forum.

4.1 READINGS AND INTERNET LINKS TEMPLATE

Within this module placeholder, a "Readings and Internet Links" template was developed. This template contains sections for essential readings, suggested readings and internet links to support the text-based material. See Appendix A for an example.

4.1.1 ESSENTIAL READINGS

These consist of textbook chapters and any required journal articles, papers, case studies or news items.

4.1.2 SUGGESTED READINGS

Suggested readings include references to other sources – generally journal articles or other books. Academic staff were encouraged to research online or digital sources of materials, including journal articles, newspaper articles etc.

4.1.3 INTERNET LINKS

As the internet is the mode of delivery for the online MBA, a wealth of resources is available for students, and again subject matter experts were encouraged to seek online resources for students' use. However, as use of this information is not related directly to assessment, evidence shows that minimal use is made of this resource perhaps unless it is related to assisting with practical activities or assignments.

4.2 RESOURCE MATERIALS: ORIGINAL CHALLENGES

As the GSB online delivery model remains based on the use of required textbooks for compulsory readings, essential readings usually refer to textbook chapters. However, additional readings are often required to supplement textbook sources. These traditionally included:

- case studies distributed in class, to be returned;
- relevant journal articles that, if numerous, were made available in a book of readings that could be purchased directly from the School;
- single journal articles, handed out in class; and
- book chapters available from the Curtin Library or other university libraries.

GSB faced a number of hurdles in migrating this model of delivering supporting or supplementary material to an online environment. As the online delivery model also dictated that no hard copy materials were to be distributed, other options had to be pursued and as we were soon to discover, copyright in the digital world is a whole new paradigm!

4.2.1 CASE STUDIES

Case studies are difficult to obtain in digital format; many come in numbered hard copies that must be returned at the end of each unit. When developing their online content, individual lecturers invested considerable time requesting to use case studies in digital format, highlighting that these would only be made available to enrolled students through a secure learning management system, which is no different to handing out a copy to each class member and having it returned at a later date.

These approaches to publishers were generally unsuccessful, and in some cases, despite multiple requests, no replies were received. A workaround was to use the same method as face-to-face classes, except copies were distributed and returned by mail rather than in class. This was an unwanted additional workload that prompted lecturers to redesign their units to take advantage of digital resources and e-reserve.

4.2.2 BOOK OF READINGS

If a book of readings was provided as a text for the unit, this was only available to be purchased from the School. Initially this practice was continued for mixed-mode students, as they were still required to attend introductory and review classes. However, in practice this method was unsatisfactory as review classes were often held on weekends when the School office was closed, and for academic staff the administration of selling books for cash during teaching time became increasingly difficult. One solution was to offer the book of readings for sale via the University bookshop (as online ordering is provided), however this attracted a price premium that disadvantaged online students.

4.2.3 JOURNAL ARTICLES

The Curtin Library provides scholarly electronic databases for all students via the internet. In designing materials for the new online program these were integrated into required and suggested readings for each unit where possible.

The practice varied from asking students to research a topic via general online research, to finding a specific article. We found that where specific article references were provided, this resulted in negative feedback, as online students didn't want to have to search a number of databases to find a single article, and most were used to the classroom where such articles were handed out and no research time was required on their part.

The feedback indicated that the expectation was for a quick online link to the article, as not only is this the norm in an online environment, it mirrors the ease of access to articles in a face-to-face class.

4.2.4 BOOK CHAPTERS AND SUPPLEMENTARY READINGS

In some cases additional book chapters supplement textbooks, where certain topics are not covered. These were traditionally photocopied and provided in the Curtin Library for copying by students. Again the mixed-mode format encouraged this practice to continue, as students were required to attend class. However, as the library at the GSB campus is not open on weekends, it was soon realized that this practice could not continue.

Further, many academic staff included lists of other textbooks under "Suggested Readings" for their units. It took a lot of coaxing for these academics to realize that it was inappropriate to include these references for an online audience if these were only available in hard copy.

Overall, these experiences demonstrate the transformation that was necessary for the School to modify its practices to meet the needs of online course delivery.

5 RESOURCE MATERIALS: ORIGINAL SOLUTIONS

In the face of the above challenges, the GSB utilised an area of its learning management system called the "Media Centre". This area was designed to hold any supporting electronic resources, able to be linked directly to the module content, i.e. in a module's overview, a link to the Media Centre materials was provided.

As the bulk of development for online units was performed in 2000 and early 2001, before the Digital Agenda Act came into force, digital copyright issues were resolved in various ways through collaboration with expert library staff. In most cases a journal article or book chapter was scanned, a PDF document was created and these resources were placed in the Media Centre. Alternate case studies were sourced from online sources or copied and placed in the Media Centre.

To comply with copyright requirements, GSB staff, after consultation with copyright experts from the Curtin Library, implemented the use of a University copyright notice to precede this material. In cases where individual permission had been received from publishers, a record of the permission was filed and the copyright notice was not required.

While this solution meant that students could easily access reading materials within their unit, without having to resort to searching through scholarly electronic databases on slow modem connections, the solution was not ideal. As hard copy articles had to be scanned and converted to PDF documents, scanning quality was not high and students complained of being unable to read material. Further, scanned material cannot be searched like full-text articles from online databases.

The GSB used this approach as it was an in-house solution that we understood and controlled, and was the next incremental step in the transformation to online course delivery. The fact that such a sub-optimal solution was used, despite communications with Curtin Library staff on copyright issues, highlights the silo effect that was in place at the time. There was communication, but little collaboration, with the Curtin Library about the challenges we were facing and until the Digital Agenda Act came into force, the GSB paid little attention to the developments happening with e-reserve.

6 PARALLEL DEVELOPMENTS – E-RESERVE

The growing impact of the Internet on the delivery of information was not lost on staff at the Curtin Library. By early 1999 a strong strategic position had been adopted; to provide access to materials in electronic formats wherever possible. Access to past exam papers had been provided online for some years and access to the journal literature, via scholarly electronic databases, had grown rapidly. In this environment one of the traditional services provided by a university library, closed reserve, was ripe for development. In hindsight the movement of high use materials from a paper based system to an online environment is obvious. At the time there was much debate in the wider library community about the legality, practicality and usefulness of such a change. However Curtin Library decided to

build a pilot e-reserve with work started underway in 2000. By the end of 2000 a pilot e-reserve infrastructure had been developed and a pilot program was announced for 2001.

At this time a major change was in the pipeline that would impact on the proposed e-reserve pilot. The prevailing copyright legislation didn't address the copyright implications of the digital environment, and this was one of the major hurdles to the establishment of university e-reserves. This would change with the digital amendments to the copyright legislation which would come into force in early 2001. These changes presented an opportunity, in removing much of the ambiguity, and a threat, in imposing new and much stricter compliance requirements at a university level.

The key change to the Act, from the University's perspective, was in the distribution of materials across the university. For paper-based materials, an individual can copy one chapter, or ten percent of a text, and distribute to a class for educational purposes. This means that multiple academics could be copying material from the same source, as long as individually, the material is no greater than ten percent or one chapter.

However, the Digital Agenda Act enforced this rule across an entire University for electronically communicated material, so that for a single source, only one chapter or ten percent could be copied and distributed electronically across the entire institution. If the GSB continued to have digital resources stored in its learning management system that were also in use in other areas of the University (even if the chapter taken from a book was different to another location using the same book), then the institution as a whole was contravening the new regulations.

The Digital Agenda Act came into force on 4th March 2001, and on 9th March 2001 the University agreed to use Curtin Library's e-reserve to manage online copyright material across the entire university. The Curtin Library responded to the challenge, turning a pilot into a robust, compliant system in a shortened timeframe.

7 GSB IMPLEMENTATION OF E-RESERVE

The GSB's first mixed-mode units went live in late January 2001. In March 2001, given the decision of the university that the Curtin Library e-reserve would be used, the GSB had no choice but to move its materials from each unit's Media Centre to e-reserve. As could be expected there were initial reservations. The GSB had just undertaken a long exercise to source, create and distribute these materials using its own system, and almost immediately upon going live were forced to migrate these materials to a system that had just been piloted.

Apart from concerns about the impact this would have on students using these materials, there were reservations about internal processes. Whilst GSB had confidence that the e-reserve system itself was robust, the complementary Curtin Library business processes were in their infancy and dedicated support was minimal, as the pilot had only commenced in December 2000. Curtin Library staff were tasked with not only implementing university-wide a system that had just completed its first pilot, they were also responsible for digesting and disseminating information on how the Digital Agenda Act would affect the University's operations.

However, left with no choice GSB staff liaised closely with Curtin Library staff to migrate the materials, and the Library held various seminars to explain the impact of the Act. GSB nominated an e-Learning staff member to take responsibility for these issues and advise other GSB staff on the implications. Once both parties started collaborating and a team approach adopted, the process was fairly seamless and the desired result was achieved with no impact on students. The detailed work required to resolve the compliance issues, as described by Tang and Hanlon (2005), was no simple matter but was done. As it transpired, e-reserve became GSB's saviour in solving all their resource material challenges and today they would not be able to do without it. Facilitating access to information is the traditional role of libraries and in this regard the implementation of e-reserve is simply the latest chapter in a long tradition.

The table below summarises the challenges of providing reading materials for an online unit; the original solutions adopted before e-reserve; and the solutions implemented once e-reserve became available as the university repository.

Challenges from traditional delivery	Original Solutions for online delivery	e-reserve solutions
Case studies distributed in class, to be returned.	Post cases to online students, to be returned by mail.	Course material redesigned to use electronic resources, stored or linked to within e-reserve.
Book chapters available for photocopying from the Curtin Library or other university libraries.	Obtain copyright permission to distribute electronically, photocopy materials and make available in "Media Centre" in GSB e-learning system.	Book chapters photocopied and housed in e-reserve to meet copyright regulations across entire university. Direct links provided from course content.
Single journal articles, handed out in class.	Provide reference online and students search online databases for article.	Provide direct link to article in e-reserve in the course content. No database searching required by student.
Books of readings purchased directly from the School.	Combination of the above, depending on type of resource.	Combination of the above.

Table 1: Providing Resource Materials Online

8 OUTCOMES OF E-RESERVE IMPLEMENTATION

The outcomes of implementing e-reserve were not one-sided and limited to this project. As GSB had an immediate need to use e-reserve to comply with the new legislation, our collaboration with the library staff implementing e-reserve allowed them to develop their business processes with clients able to give immediate feedback on efficacy. Communication of process requirements and turn around time for materials were the major issue for GSB and both parties worked together to develop appropriate solutions.

In implementing e-reserve to comply with the new legislation, GSB discovered that e-reserve could be used to link to any article within the scholarly electronic databases. Thus e-reserve became the link between an article reference in the learning management system to the article directly in the database. This access only requires a library login by the student to access the article – no copying, scanning or PDF creation required on our part, and no navigating and searching on theirs. As a result GSB has used this opportunity to be more liberal with journal references in online units and added value to the students' learning.

Further efficiencies are provided as materials on e-reserve can also be accessed by students taking face-to-face classes. In this way e-reserve provides a mechanism to catalogue digital learning resources for re-use across multiple classes.

A major outcome of this implementation was a marked difference in the approach taken to new technology and learning challenges at GSB. The Curtin Library is now consulted as a key stakeholder in any new developments. This is highlighted by the presence of the senior librarian for Curtin

Business School on GSB's teaching and learning committee. GSB is the only School in the division to include the senior librarian as a permanent committee member. The senior librarian is also invited to all School staff meetings and is able to use this forum to communicate new library developments and contribute to discussions on School issues.

Overall, the most valuable result was switching the focus from individual efforts to teamwork, firstly in each of the project teams, then by both teams having to work together to combine their initiatives. The result was a cultural shift at the GSB to ongoing collaboration across departments for all teaching and learning initiatives.

9 CURRENT AND FUTURE COLLABORATIVE DEVELOPMENTS

The Curtin Library has continued to grow the content of e-reserve, moving almost entirely to digital objects for journal articles and gradually reducing the remaining paper-based formats. A partnership between Curtin Library and eBooks.com to develop a new model for academic library provision of e-books will see e-books, and particularly loanable chapters of e-books for e-reserve, as a major growth area in the immediate future. This development will be particularly pertinent for the online MBA at the GSB.

Another development for online units at the GSB in 2004 was the introduction of i-lectures in some online units, achieved through collaboration with Curtin University's central IT services staff. I-lectures are streaming videos of lecturers and guest speakers, available to support the text-based materials in an online unit. The videos can be complemented by Powerpoint presentations. This development adds more interactive content and provides an alternative to cater for different learning styles of students.

10 CONCLUSION

New times call for new ways of surmounting challenges. Traditionally, the collaboration between staff of a teaching School such as GSB and other areas within the University was minimal. Even though academic staff may collaborate with their peers worldwide, the staff in a teaching school can be quite isolated in their work from other staff in the same building, let alone across the campus.

The move to developing and delivering online units presented the challenge of combining expertise from academic subject matter experts, education and technology specialists, and information management specialists. The journey of the GSB in increasing its collaboration with Curtin Library to produce materials for online course delivery demonstrates that such collaboration can result in easily accessible, media rich and context sensitive material that enhances knowledge acquisition and assists students in their learning journey.

The outcome of this journey has led to a higher degree of collaboration and an increased presence of Curtin Library staff in all areas of teaching and learning within the School.

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Appendix A

Essential Readings	
	For this module, please read ***Chapter 7*** from the **Robbins et al** (2004) textbook.
Recommended Readings	
	As an assessable part of this unit, in your participation in online discussion you are required to show evidence of further reading **and refer to at least one of the following journal articles**. All articles listed are available to be downloaded from the ABI INFORM Proquest (Global) database available through Gecko - gateway to scholarly electronic databases, or are available in the Curtin library e-Reserve by clicking on the links below. • Knight, P., Westbrook, J. 1999, 'Comparing employees in traditional job structures vs telecommuting jobs using Herzberg's hygienes & motivators' *Engineering Management Journal*, vol. 11, no. 1, pp. 15-20. • Isaac, R., Zerbe, W., Pitt, D. (2001), 'Leadership and motivation: The effective application of expectancy theory' *Journal of Managerial Issues*, vol. 13, no. 2, pp. 212-226. • Lawler, E.E. III 1999, 'Employee involvement makes a difference', *Journal for Quality and Participation*, vol. 25, no. 5, pp. 18-20. • Spreitzer, G.M., Cohen, S.G., Ledford, G.E. Jr. 1999, 'Developing effective self-managing work teams in service organizations', *Group and Organization Management*, vol. 24, no. 3, pp. 340-366. NB: These are suggested readings only, and in learning about this topic you should not limit yourself to them. Explore the library databases and the internet - if you find anything of interest, why not let everyone know in the relevant Discussion Board?
Internet Links	
	• A critical viewpoint on behaviour modification applied to workplace safety. • For more information on gainsharing, including questions and answers, click here. • W.E. Deming, the 'father' of the quality movement - died in 1993, but his institute lives on.