EMBEDDED AND ONLINE:
INFORMATION SKILLS @
THE UNIVERSITY OF MELBOURNE

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ABSTRACT

At the University of Melbourne, support for effective integration of educational technologies and multimedia in teaching and learning has long been a strategic priority. Despite being a campus-based institution there is strong commitment and funding support for development of state-of-the-art multimedia educational experiences that complement face-to-face teaching and allow anytime anywhere access to course and instructional materials. The University also has a stated commitment to fostering ‘independent learning throughout life’ with a concomitant commitment to the development of ‘generic’ skills, including those of information literacy, that enable lifelong learning.

This paper explores how three very different projects: the Legal Information Skills Tutorial (LIST) and Advanced Legal Information Skills (ALIS); ArtSmart and Post Graduate Essentials have utilised the principles of e-learning using innovative multimedia technologies to embed information literacy in a meaningful way into student studies.

Additionally, the three projects presented feature strong collaboration between librarians, academics, courseware development, and language and learning skills professionals to embed information skills instruction in core course content, rather than as standalone “library instruction” units. This gives students a meaningful academic context for the development of these essential skills.

1 INTRODUCTION

The paper features three multimedia online tutorials promoting information literacy at the University of Melbourne. In terms of character and style they are very different products for they have been shaped by the demands of the discipline, the level of study and the diverse contexts in which they are taught. However they also have much in common. They each employ the principles of e-learning using innovative multimedia technologies to embed information literacy in a meaningful way into student studies. As such each tutorial is the result of a successful collaborative effort between academic staff, information staff, and multimedia developers.

The University context in which information literacy programs operate is relevant to this discussion since it significantly informs the underlying philosophy and objectives of the tutorials. The University has a stated commitment to fostering ‘generic’ skills and ‘independent learning throughout life’. This is the rationale for the provision of information literacy programs. The University is also very supportive of the use of technology in teaching and this encouraged the development of interactive information literacy programs.

2 DISCUSSION

2.1 THE UNIVERSITY CONTEXT
The Nine Principles Guiding Teaching and Learning at the University of Melbourne, is a key document that outlines the educational values and philosophy of the University. The document recognises the nexus between ‘independent learning throughout life’ and information literacy skills’ (James & Baldwin, 2002). The online tutorials in this paper were conceived and executed in this context.
Much of the professional literature surrounding information literacy espouses the view that the principles of information literacy are most effectively learned when they are situated in a meaningful context for students, embedded in the academic curriculum. The University’s Teaching and Learning Management Plan encourages the ‘integration of information literacy into the curriculum’ as part of a strategy to transform teaching and learning through appropriate use of new technologies (McPhee, McInnes, Hayes, Martin, & Harris, 2003 p.25). In 2002, Academic Board endorsed the Information Literacy Standards (Council of Australian University Librarians, 2001) as a ‘useful guide to curriculum design.’ The online tutorials in this paper are part of an overall information skills program of discipline-based teams offering specialist programs to Faculty at the undergraduate and postgraduate level.

The University of Melbourne offers students the ‘Melbourne Experience’ based on face-to-face teaching and an active campus environment, nevertheless there is a stated commitment to state-of-the-art multimedia educational experiences that complement face-to-face teaching. The Nine Principles Guiding Teaching and Learning recognises that multimedia technologies ‘dramatically enhance the possibilities for conceptualising and designing educational activities’.

As a result, the Teaching & Learning (Multimedia & Educational Technologies) Committee, T&L (M&ET) C, established a system of University funded competitive grants to “expand the use of technology in the academic activities of the University so as to enhance the quality of teaching and learning, diversify and extend academic programs and provide students with a wider range of learning opportunities” (University of Melbourne. Teaching and Learning (Multimedia & Educational Technologies Committee), 2002)

Grant funding was distributed to Faculties, who then assigned funding to individual projects. From 2003 Faculties were expected to fund such developments themselves. Additionally, from 2003, the University’s Courseware Development Services Unit established the Courseware Design and Development Program (CDDP). The CDDP competitive grants scheme offers two components:
1. CDS “in-kind” component - design and development staff labour time is provided by CDS to the value of approximately $30,000.
2. Department/Faculty Component - monetary or in-kind grant

The combination of Faculty grants and the CDDP grant scheme provided the opportunity for these three tutorials to create innovative teaching and learning experiences using multimedia and communication technologies.

2.1.1 COLLABORATION: THE PROJECTS
Collaboration was a key factor in determining the successful completion of the projects. For the two undergraduate projects, LIST and ALIS, co-operation of academic staff was of paramount importance.

The projects were also dependent upon the skills of programmers and multimedia specialists, coordinated by an educational designer who contributed expertise and advice on e-learning, strategies for developing learning communities, transforming ideas and content into multimedia educational experiences.

Finally, the information literacy content of the projects was provided by librarians, academics, language and learning skills advisors, and, for the Postgraduate Essentials Project, Academic Program staff from The School. Although the three projects proceeded independently, they benefited from regular communication and a willingness to share experience and learning objects.

2.2 LEGAL INFORMATION SKILLS TUTORIAL (LIST) AND ADVANCED LEGAL INFORMATION SKILLS (ALIS)
The Legal Information Skills Tutorial (LIST) was developed as an online interactive multimedia tutorial for first year law students at The University of Melbourne Law School in response to 2002 survey results, which showed that the LRC information literacy instruction program was no longer capturing imaginations, meeting student expectations or inspiring student learning. Students were asking “is it online” and “can we do this from home?”
Law Faculty multimedia monetary grant funding was awarded in 2002. This allowed employment of an external consultant and the University’s courseware design professionals to work with Legal Resource Centre (LRC) librarians to develop LIST.

The overall aim of LIST was to create a legal research and writing skills program with a significant online self-paced multi-media component. Now preparing for a third year (March/April 2005), LIST aims to impart the basic information literacy skills (legal research and writing) needed to complete a law research essay. The mix of face-to-face and online multimedia delivery caters for large first year numbers and different learning styles. Content and skills are closely matched to the upcoming essay assessment task.

An important innovation of LIST is the inclusion of the University’s Language and Learning Skills Unit (LLSU) who contribute material on effective planning, critical thinking, writing, effective citation and avoiding plagiarism, and who teach some of the face to face classes within LIST.

2.2.1 THE “NUTS AND BOLTS” OF LIST
LIST takes place as a compulsory “hurdle” requirement within the first 6 weeks of the student beginning law. The program is set in context of skills needed for the assessment task, and also for life as a lawyer (lifelong learning).

Students must log on and complete all quizzes within LIST, including a legal scenario, to pass. Eight hours of class time over 2 weeks is timetabled for students to work through LIST. In this time students are expected to attend the student laboratories to be introduced to the program. They can then work through the program off campus, or in the student laboratories where they have the benefit of librarians and academics giving one-on-one assistance.

<table>
<thead>
<tr>
<th>Orientation</th>
<th>Tour and Quiz in week 1</th>
</tr>
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<tbody>
<tr>
<td>Online Tutorial</td>
<td>The program has 5 sections; Plan, Research, Locate, Evaluate, Document and Exercises. Each section includes animations that set the scene, give background information and use humour to engage the students; web text pages, animated simulations of database searches and quizzes. Quiz software developed at The University of Melbourne (“Quokka”) was used for the 55 quiz question segments in LIST.</td>
</tr>
<tr>
<td>Tutorial classes</td>
<td>The LLSU provided a 1-hour lecture style class on essay writing and supporting web content for the Documentation section of LIST.</td>
</tr>
<tr>
<td>Exercise</td>
<td>In groups, students carry out a research scenario exercise based on class content and previous essay questions. Each student then submits his or her answers online.</td>
</tr>
<tr>
<td>Feedback</td>
<td>On completion of the exercise, students are asked to complete a “20 questions” online feedback questionnaire on all aspects of the LIST online program.</td>
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</table>

Table 1: LIST Program

Clear learning objectives were developed for LIST, and these objectives were used to evaluate the program. For a full discussion of the evaluation methodology and results see McLaurin Smith and Presser (2004, 2005).

In 2003 and again in 2004 LIST was delivered to over 450 students. In both years all but 2-3 students completed the program. Of the 374 respondents to the 2003 “20 questions” quantitative online feedback questionnaire, 95% agreed or strongly agreed that their knowledge of legal research had improved as a result of LIST, and 78% of respondents agreed or strongly agreed that “the section on essay writing helped me understand how to approach my research essay”.

In most other quantitative responses over 85% of respondents agreed or strongly agreed that content and most other elements met their expectations, helped or extended their learning.
Interestingly, qualitative survey feedback showed that students valued the relationship with librarians and asked for more assistance – LIST therefore does work well as a hybrid online/face to face learning product.

The positive survey responses accorded with findings from librarians’ direct observation of students working through the program. LIST was almost unanimously found to engage students more effectively than the previous lecture style skills instruction, and allowed for each student to work at his or her own pace. Most students were able to complete the program within the time allowed.

LIST online, which was planned, built and delivered within six months with the full co-operation and involvement of Faculty, librarians, language & courseware design specialists and students, was seen as a successful project, and an innovative first year program to be built on for future years.

2.3 ADVANCED LEGAL INFORMATION SKILLS (ALIS)

Following the success of LIST, the Legal Resource Centre successfully applied for a 2003 Courseware Design and Development Program (CDDP) “in kind” grant to extend and develop the LIST concept into future years of the LLB law degree. A separate successful funding application to the Law Faculty was used to engage the LLSU to develop more legal writing and teamwork content.

The Advanced Legal Information Skills (ALIS) program aimed to provide a skills framework for students by embedding appropriate skills modules in 6 compulsory subjects of the undergraduate LLB law degree. ALIS builds on LIST, but takes a broader approach, including many different types of legal writing, critical analysis, and with teamwork skills as well as information literacy selected by Undergraduate Studies Committee and Faculty as the focus in 2004. The ALIS project incorporates web based multimedia resources and tutorials with targeted face-to-face classroom lectures or workshops. ALIS online material is available to students via their Webraft learning management system subject pages. The development of an in-house Content Authoring & Management System (CAMS) by Courseware Development staff is enabling easier re-use and repurposing of the foundation LIST content for later year revision in ALIS, and content sharing with the ArtSmart project.

All content and classes were developed with the full agreement and co-operation of individual subject coordinators via a round of interviews and meetings from January 2004. The project was co-ordinated by LRC librarians and the Language and Learning Skills Unit (LLSU), and included a wider project team of first year law academics, educational design experts, librarians and IT experts (see Appendix).

Early evaluation from students is positive, although critical success factors are timing of the intervention, and content that exactly matches the upcoming assessment tasks. Academic take-up has been strong, requiring additional Faculty funding (secured) to ensure the expanded involvement of the LLSU in this skills program for 2005.

2.4 SUPPORTING ACADEMIC SKILLS DEVELOPMENT OF PHD STUDENTS

The twelve week non credit bearing web based program, Postgraduate Essentials: Strategies for a Successful Start to your PhD, was originally designed by the School of Graduate Studies (The School) for research higher degree students in the faculties of Medicine, Science, Land and Food Resources and Veterinary Science who were either based in country campuses or hospitals. These postgraduates had limited access to the School’s campus based UpSkills Program. The School was not only keen redress the issues of inequity of access for these students but saw the potential of web based courses in complementing the existing face- to-delivery of academic support skills programs. In 2003 The School was awarded a CDDP “in kind” Grant. Joint partners of the project included staff from the Language and Learning Skills Unit and the Information Division (see appendix for project team members).

Underlying the wide-ranging discussions during the Project Team meetings was the team’s concern of engaging and sustaining students’ interest in the online program. On one level it may seem a straightforward task to map out a framework of modules that include interactive components, visual appeal, brilliant content and vibrant forums that challenge and develops students’ analytic skills. Yet, at another level, the web-based modules were being designed without any cues from the students.
Delivering a seminar, lecture, lab-based class, or consultations, presenters rely on a whole range of cues from students. Body language gestures and students' questions reveal whether or not concepts have been understood. The “face-to-face” contact provides opportunities to clarify issues. Developing course content was challenging. Reading the literature confirmed experiences of designing online programs and underlined the importance of understanding student demographics, learning styles, and supplying support material at the ‘right time’ (Jensen-Lee & Falahey, 2002; Karuppen, 2001; Palloff & Pratt, 2001).

While developing course content initially consumed the project team’s energies, working out ways to engage students in participating in the synchronous and asynchronous forums became a “burning issue” for the project team. One of the features that would make the Project stand apart from the existing static web courses was a “facility for student peer support and interaction with university advisors” (Tjia, 2003 p.3). The Project team was keen to develop a supportive online environment that, over the length of the course, would develop an online “community of learners”. As the literature reveals that designers of online programs need to work out strategies that will encourage students to actively engage in the online environment. Strategies suggested include: organising a time for students to meet to face-to-face prior to commence of the course, commitment by instructors to the use of participatory pedagogy and a specific strategy for learning to both initially use the technology, and a way to troubleshoot it (McLoughlin, 1999; Tisdell et al., 2004).

However, Kling and Courtright (2003) are critical of the way in which the term “community of learners” is used. The authors state that:
“developing a group into a community is a major accomplishment that requires special processes and practices, and the experience is often both frustrating and satisfying for many of the participants. The extent to which a group develops certain desirable community like characteristics should be based on empirical observation rather than on assumptions or aspirations” (Kling & Courtright, 2003 p.221).

The Project Team members were aware of the importance of delivering a web-based program that would provide a secure learning environment and a program that would encourage students to share and support one another throughout the program. However, it was also recognised that it may be quite a challenge to achieve a “community of learners”.

2.4.1 THE “NUTS AND BOLTS” OF POSTGRADUATE ESSENTIALS

Postgraduate Essentials debut was in late April 2004. 88 students enrolled with a further 60 students on a “waiting list”. Although the Program was designed for students in the Sciences, thirty-five percent of the enrolled students came from the Social Sciences and humanities disciplines.

Postgraduate Essentials Program developed into an interactive academic support skills course that provided an integrated transition program for students commencing their PhD. The program was designed to help students identify and complete key tasks in the first year of candidature leading to confirmation.

The six topics, each offered over a 2-week period were: starting your PhD; getting organised – tools and strategies; working with your supervisor; searching the literature; writing a literature review and preparing for confirmation. Students had the option of ‘attending’ for selected topics only or completing the entire course. They were also able to return to the course information at times of need throughout their candidature.

2.4.2 OBSERVATIONS: FROM A LIBRARIAN’S PERSPECTIVE

Participating in the Project Team was fun. Although there were at times creative tensions, the Project Team was determined to develop a web-based program that would help commencing PhD students. All Team members experienced moments of exhilaration and moments of sheer exhaustion. It was a steep learning curve for all. Reading the literature indicates what may be in store for developers but does not quite prepare one for the intensity. Working with colleagues from different departments has brought incalculable rewards. Writing course content alongside staff from the Language and Learning Skills Unit brought new levels of understanding for both parties. The information literacy aspects were truly imbedded into the program.
2.4.3 OBSERVATIONS: FROM A STUDENT’S PERSPECTIVE

At the end of the first pilot, students were submitted online evaluation of the program. In addition, a focus group was conducted. Initial examination of these responses reveal that students found that the course provided: a “framework” for their proposed study; the organisation of the modules was logical; the program helped students establish a relationships with their supervisors and the literature and writing modules a “fantastic help”. The following quote from a student sums up the experience of undertaking the program:

“I’ve only just enrolled in my PhD studies so I found the course extremely useful as a “lead up” activity. I’ve been working at the University for a number of years so people assume I already know how to do a PhD – I didn’t. What PGE has done is help me get oriented to the task ahead, providing plenty of practical tips…”

While the students found the modules helpful, there was mixed response to the online forums and chat rooms. Some students were daunted by the task of posting questions in a forum and participating in online chat. One student observed that

“I know the course was an online one but I think it would have been useful to meet other members of the group prior to starting the course. I would have felt more comfortable using the online chat and common room facilities if I had known who I was talking to”

Yet, other students found it “nice to have chat with other students and to be able to post things to other students and such”.

Based on students’ experience and evaluation of the pilot program, Postgraduate Essentials may not have yet achieved community of learners as defined by Kling and Courtright (2003). However, the students gained knowledge and skills from participating in the pilot program. The Project Team members also gained new skills and insights into developing an online program. And finally, from a librarian’s perspective the Project reinforced the importance of teamwork and collaborative work practices. Moreover the Project highlighted the diverse backgrounds of postgraduate students and the need for the design and delivery programs to fit in with the needs and time constraints of the students.

2.5 ARTSMART: DEVELOPING INFORMATION LITERACY AND ACADEMIC HONESTY IN FIRST YEAR ARTS STUDENTS

Information literacy is an important research skill for students embarking on a degree in the humanities since it is fundamental to the research process. Yet experience, observation and various studies conducted at this University in recent years indicates that commencing students enrolled in the Bachelor of Arts do not have sufficient library research skills to allow them to complete University level research tasks. (Salisbury & Ellis, 2003) It became clear that first year students need access to information literacy programs that equip them for the tasks that lie ahead. Such programs would assist students to make a successful transition from school to university.

Ensuring access to a broad cross-section of Arts students is fraught with difficulty. Despite the unambiguous support of academic staff, the Arts team from the Teaching, Learning & Research Support department (TeLARS) found that it was an impossible task to present subject-specific face-to-face information literacy programs to all Arts students. Unlike degrees in other disciplines, students enrolled in the Bachelor of Arts do not share any core subjects. As a result some students received information literacy sessions in more than one subject while others received none at all.

An online solution to these problems of equity and access was originally proposed by one of the first year History teachers, Dr Steven Welch for implementation in the History department. However interest was also expressed in other departments and, in the final event, 7 departments decided to participate, receiving a grant from the Faculty of Arts IT& Multimedia Committee in September 2003.

The grant allowed development of a multimedia tutorial of 3 modules - 2 devoted to traditional library research skills followed by a lengthy module devoted to the ethical use of information The Academic Honesty module treats such topics as plagiarism, citation and copyright. The project was led by Dr
Welch assisted by two TeLARS staff members, working in conjunction with academic partners from participating departments, other information staff and multimedia developers from the University's Courseware Development Services. (See Appendix). It was a mammoth exercise in collaboration.

While an online tutorial solved the problem of access to an information program, there was determined opposition to the idea of creating one generic tutorial. A generic tutorial would have compromised efforts to integrate information literacy into the curriculum. The programmers provided an innovative technical solution to this problem, creating a Content Authoring & Management System (CAMS) that enabled generic modules to be customised to meet the needs of individual subjects. This feature gives ArtSmart its distinctive character in that generic skills can be taught in a relevant and meaningful context.

Using CAMS we are able to brand each version of the tutorial by department and individual subject. Lecturers can clearly associate the modules with an authentic assessment task. Sample topics and demonstration searches can be customised, students can learn to search the most appropriate database for that particular subject, and the citation style used throughout will be the style used in that department. We can add subject-specific content and remove material that is not required for a particular assignment. It is an excellent compromise between the generic and the subject-specific tutorial.

CAMS is a great asset since it enables the re-use of generic text and learning objects in different versions of ArtSmart. It was also developed in conjunction with developers from Law so we have also been able to share learning objects and content with the developers of LIST and ALIS (also featured in this presentation). CAMS is the product of successful collaboration with multimedia developers and is itself an excellent collaborative tool.

The educational design of the project has been carefully thought through. The conceptualisation of ArtSmart is student-centred since it is directly related to curriculum and authentic assessment tasks. Understanding of the entry-level knowledge of students has made it possible to develop content that builds upon their prior experience and gaps in their knowledge base. The activities are varied and designed to promote active student engagement with the subject matter. There is provision for individual and collaborative work as well as opportunities for reflection.

The issue of repetition also influenced educational design. Since ArtSmart crosses several departments, it is inevitable that some students will be required to complete the tutorial in more than one subject. Although each version of the tutorial includes specialist materials for the subject, the content overlaps. To address this problem, we adopted a pre-test / post-test methodology for 2 of the modules. If a student answers the pre-test correctly then they can move on to the next section. However if they answer incorrectly (and they are only given one chance), they are required to proceed to the instructional material. Using this methodology the student only has to study the areas where it is self-evident that there are gaps in their knowledge. Hopefully this will assist student motivation.

The pre-test methodology also has the benefit of being highly interactive. This was a fundamental requirement of the tutorial that is based upon principles of active learning. ArtSmart offers a range of interactive quizzes and exercises; poll questions, games, forums and collaborative exercises. The lecturer in the subject can select from these activities as they see fit and the tasks and questions can be modified to suit.

In short, ArtSmart uses educational technology in a creative way to solve a particular educational need - to deliver integrated information literacy programs to a broad cohort of first year students from many disciplines. In so doing, it addresses important issues of access and equity. It is collaborative in its very nature embracing staff from across the Faculty of Arts working in partnership with information literacy staff and multimedia developers. Together these teams have used technology to teach transferable skills that will greatly assist students in their transition to university.
3 CONCLUSIONS

The three information skills tutorials discussed in this paper all use technology creatively to address issues of educational need; transition to university, large class sizes, a broad and diverse student cohort with different starting points and learning styles, and students from remote campuses.

Although very different, all three programs employ the principles of e-learning using innovative multimedia technologies to embed information literacy in a meaningful way into student studies via a blend of virtual and face-to-face learning.

Collaboration between academics, librarians and other professionals has allowed all three programs to embed information skills instruction in core course content, rather than as standalone “library instruction” units. This gives students a meaningful academic context for the development of these essential skills. Collaboration between the programs has allowed a re-use don’t reinvent approach that has benefited all.

Underpinning the success of these three programs is the University’s support of lifelong learning, and more particularly a long standing commitment to fostering “the use of technology in the academic activities of the University” (University of Melbourne. Teaching and Learning (Multimedia & Educational Technologies Committee), 2002) via a system of University and Faculty funded competitive grants available to academics and other professionals on campus.
3.1 APPENDIX

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