PRACTICE MAKES INFORMATION LITERACY PERFECT: MODELS OF EDUCATIONAL COLLABORATION AT QUT

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ABSTRACT

A number of teaching and learning initiatives which aim to develop the generic skills of commencing undergraduate students are currently underway at Queensland University of Technology (QUT) and a range of educational models have been adopted. QUT Library has taken a leading role in the development of information literacy and has collaborated closely with faculties to integrate information skills and concepts into the curriculum of a number of foundation units.

This paper presents three such case studies. It describes these cooperative Library-Faculty units and indicates the ways in which information literacy has been integrated into the course curriculum and structure. The case studies highlight various practical issues, such as collaborative planning and organisational processes, and explore in detail the logistics of delivery, skills assessment and program evaluation.

The paper also examines the educational and organisational context of these initiatives, including their relationships to generic graduate attributes, the University's Teaching and Learning agenda and the Library's “Information Literacy Framework and CoRE Strategies”.

INTRODUCTION

Growing emphasis on the development of skills for lifelong learning, and the intrinsic dependence of these formative skills on the development of an individual's information literacy, have together served to elevate and cement the educational role of libraries in the teaching and learning process.

The attainment of lifelong competencies is reliant upon the integration of information literacy principles and skills into the curriculum of higher education. To enable such a strategy, the librarians of QUT proactively foster educational partnerships with course designers and academics, thereby ensuring that information literacy knowledge, skills and concepts are embedded effectively and coherently into course curricula.
INSTITUTIONAL OVERVIEW

Generic attributes and QUT Library

QUT seeks to provide an educational environment which enables the development of a number of specified generic attributes in its graduates, and University documentation clearly emphasises strong conceptual links between generic attributes, information competencies and lifelong learning. The Teaching and Learning Plan 2001 - 2005: Objective 2 and Strategy 2.1 affirms the need to "incorporate into the curriculum approaches to teaching and assessment that foster lifelong learning" and the accompanying Context Statement specifically states the intention to develop information literacy skills in its graduates as one of the key aims of the University.

QUT Library also recognises the intrinsic pedagogical links between information literacy and many of the generic attributes endorsed by QUT. In support of the University's objectives, the Library has undertaken a wide range of initiatives, such as (i) the production of PILOT: Your Information Navigator (a web-based information literacy tutorial), (ii) implementation of a comprehensive year-long schedule of information skills programs for all students and staff, and (iii) the development of the Information Literacy Framework and CoRE Strategies, which seeks to provide ongoing guidance to faculty staff and course developers.

Liaison and information literacy

The liaison role is critical to realising the Library’s educational goals and potential, and the unique position of QUT liaison librarians enables them to operate as strong advocates of information literacy across the University.

The Library’s liaison librarians consistently adapt, create and embrace opportunities to introduce academic staff to new resources and to promote the development of information seeking skills. A particularly successful strategy has been the participation of many of the librarians on Faculty Teaching and Learning committees, Education committees and/or course coordination teams. These forums have provided liaison librarians with a valuable opportunity to raise and address issues related to information literacy.

Other strategies which facilitate faculty acceptance of the teaching and learning role of the liaison librarians include:
• maintenance of clear and impartial channels of communication between the Library and the faculties;
• attendance at faculty and school functions, such as staff retreats & graduation ceremonies;
• attendance at University functions and activities.

Acceptance and participation in faculty and university teaching and learning initiatives is heavily dependent upon the professional and personal relationships established between each liaison librarian and the academic teaching staff. The creation of close, working relationships has proven the most effective method of fostering willingness on the part of academics to include information literacy in their courses and units. The following case studies stand as testament to the success of such partnerships.

CASE STUDIES

As mentioned, QUT Library's professional staff collaborates extensively with project teams, course coordinators and individual academics across the University, with a view to embedding information literacy strategies into the curriculum. The following models highlight three differing approaches to developing curriculum which embraces information literacy and other generic capabilities.

Model 1: ITB105 - Faculty of Information Technology

Information technology is an ever-changing landscape. To navigate this landscape, IT graduates must be able to gather new information, learn new skills, remain current with developments and adapt to change. QUT’s Faculty of IT has long recognised the need to develop lifelong learning skills in their graduates and, for over seven years, has been modelling the integration and embedding of generic skills into the curriculum. In response to the teaching and learning goals of the university, the Faculty has developed a foundation unit which addresses technological, information and academic literacies.

This core undergraduate unit is now well embedded within both the curriculum and the educational culture of the Faculty. In its current format, the unit is compulsory for all 1st year undergraduate students and an equivalent unit is compulsory for all 1st year postgraduate coursework students.
Development of the Unit

The unit commenced as an additional component of existing 1st year coursework in 1993. Using a computer managed learning (CML) system, students were required to complete 30 randomly generated questions (drawn from a databank of 380 questions) relating to information retrieval and use. The questions were based on Using Your Library, the Library’s information literacy manual and workbook, and directed students to use a wide range of print and electronic resources. In 1995, lecture time was allocated to enable the librarian to further introduce and develop these skills; the following year, the information literacy component was formally incorporated into a single generic skills unit. Also in 1996, QUT Library introduced an electronic reserve collection for QUT-copyright material, such as lecture notes and tutorial assignments, thereby establishing web-based support for the module.

In 1997, ITB105 evolved into its current format. This reformed unit consists of four modules which address: (i) basic technological and Internet literacy; (ii) study skills and academic literacy; (iii) specific IT concepts and basic skills (such as UNIX basics) and; (iv) information literacy skills and concepts. All modules are assessed and a passing grade is compulsory. From 1998, ITB105 also became entirely web-supported, with all lecture notes, assessment questions and assessment completion accessible via the Faculty’s website for three of the four modules.

The information literacy component of ITB105 has continued to evolve. The associated assessment was redesigned in 1999 to reflect a problem-based learning approach and it is anticipated that future redevelopment may “de-modularise” the structure to better combine lifelong learning skills in a more coherent manner.

ITB105: The Current Unit

ITB105 operates in an unusual format; as an “evaporative” unit, it terminates after six weeks and students continue with the remaining four core 1st semester units. As the skills which students develop facilitate completion of their coursework, they are strongly encouraged to complete the unit promptly, although this recommendation often does meet with limited success.

Lectures and voluntary tutorials to assist students with their skills development support each of the four modules within ITB105. All materials are available on the web and students are able to e-mail queries
and read FAQ responses about the unit and/or the content of the individual modules. Students must complete the unit successfully in order to graduate to 2nd year and all modules (with the exception of the academic literacy module which is pass-fail) have a pass grade of 80%.

The use of web-based assessment suits the Faculty of IT very well. The system supports multiple choice assessment and minimises workload by electronically managing the assessment tasks and record keeping for the 1st year student cohort, while maximising their technological familiarisation with the QUT environment. However, elementary assessment methodologies, such as multiple choice, pose limitations for the effective evaluation of information literacy.

Development of support material has continued. With the implementation this year of PILOT: Your Information Navigator, the Library’s web-based information literacy tutorial, the information literacy module no longer draws on the print manual as the primary resource for information literacy concepts and skills. It is anticipated that, in the near future, PILOT will be fully integrated into ITB105, together with improved and appropriate assessment.

Evaluation and Limitations of ITB105

Since the introduction of the computer-marked assessment in 1997, the information literacy module has included an evaluative component in the form of three additional questions, which were introduced to evaluate the effectiveness of the information literacy assessment. However, as these evaluative questions have always been optional, response has been limited but generally positive. Email and verbal comment have provided valuable feedback and have guided ongoing improvements relating to the design and effectiveness of the questions, support materials, additional tutorials and face-to-face support. Such feedback led last year to the introduction of a specific tutorial session for students struggling with information literacy concepts, and prompted the redesign of certain questions which had proved confusing or ambiguous.

The limitations of ITB105, as they affect the Library’s involvement, can be expanded upon as follows:

(i) The modularised format of the unit leads to development of information literacy concepts and skills in isolation of academic and technological literacy and comments from students such as “Why do we need to learn about the Library anyway?” indicate that
this strategy is not entirely effective. A more integrated approach to the content and assessment of the generic capabilities, with an IT focus or “flavour”, would enhance the development of information literacy.

(ii) Limited contact with the students by the librarian (one lecture and an optional tutorial) presents challenges for the ongoing and comprehensive development of complex concepts and skills. Students may be left with the impression that the completion of their information literacy education coincides with the completion of ITB105. To some extent, this issue has been addressed through continuing contact with the students in other core 1st year units, integration of PILOT in one unit, and ongoing contact in 2nd and 3rd year units.

(iii) The web-based multiple-choice assessment for the information literacy module is of limited effectiveness. The librarian has endeavoured to address this concern by including IT-related examples and issues and, recently, by the application of a problem-based model for the assessment which steps the students through an information literacy process. Plans to extend PILOT’s assessment and tracking capabilities will also address many of these issues and allow for the assessment of concepts and skills to be integrated more effectively into the Faculty curriculum.

Library/Faculty Collaboration and Planning

The Faculty of IT serves as a model of Library/Faculty collaboration at QUT. Teaching and support staff in the Faculty have long recognised the skills of the liaison librarian and the benefits to be gained by engaging the librarian in curriculum design and information literacy education. The history of ITB105 illustrates the breadth of this partnership and demonstrates the depth of collaboration that is required to develop a core unit to facilitate the lifelong learning of undergraduate students.

The Library/Faculty collaboration has not been without challenges, of which the necessity of reaching hundreds of students each year is a significant one for the Faculty and the Library respectively, particularly in terms of resourcing, access and coverage. Furthermore, as the Faculty considers technology as the principal solution, some negotiation has been required to ensure a variety of flexible mechanisms of delivery and assessment are exploited.
All in all, the collaboration with the Faculty of IT has proven eminently successful. The students are developing skills and concepts that will serve them well in their academic career and throughout their professional lives. Faculty staff have a high level of awareness of the need to cultivate information literate students and a corresponding awareness of the critical role of the Library in the ongoing development of these skills. For QUT Library, the close partnership enables their involvement in the education of the Faculty of IT students and the development of graduate outcomes.

Model 2: BNB007 - Faculty of Built Environment and Engineering

Engineering is a creative process which involves a number of related capabilities and engineers must respond to a range of technical, social, economical, political and environmental issues. Therefore, engineering students must acquire the skills which pertain to their future careers and which, as professional engineers, they must continue to develop.

QUT Library has a longstanding partnership with the Faculty of Built Environment and Engineering (BEE) regarding the delivery of information retrieval skills programs and seminars to engineering students, academic staff and industry groups. It is within the School of Civil Engineering, for example, that QUT Library’s AIRS (Advance Information Retrieval Skills) course was first introduced for all research students, and where 4th and final year students have been receiving a formal, integrated research component1 for the past ten years.

However, the Faculty of BEE has also recognised a need to formally address the generic skills of all commencing undergraduate students. In response, the Faculty now delivers BNB007: Professional Studies, a 1st year compulsory foundation unit which seeks to respond to the changing needs of the engineering professional.

Background

Library participation throughout the evolution of BNB007 has been extensive, beginning with the creation, in 1993, of the original unit BNB001: Learning at University. During this initial phase, the liaison librarian attended lectures, provided feedback and participated as a member of the curriculum team. With the emphasis on retrieving and locating library resources, the librarian also delivered a session which introduced students to the resources and services available. At this stage, the unit carried a 2 credit point weighting and supported 1 contact hour

1 The librarian guides research students through the literature review process and ensures that the students are provided with the information and the resources they require to satisfactorily complete their literature review.
per week. Between 1993 and 1996, the number of contact hours per week increased from 1 to 1½ hours.

In response to pressure from the Institute of Engineers/Australia (IEAust) and leading BEE academic staff, the unit was again modified in 1997 (as BNB004: Technology and Society with 2 contact hours per week and a weighting of 4 credit points) and 1998 (as BNB006: Learning at University with 8 credit points and 3 contact hours per week). The unit synopses at this time referred to the technical, philosophical, social, ethical aspects of the profession and the study and information retrieval skills relevant to professional practice.

In 1999, the unit became BNB007: Professional Studies 1 with a weighting of 12 credit points and 6 contact hours per week. Emphasis on information retrieval and resources became paramount and the unit synopsis subsequently reflected the recommendations of the IEAust, including references to information retrieval skills, the library as a resource, the writing process, computer skills and engineering as a profession.

**BNB007: The Current Unit**

In 1999, the unit coordinator became directly responsible to the Dean of the Faculty of BEE and, with enhanced support and revised aims and objectives, the unit broadened its scope. As of Semester 2 2000, BNB007 now fully articulates the IEAust recommendations and addresses the commitment of the Faculty of BEE to the development of lifelong learning and professional skills which respond to changing national and international contexts. With professionalism and communication as the key elements, BNB007 aims to enable students to successfully develop a range of generic skills and to ensure that they can apply these skills in their disciplines.

The 12 credit point unit comprises 4 modules including: (i) Professional Practice; (ii) Engineering Documentation; (iii) Generic Computing; and (iv) Engineering Graphics. Contact time is 6 hours per week (4 hours of lectures and 2 hours of tutorials) with 3 additional hours timetabled in computer laboratories. In support of the University’s commitment to flexible delivery, elements of the unit are made available via the web with the assistance of Teaching and Learning Support Services (TALSS), from within the Division of Information and Academic Services. Between 300 to 500 1st year engineering students participate in this unit each semester.
In Week 2 of the unit timetable, the librarian presents a two hour lecture in which the students are introduced to general information literacy concepts (as BNB007: Module 3) and specific information retrieval skills (as BNB007: Module 2). In Week 3, twelve information retrieval skills tutorials are offered by the librarian with the assistance of BEE laboratory assistants. The multiple-choice assessment prompts students to locate, retrieve and evaluate information and information resources related to their topic.

The students’ progress is monitored throughout using formative evaluation and, on completion of the unit, summative evaluation is also conducted. Throughout the semester, five assessment items provide the students with an opportunity to demonstrate their personal, interpersonal and team building skills. Team projects are based on themes which focus on ways in which engineers can address community issues by solving complex technical problems. Team projects carry a weighting of 40% (culminating in an ‘Engineering Expo’ on the final weekend of the semester) and the remaining four assessment items, including the information literacy assignment, are worth 15% each.

As of this year, PILOT: Your Information Navigator has been adopted as the information literacy assessment for BNB007, replacing a multiple-choice assessment that prompted students to locate, retrieve and evaluate information and information resources related to their topic. The online tutorial has been well accepted by the students and teaching staff and carries an assessment weighting of 5%; students are required to complete the all nine modules at their own pace and submit all PILOT ‘Certificates’ before the end of Week 11. Evaluation of PILOT, using an online QUT system called WOLF (Web On-Line Feedback), which allows students to submit anonymous feedback, is currently under development and will be designed to compliment other BNB007 evaluation mechanisms.

On completion of the unit in Semester 2 2000, a Student Evaluation of Unit (SEU) soliciting student reaction to the process and content was conducted. In relation to information literacy, students were asked to indicate whether (or not) their ability to access, retrieve, evaluate and use relevant information had improved as a result of undertaking BNB007. Their response rating averaged at 3.3 out of 5 (with the highest rating at 3.6 and the lowest at 2.4). The Library also conducted its own evaluation and results showed that, while the information and resources were helpful and the lectures and tutorials were well presented, the students’ perceived the assessment to be somewhat confusing and time-consuming. It is in this area that the Library will seek to make further improvements.
Overall, however, the feedback has been positive and the improved standard of student output and levels of competencies are testament to the benefits to be gained by such an approach.

Issues and future directions

Given the size of the 1st year cohort, lectures and tutorials are frequently delivered to very large groups of students. This diversity of teaching and learning environments requires special teaching knowledge, skills and methods. The unit coordinator, in conjunction with other academic staff, undertakes to monitor the quality of the teaching by all staff in the unit including Faculty lecturers, guest lecturers and the teaching librarians. For librarians with little teaching experience, the involvement demanded by BNB007 can present a personal and professional challenge. Along with the other teaching staff, the librarians will need to continue to develop their own skills relating to face-to-face and online delivery, assessment and evaluation. With such a commitment, the continued involvement of the Library in this professional studies unit is assured.

Staffing support is a major issue for this unit and of particular concern for the Library. Participation in the unit by the engineering librarians is demanding and labour-intensive. It entails much energy, enthusiasm and dedication on the part of the librarians as well as an enormous commitment of time and resources. To what extent this level of involvement can be sustained in the long term is yet to be determined.

The teaching and learning partnership forged by the Faculty of BEE and the Library has been extremely successful and has resulted in substantial benefits for all concerned. The extensive involvement of the Library in the design, development and delivery of BNB007 has ensured that QUT’s engineering students acquire the information skills so critical to their future study. The engineering librarians are acknowledged by their academic colleagues as professionals with valuable expertise and diverse skills and their advice, which is well respected and keenly sought, continues to influence and guide the development of BNB007.

Model 3: HUB000 - Faculty of Arts

The Applied Skills and Scholarship unit was introduced in 1st Semester 2000. This foundation unit is compulsory for all 1st year Faculty of Arts students enrolled in courses based at the Carseldine Campus of QUT, and the impetus for its development came from a number of sources.
The QUT Teaching and Learning Plan for 2000-2004 stated the development of lifelong learning skills as an objective. In response, the Faculty of Arts’ Teaching and Learning Plan articulated a number of targets which related to the development and assessment of information literacy skills and other generic attributes. Furthermore, when the School of Social Science was reviewed in 1998, a number of recommendations indicated that the development and assessment of core competencies should be integrated into the curriculum.

As the three Faculty Schools share this unit, it carries three School-specific unit codes. In the interests of simplicity, the unit will henceforth be referred to by the Humanities and Social Sciences code, HUB000.

Development of the Unit

When these issues were raised for discussion, the strategy proposed by the Faculty’s Teaching and Learning Committee was the design and implementation of a single unit which would address a range of competencies. The presence of the liaison librarian as a committee member ensured that information literacy figured prominently in the unit curriculum.

A sub-committee was formed to undertake the planning and to oversee the implementation of HUB000. This group included the Assistant Dean, an academic from each of the three Schools, two librarians and, as the unit was to also address technological skills, the Client Quality Services officer from Information Technology Services (ITS). The Library's Information Literacy Coordinator was also kept abreast of all developments and invited to attend meetings where the strategic role of the Library was under discussion. When it became apparent that staff from Student Support Systems (SSS) would be required to deliver content regarding use of email and the QUT computing environment, a representative from TALSS was included on the planning team.

In mid 1999, the Head of the School of Humanities & Social Sciences took a lead role in the development of the unit and steered the sub-committee through to the final draft of the unit outline.

HUB000: The Current Unit

The aims and objectives for the unit include the demonstration of basic competencies in information literacy and technology literacy and the
application of the associated skills within specific discipline contexts. The unit made its debut in Semester 1 2000, implemented on a trial basis.

In the first four weeks of the semester, enrolled students from all three Schools (Humanities & Social Science, Human Services and Psychology & Counselling) remained as a single group. Week 1 included an introduction to the unit and a lecture on computing at QUT, followed by small group, hands-on email tutorials. In Weeks 2 to 4, the information literacy lectures were conducted, the content of which included:

- basic concepts of information literacy;
- the research-publication process;
- searching library catalogues;
- database structure and searching databases;
- the Internet and finding information on the World Wide Web;
- evaluation of information;
- referencing;
- plagiarism.

*PILOT* was used as a basis for the tutorials in Weeks 2, 3 and 4 and each week students were required to work through three *PILOT* modules to reinforce concepts addressed in the lectures.

For the remaining weeks of the semester, the students were divided into discipline-based groups for lectures and tutorials delivered by the academic staff. The content covered in these weeks included academic skills, such as critical thinking and writing, and generic skills such as oral communication and group work.

An integral aspect of the unit was the creation a web page for the unit. As the development of technological skills was included as an objective, it was essential that unit information (lecture notes, notices, etc) was delivered electronically. The web page also included a chat room and email archive. Academic staff moderated the online chat and the librarians assumed primary responsibility for uploading information to the site and creating links to relevant information resources.

**Evaluation and Limitations of HUB000**

Formal and informal feedback was gathered at the end of the semester and results of the formal *Student Evaluation of the Unit* (SEU) process was generally positive. However, feedback from students indicated a preference for academic literacy sessions to run parallel with the information and technology literacy classes. In response, the planning team restructured the unit and, in Semester 2, the unit was collapsed into
nine weeks with two lectures and a tutorial provided in some weeks. In this format, the Library again delivered 3 x 2 hour lectures on information literacy with information retrieval activities to be completed in scheduled tutorial time.

In Semester 1, technical limitations rendered tracking the completion of PILOT’s assessment difficult and faculty and library staff were unable to verify students’ progress through the tutorial. As a result, in Semester 2 completion of PILOT was highly recommended but not compulsory. The Library looks to enhance PILOT shortly by incorporating this capability in future upgrades.

HUB000 is a work in progress and it is possible that the format will change yet again in the coming years. However, the unit presented an excellent opportunity for academics, librarians and IT professionals to work in partnership to address generic skills and the teaching and learning needs of the students. It is hoped that this will be the first of many such opportunities in the Faculty of Arts.

ISSUES FOR THE FUTURE

These case studies document the approaches of three QUT faculties to developing the generic skills of their enrolled students. The success of the development and implementation of each unit stands as testament to the dedication and professionalism of the faculty staff and the liaison librarian involved in the process, and clearly demonstrates the power of such partnerships. However, the pedagogical limitations of these models and the question of sustainability should be acknowledged.

The portfolio of the liaison librarian does not only include teaching and learning; rather, it encapsulates all the traditional activities of the reference librarian, and their day-to-day priorities often reflect the changing needs and initiatives of the Library. Involvement in course development such as that documented above is intensive; each of these units has required extensive collaboration, prolonged and detailed planning, and demanded an enormous time commitment on the part of each librarian.

The professional commitment of the individual librarian alone is insufficient to ensure sustainable information literacy-curriculum development models are established. With many similar initiatives now emerging in other faculties at QUT, consideration in the near future must
be given to the impact upon staff and resources demanded by this level of involvement. Librarians must ensure that library management is aware of the challenges, and managers, in turn, must equip their staff with the skills and support they require to perform this new and complex role.

Any educational discourse which relates to incorporating information literacy into the context of a course invariably uses the terms ‘integrating’ and ‘embedding’ interchangeably. However, each approach demands diverse input and produces distinctly different outcomes, and librarians and faculty must be mindful of those differences when planning new models of delivery.

Standalone units such as HUB000, BNB007 and ITB105 provide an excellent opportunity to efficiently address the core skills of large groups of commencing students within a discipline context. In this manner, academics and librarians can ensure that each student begins their study with at least the minimum level of skills and common concepts. However, the implementation of foundation units such as these is not a process concluded. The skills and concepts introduced in these units require continued, creative reinforcement and ongoing improvement throughout the course curriculum. Incremental development and consistent articulation from unit to unit, and year to year, is fundamental to ensuring that each student has the opportunity to develop the generic competencies needed for lifelong learning.

CONCLUSION

Development of the generic attributes is critical to the success of the University's teaching and learning goals, and continued emphasis on the need to embed generic attributes within curricula will continue to position the issue high on the teaching and learning agendas of each QUT faculty.

QUT Library, likewise, has a commitment to the development of information literacy-related attributes in QUT graduates and staff, and the Library’s education professionals possess considerable expertise in this discipline. They will, therefore, continue to work in close partnership with faculty staff to design and implement learning experiences which promote information literacy and the development of generic attributes.