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Developing a research culture and scholarship plan in information studies

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Many university departments of information and library studies have sought to realign their knowledge base in recent years. They have done this partly in response to technological development, but also to accommodate behavioural and sociological understanding of information use, and management approaches to evaluating information as a resource. Principles espoused in the library environment may now be interpreted within a wider domain of information management.

This broader scope applies at Queensland University of Technology (QUT), partly as a consequence of the positioning of information studies within an information technology (IT) faculty. Our associated research has, therefore, partly been informed by systems thinking, while at the same time making possible interdisciplinary work in fields such as education, management and psychology, when emphasis is on information use.

Teaching of a graduate diploma course in library science commenced in 1975 within the School of Business Studies at what was then the Queensland Institute of Technology. When the IT Faculty was formed in 1987, the library course and associated staff moved into this new Faculty's School of Information Systems. The diploma continued in various forms (during which QIT became QUT in 1999), until it was subsumed within a Master of Information Management in 2005. Since the 1990s the Faculty has also provided for an information management (and now information and knowledge management) major within various forms of its Bachelors degree course.

The research and scholarship that has complemented these curricula have reached their present stage within the framework of a succession of administrative arrangements. They have also been developed against a background of higher educational restructuring with pressures to sharpen the research focus, as pointed out by Genoni (2005). With this in mind, it is instructive to consider the development of a departmental research context in a way that has been done for example in the area of information management by Edgar (2005). He articulates an approach for a British university in terms of three levels of value-adding: developing functional skills; decision support and the provision and development of information; and strategic shaping and transformation. It is anticipated that this will provide enhanced opportunities to develop research that is valued by business.

Our own research and scholarship rationale and context is explained in order to illustrate how research in what we call the area of information use is being conducted. We begin by providing some background leading to the framework for research administration and the curriculum context. There is then an overview of the way our research process has been stimulated, including a consideration of how the research program has been shaped, followed by an overview of some of the conceptual approaches that have been derived in this context.

Background to the present QUT research framework

Higher education reforms in Australia have resulted in increased numbers of formal research groupings within universities. For example, it is necessary for universities to identify their 'research strengths'. Opportunities for attracting external funding are thought to improve if

administrative focus is provided for these strengths. The location of a research grouping within a university structure, and the formalisation of its relationships with Faculties and Schools, or extent of collegial support, will have a bearing on its success.

There has been little academic study of the success or otherwise of different forms of institutional groupings, although Zajkowski (2003) has interviewed research centre directors and identified positive and negative effects of positioning and decision-making approaches. She makes a number of propositions, including selective support for research centres and ways of providing collegial support for centre directors.

At QUT, the administrative structure has been evolved in an attempt to match academic strengths and provide a focus for collegial endeavour. Although piecemeal research in information studies had been undertaken along with curriculum development of courses, it was the advent of an Information Systems Management Research concentration (ISMRC) that provided more of a focal point. ISMRC was established within, and funded by the Faculty in 1995. It aspired to bridge information systems with management, emphasising organisational processes and organisational effectiveness through the effective management of the information resource. ISMRC was concerned with IT governance and information governance, IT implementation, IT education & training, and the IT and information professions.

In the late 1990s, QUT's institutional approach was to support the development of centres within Schools if the potential centres could show some national status for their focused area of activity. This was expected to include research and research training along with one or several of consulting and testing; product development; postgraduate research training; continuing education; or other community service. By 1998, following a considerable increase in research activity, ISMRC, succeeded in becoming ISMRC (i.e. a research centre), under the leadership of Professor Guy Gable, with an emphasis on multidisciplinary and applied research, and postgraduate research training. ISMRC included four separate programs two of which, *Information use analysis* and *Perceptual worlds of information and IT users*, were precursors of our present program.

In 2002, there was a re-alignment of QUT's institutional approach, so that larger research groupings were formed. This sought the advantage of reducing administrative costs, but risked losing research focus in the groupings. ISMRC became ISMRG, a research group within the Centre for Information Technology Innovation (CITI), one of two centres within the IT Faculty that overlapped the Faculty's two Schools.

This administrative structure has recently been changed so that the amorphous research groupings have been decoupled and devolved back to the Schools. This is ostensibly to cut costs, but it is not yet possible to make a comparison between the running costs of the former autonomous research centre and the newly instituted school-based centres. CITI's role has been re-oriented to be one of business liaison, and research is now undertaken within one of five theme areas within the Faculty. As part of this process, the ISMRG has morphed into the Socio-technical Systems theme area, which includes three separate programs: *Information Technology Professional Service*, *Learning Innovation*, and *Information Use*.

Now back in the School of Information Systems, the two ISMRC programs mentioned above have coalesced into the *Information Use* program. Although there are overlapping interests among the members of these programs, it is the *Information Use* community that provides the focus for information and library studies.

Research process

The research process is fairly typical for the field in comprising a combination of research supervision, scholarship, publication, and progression of a paradigm for our discipline in association with the profession. In our case, the nascent group had been encouraged by developments in ISMRC/ISMTG that had included:

- Information use analysis that fostered ARC grant work concerning information management in enterprises, and led to publication in areas such as information resource management, campus-wide and geographic information systems.
- Research into scoping of the concepts information literacy, and its application in education, the workplace and with the community.

Along with the structural and administrative changes mentioned above, the evolving research culture has been influenced by a number of factors. Three elements have significantly influenced development of our research group:

1. the evolving politics of higher education research culture as expressed within the institution;
2. the pedagogy of group higher degree supervision; and
3. a practical emphasis on the development of a research culture and group.

These three elements have interwoven in different ways over the last few years and may be discerned through the evolution of a small group of staff and students with information literacy and information use interests, who have succeeded in turning their patchwork of research interests into a coherent group calling itself QUILT (after the talisman around which they gathered to discuss research).

QUILT originated as a group of research students and their supervisors meeting together monthly, to turn the research supervision process into a community, rather than an individual experience. The research students who were involved found significant benefits in sharing their ongoing issues and engaging in group problem solving associated with their research projects. This experience of group supervision also provided an opportunity for mentoring less experienced higher degree supervisors.

After a period of two years, patterns of collaboration began to emerge. Members of the group began to write together and to engage in conference activity together. The extent of collaboration was sufficiently high for the group to allocate an extra hour of meeting time, each month to focus on their research and scholarship plans and collaborative activity. Inspired by Delamont and Atkinson (2004), the group developed a pro-forma to capture the plans and intentions of individuals around writing journal articles, conference papers, books, and grant applications. This activity revealed significant opportunities for further collaboration between individuals, and also motivated renewed emphasis on seeking grant funding.

QUILT has formed the core of the *Information Use* group, but the group now embraces broader interests as expressed in our credo: 'the effective use of information by people in industry, education and the community'.

Contributing to development and consolidation of the *Information Use* program has been:

- Upgrading of the staff member research qualifications through PhD completion in order to increase the supervisory capacity among staff.
- Linking research and practice through consultancy in areas such as information literacy application, database searching and metadata management.
- Linking research to the curriculum to improve the teaching-research nexus – our ongoing research into information and library studies skills and knowledge directly

informed the evolution of the new Master of Information Management programme. Similarly the role of research in the ILS curriculum has become more pronounced with a new focus on evidence-based practice being embedded within the subjects that are taught.

- Involvement with both the professional community from local through to international domains, recent examples being contributions to ALA and IFLA conferences, and organisation of the forthcoming International Evidence Based Librarianship Conference (2005).
- Collaboration with other groups within the university, for example with the Faculties of Education and Science, the Library, and Teaching & Learning Support Services on collaborative internal grants. A recent example is the application of research into reflective Internet searching into both the Science and IT curriculum. This work is to be extended to other faculties.
- Development of strategies for increasing funded research projects and their outcomes, for example through colloquia and business meetings to encourage the development of the research community, as has been the case with the QUILT group.

From this, and not without trials and tribulations, outcomes have emerged such as:

- **Emerging scholarship** through publications in the areas of information literacy, information management and information use. In addition to numerous conference presentations and publications in the research periodical literature, there have been books on information literacy (Bruce 1997; Bruce & Candy 2000), information management (Middleton 2002) and document management (Asprey & Middleton 2003).
- **Research supervision** leading to successful doctoral theses, the most recent examples of completion being on influencing the experience of web-based information searching (Edwards 2005), and on elements of successful information systems implementation in developing countries (Kelegai 2005).
- **Project supervision** through Masters programs leading to applications and publications in areas such as database software and information system evaluation, strategic information planning and IT education.
- **Interdisciplinarity** through joint research with other faculties in the university.
- **Grant** outcomes, although to date these have predominantly per medium of internal grants, and we are striving to establish collaborative frameworks for external grants.

Research outcomes

Despite the changing administrative framework, the *Information Use* group has been able to maintain and develop its interests. It is now a coherent research community within the Socio-Technical Systems theme, where its attention spans information education, literacy, management, policy, seeking behaviour, and use as follows:

- **Information education** – including information literacy education and generic attributes of graduates.
- **Information literacy** – including projects with an interest in the character of information literacy, and its comprehension in different environments such as the workplace and different levels of education.
- **Information management** – including projects with an interest in the nature of the domain, and in application at the strategic, operational and technical levels.
- **Information policy** – including aspects of telework, or public policy related to information and of library role.
- **Information seeking behaviour** – including projects with an interest in users search experience in the online environment.
- **Information use** – including projects with an interest in specific communities and their information experience.

Some details of recent projects which we see reflect the overlapping interests were reported by Edwards, Bruce & McAllister (2005). Although the work in each of these areas stands alone, we see interrelationship between them as is depicted in Figure 1. Information policy work is drawn from each of these areas.

Example of the interrelated research outcomes

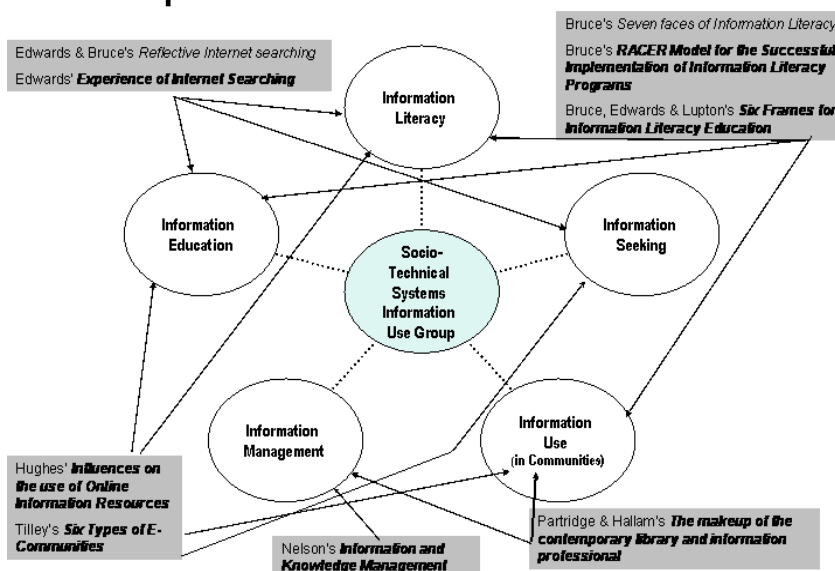


Figure 1: Relationship between research areas

A number of the individual research projects have produced models of interest to researchers and professionals. These models represent a communicable and usually visual representation of the outcomes projects. Those constructs that have emerged from our different projects are mostly inductive in character; and have resulted from empirical research (for example e-communities and the reflective model of learning to search the Internet) or extended participant observation and engagement in consultancy processes (for example the RACER model for implementation of IL programs, or Six Frames for IL education). Some of these models and their application are briefly described following.

The Seven Faces of Information Literacy (Figure 2) is a relational model of information literacy, involving descriptions of the interrelation between users and information.

WISDOM	INSIGHT
KNOWLEDGE BASE	
PROCESS	CONTROL
SOURCES	
INFORMATION AWARENESS	

Figure 2: Seven faces model

The model has attracted interest in the academic library sector and has influenced the development of the ANZIIL information literacy competency standards and various information literacy programs. The model may be used to influence the design, implementation and evaluation of an information literacy program. It has implications for the

development of learning outcome statements, the development of learning experiences, assessment and staff development.

Six Types of E-Communities (Figure 3) is Tilley’s model of virtual communities for persons with disabilities that represents the different purposes for which the disabled participate in virtual communities (Tilley, Bruce & Hills 2005).

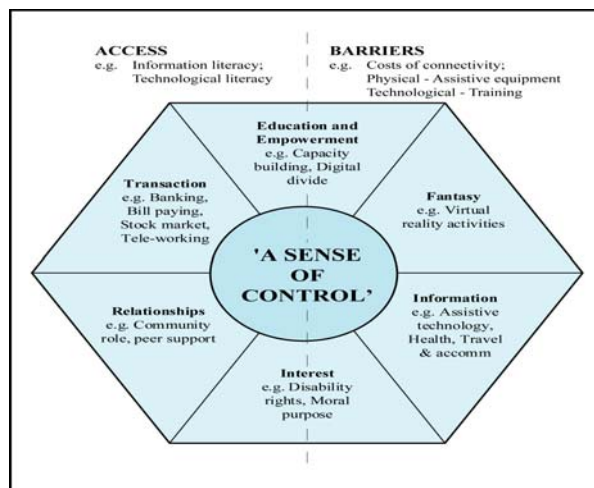


Figure 3: Six types of e-communities

The model identifies ‘a sense of control’ as the unifying feature of virtual communities for disabled persons and recognises the critical influences of information and technology literacy to enable access, as well as the potential barriers of lack of access to connectivity, assistive technologies and appropriate training. The model may be used to influence the design, development and evaluation of virtual communities and the programs supporting those communities.

The Reflective Model for Learning to Search the Internet (Figure 4) represents the processes that people may use to structure their searching experience in order to maximise their learning about the Internet and how to search it. Central to the model are the ways of thinking about the Internet that learners can gain exposure to as they become familiar with the constantly changing Net environment. The model was developed for South African women academics and, later, other members of the action learning community. It has been applied to information literacy education in both academic curriculum and library programs. It may be used to structure learning resources and programs in a range of contexts.

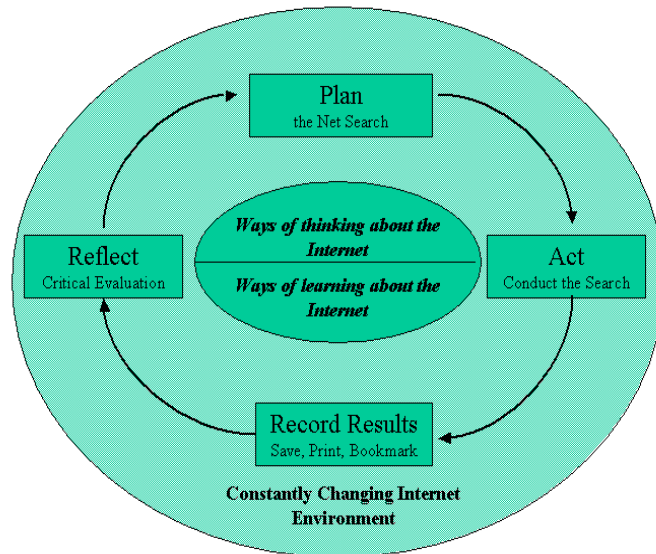


Figure 4: Reflective model for learning to search the Internet

Hughes' model *Influences on the use of Online Information Resources* (Figure 5) represents different aspects of the information behaviour of international students studying in Australian universities.

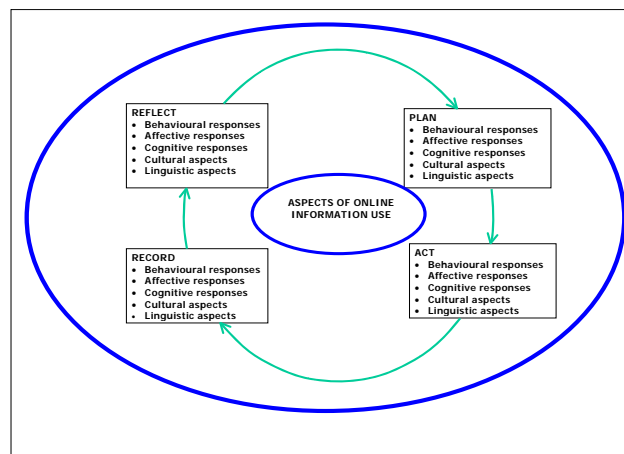


Figure 5: Influences on the use of online information resources

The model links their information behaviours with the elements of the reflective model for learning to search the Internet in order to facilitate and better empower their searching experience. The model may be used to support the design, development and evaluation of learning experiences or broader programs of instruction for international and other students. It has been applied to the development of library instructional programs and has the potential to influence the development of user-responsive information tools and services.

Edwards' model of the *Experience of Internet Searching* (Figure 6) depicts the different ways in which information users go about searching the Internet. The model was developed to inform information literacy education.

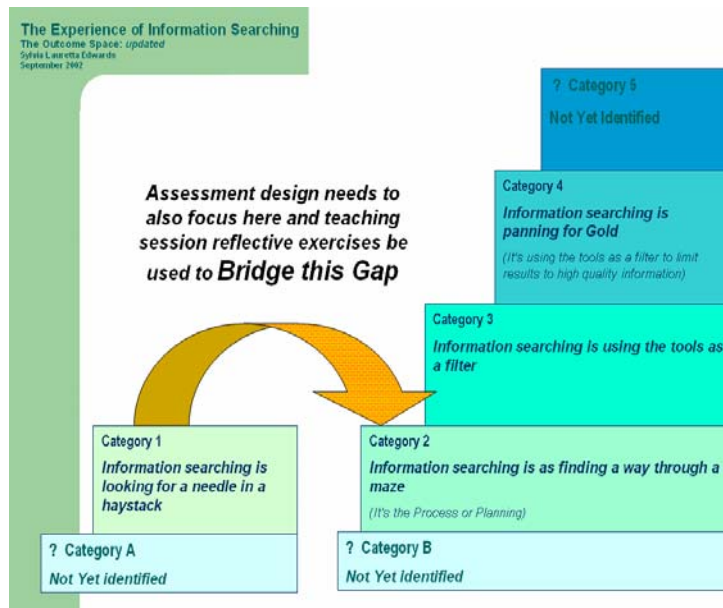


Figure 6: The experience of Internet searching

It is supported by the depiction of elements which appear in various layers of awareness in each category of Internet searching. Edwards' model has been applied to the development of learning experiences in university teaching programs as well as to resources to support staff and student learning. Like Hughes' model, it has potential to influence the development of user responsive information tools and services.

Nelson's **Model of Information and Knowledge Management (IKM) in Business Contexts** (Figure 7) represents the scope of organisational elements that need to be addressed or managed to ensure the effective implementation and maintenance of information and knowledge management (Nelson 2004). A multidimensional IKM framework is embodied in a referent model that incorporates the operational, analytical and strategic domains of IKM activity with double and single loop feedback loops of systems thinking. The assimilating framework has three dimensions: domains of IKM activity and feedback loops; organizational enablers; and project context. It is envisaged that this framework be used by practitioners to identify and manage areas of the business environment that require attention to ensure success of IKM projects or initiatives.

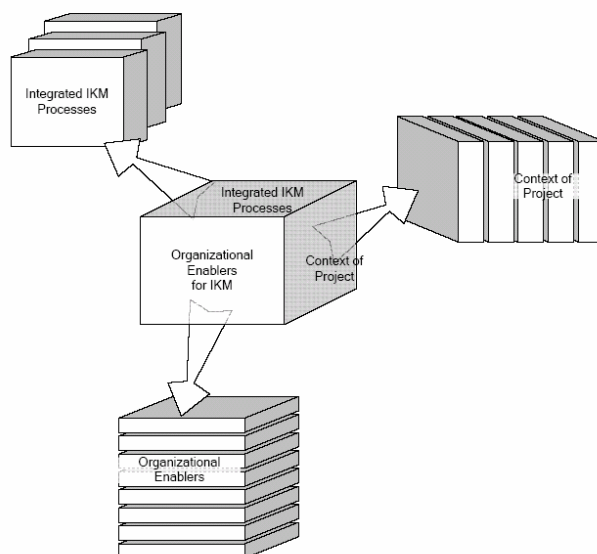


Figure 7: Multidimensional framework for organisational IKM

The DNA model of the contemporary library and information professional (Figure 8) identifies the skills, knowledge and attitudes of the archetypal library and information professional for the twenty-first century. The model by Partridge and Hallam (2004) extrapolates the genetic concept of ‘unique DNA’ to determine the specific characteristics and qualities to the library and information professional.

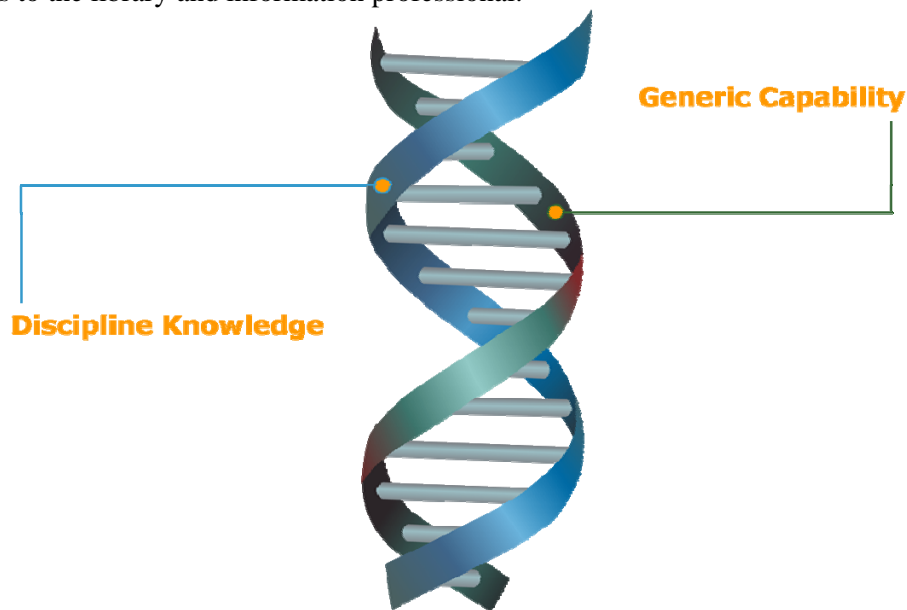


Figure 8: The makeup of the contemporary library and information professional

Building on the double helix image of human DNA, the DNA of the library and information professional consists of two intertwined and complementary strands: discipline knowledge and generic capabilities.

- **Discipline knowledge:** Information and society; ethics & legal responsibility; management; information organisation; information services; collection management & development; information resources and retrieval; information literacy instruction; information management; information systems for library & information professionals; web content management; career planning skills; records management and archives; and research.
- **Generic capabilities:** Information literacy; lifelong learning; teamwork; communication; ethics and social responsibility; project management; critical thinking; problem solving; business acumen; and self-management.

Developed in collaboration with the Australian library and information profession, the DNA model has significantly informed the development and focus of the new QUT curriculum (the Master of Information Management). The model has also been used to inform the work being undertaken by the Library and Information Studies Education for the Knowledge Age (LISEKA) working party (Hallam & Partridge 2003). The international value of the model is being extended through work in the US and UK. The DNA model is significant because it establishes an open dialogue between current industry professional, library and information science educators and the professional association on the traditional and evolving skills and knowledge required by the modern day LIS professional.

The **RACER Model for the Successful Implementation of Information Literacy Programs** represents the key elements of the environments conducive to the implementation of successful information literacy programs. The model was developed by Bruce as a result of multiple consultancies assisting in advocacy for information literacy and the development of university programs. It represents a framework for the assessment and development of local

cultures and environments through the implementation of change processes. It may be summarised as:

- **Recognise** different perspectives and roles
- **Accept** diversity
- **Change** with support
- **Evaluate** the process and outcomes
- **Research** the future

Six Frames for Information Literacy Education (Figure 9) models the different lenses through which different agents in the information literacy education context might view aspects of the educational process (Bruce, Edwards & Lupton 2006). It was developed as a thinking tool to assist participants in the design development and implementation of information literacy education to understand the drivers and motivations influencing themselves and their colleagues.

<p>Content Frame Users focus on what people should know about IL</p>	<p>Competence Frame Users focus on what people should be able to do</p>
<p>Learning to Learn Frame Users focus on what it means to think like an IL person</p>	<p>Personal Relevance Frame Users focus on what IL can do for them</p>
<p>Social Impact Frame Users focus on social reform</p>	<p>Relational Frame Users focus on interaction with info or other phenomena</p>

Figure 9: Six frames for information literacy education

It was also intended to assist people involved in information literacy education to analyse the ongoing tensions involved in the design, development and assessment in many contexts. This model has also emerged from ongoing involvement of the authors in information literacy education and professional development programs over the last several years

Conclusion

This overview of our research and scholarship development has endeavoured to show the flavour of the work being conducted within the *Information Use* group. In some respects it comprises independent investigations assisted by schematics that have emerged from, and have helped to describe the problems under investigation. However, these illustrations have assisted in discussion of common problems and issues. They have helped to reinforce the group's common sense of purpose as one that researches effective use of information by people in industry, education and the community.

We are in the process of formalising this approach within a research and scholarship plan that provides a planning context for our:

- Research supervision as it is developed with the assistance of experienced supervisors within the Faculty.
- Development of links with industry groups with respect to consultancy and proposal approach.

- Conference contribution and participation, which has helped to develop research culture through organisation of conference agendas, conference research stream development, refereeing, and dissemination to industry and the profession.
- Publication including books, encyclopaedia contributions and journal literature.

The research and scholarship planning has provided benefits for both staff development (via research supervision experience, and higher degree completion), and curriculum development (through contextualisation, application in cognate information areas, and evidence-based practice, and incorporation of generic capabilities).

We will continue to develop it enthusiastically.

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