Australian and New Zealand Information Literacy Framework

principles, standards and practice

Second edition

Editor

Alan Bundy

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Preface

This second edition of the 2001 *Information literacy standards* is entitled the *Australian and New Zealand information literacy framework: principles, standards and practice* to reflect the ways academics and librarians have used the first edition. It incorporates changes developed at a workshop in Sydney in January 2003. Prior to the workshop, input was received from university, technical and further education and other librarians from around Australia and New Zealand. More than fifty academics and librarians who had used the first edition contributed their experience. Two small groups worked on each standard, and the ideas developed were peer reviewed by a third group. A steering group evaluated this material, and a representative panel from the workshop reviewed the penultimate version. This edition is thus consistent with the first edition, but benefits from input based on experience in use, and peer review. Given the care with which the standards have been revised, there can be increased confidence in their use, especially in the tertiary education sector.

The changes made for this edition address possible ambiguities in the original language, and in addition have sought to place the standards in a broader context of generic skills, of which information literacy is the core component. In Australia, widespread focus on the role of generic skills in education emerged with the many projects aimed at utilising the key competencies as expressed by the Mayer Committee, in its report to Australian Ministers of Education.[1] Although the six key competencies espoused by Mayer were conceived as separate constructs, it became evident in attempts to integrate them into the curriculum and teaching programs that, at higher levels of performance, they are interdependent and interacting eg Colvin and Catts.[2]

The issue of graduate attributes came to the fore in Australian higher education with the report on developing lifelong learners through undergraduate studies (Candy *et al*).[3] Information literacy was identified in the report as an essential element for lifelong learning. Each of the attributes was envisaged as a continuum of capacities, and at higher levels each attribute is inevitably demonstrated in conjunction with others. Information is often transmitted between people working together. It is natural, therefore, to expect that people will demonstrate their capacity for teamwork by the way they transfer information. Communicating ideas and information is integral to information literacy.

There is debate about the boundaries of information literacy as a graduate attribute. Some see it as encompassing skills like communicating and working in teams. However, from a holistic perspective (*see* Bortoft)[4] each of the graduate attributes can be considered as a reflection of a whole construct called capacity for lifelong learning. In other words, we can view generic constructs either as parts that make up a whole, as is done in either a constructivist or a behaviourist perspective, or as different reflections of the whole lifelong learning construct. If we imagine information literacy as the many sided figure represented by the relational model (Bruce)[5] then, at another level of abstraction, each of the graduate attributes can be considered to be a face of a many sided object that represents lifelong learning capacity. This is one of the considerations that has informed the development of the second edition. For instance, an attempt has been made to separate communication skills from information skills, in order to allow space for a separate but interrelated description of this face of lifelong learning capacity. Just as we are advocating the central role of information literacy in the lifelong learning process, so others advance the case for communication skills, or a global perspective, as encompassing information skills. In seeking to identify the uniqueness of the concept of information literacy, we have therefore endeavoured to make room for, and respect, other perspectives on lifelong learning.

Information literacy is necessarily demonstrated in a context and within a domain of content. In proposing standards for tertiary education an assumption is made that, at a general level, information literacy involves the same processes across contexts and across content domains. This is an assumption that we might now seek to explore, given that these standards offer a description of what some people conceive to be information literacy. It is possible that the concept will involve different skills in some settings. Therefore, users of these standards in a novel context, should explore the application of each standard, rather than assume it will be relevant. In conjunction with each standard and outcome, examples are provided. It is important to recognize that the examples are illustrative of each outcome. They are not inclusive of all aspects. Hence the examples are not prescriptive.

In commending this edition to practitioners it is appropriate to acknowledge the contribution by the editorial committee, and in particular the work of Irene Doskatsch of the University of South Australia, who has been the driving force behind this initiative and the work of the editorial committee. The collegial manner in which the editorial committee shared ideas has made it possible to build on the work of all who made comments and suggestions.

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Overview

Provenance

*T*he Australian and New Zealand information literacy framework is derived, with permission, from the Association of College and Research Libraries' (ACRL) *Information literacy competency standards for higher education*. The concepts and text have been adapted and updated to incorporate recent local and international understandings of information literacy education. Sometimes the ACRL text has been left intact. Elsewhere it has been reworded and paraphrased. Those wishing to cite this overview should also consult the original text in the ACRL introduction to the standards.[1]

Endorsement and promulgation of the *Framework* by policy makers, educational institutions, professional and educational associations is encouraged. It may be freely used and adapted for a specific context, subject to acknowledgment of its US and Australasian provenance. The *Framework* is a living document, which will evolve to reflect new understandings of information literacy.

Information literacy

The key characteristic of the post industrial 21st century is that it is information abundant and intensive. Information literacy is thus required because of the ongoing proliferation of information resources and the variable methods of access. Individuals are faced with diverse information choices—in their studies, in the workplace, and in their lives. Information is available through community resources, special interest organisations, manufacturers and service providers, media, libraries, and the internet. Increasingly, information comes unfiltered. This raises questions about authenticity, validity, and reliability. In addition, information is available through multiple media, including graphical, aural, and textual. These pose special challenges in evaluating, understanding and using information in an ethical and legal manner. The uncertain quality and expanding quantity of information also pose large challenges for society. Sheer abundance of information and technology will not in itself create more informed citizens *without* a complementary understanding and capacity to use information effectively.

The *Framework* provides the principles, standards and practice that can support information literacy education in all education sectors. In these sectors, information literacy has been generally defined as an understanding and set of abilities enabling individuals to 'recognise when information is needed and have the capacity to locate, evaluate, and use effectively the needed information'.[2] In a broader context, information literate people have been described as those who 'know when they need information, and are then able to identify, locate, evaluate, organise, and effectively use the information to address and help resolve personal, job related, or broader social issues and problems'.[3]

Information literate people
- recognise a need for information
- determine the extent of information needed
- access information efficiently
- critically evaluate information and its sources
- classify, store, manipulate and redraft information collected or generated
- incorporate selected information into their knowledge base
- use information effectively to learn, create new knowledge, solve problems and make decisions

- understand economic, legal, social, political and cultural issues in the use of information
- access and use information ethically and legally
- use information and knowledge for participative citizenship and social responsibility
- experience information literacy as part of independent learning and lifelong learning

The importance of information literacy in workplace learning, lifelong learning and participative citizenship is succinctly expressed in the Australian Library and Information Association's 2001 *Statement on information literacy for all Australians*[4]

> **Object of the Australian Library and Information Association**
> To promote the free flow of information and ideas in the interest of all Australians and a thriving culture, economy and democracy.
>
> **Principle**
> A thriving national and global culture, economy and democracy will be best advanced by people able to recognise their need for information, and identify, locate, access, evaluate and apply the needed information.
>
> **Statement**
> Information literacy is a prerequisite for
> - participative citizenship
> - social inclusion
> - the creation of new knowledge
> - personal, vocational, corporate and organisational empowerment
> - learning for life
>
> Library and information services professionals therefore embrace a responsibility to develop the information literacy of their clients. They will support governments at all levels, and the corporate, community, professional, educational and trade union sectors, in promoting and facilitating the development of information literacy for all Australians as a high priority during the 21st century.

Information literacy incorporates, and is broader than, fluency in the use of information and communications technology (ICT). With digitisation of scholarly publications and the growth in online delivery, fluency with information technology requires more than the learning of software and hardware associated with computer literacy. Information literacy is an intellectual framework for recognising the need for, understanding, finding, evaluating, and using information. These are activities which may be supported in part by fluency with information technology, in part by sound investigative methods, but most importantly through critical discernment and reasoning. Information literacy initiates, sustains, and extends lifelong learning through abilities that may use technologies but are ultimately independent of them.

Information literacy and lifelong learning

Lifelong learning is 'all formal, nonformal and informal learning—whether intentional or unanticipated—which occurs at any time across the lifespan'.[5] However, intentional lifelong learning, either formally or self managed, is regarded as necessary due to rapid technological, social, cultural and economic change. Information literacy is a 'prerequisite'[6] and 'essential enabler'[7] for lifelong learning.

Lifelong learning is intertwined with self directed/independent learning and participative citizenship. The American Library Association states that information literate people

> … know how to learn because they know how knowledge is organised, how to find information, and how to use information in such a way that others can learn from them. They are prepared for lifelong learning, because they can always find the information for any task or decision at hand.[8]

Similarly, the Australian School Library Association[9] describes information literacy as 'synonymous with knowing how to learn'. Further, the American Library Association[10] states that information literacy is 'a means of personal empowerment. It allows people to verify or refute expert opinion and to become independent seekers of truth.' Information literacy can be seen as a subset of independent learning, that in turn is a subset of lifelong learning (Figure 1).
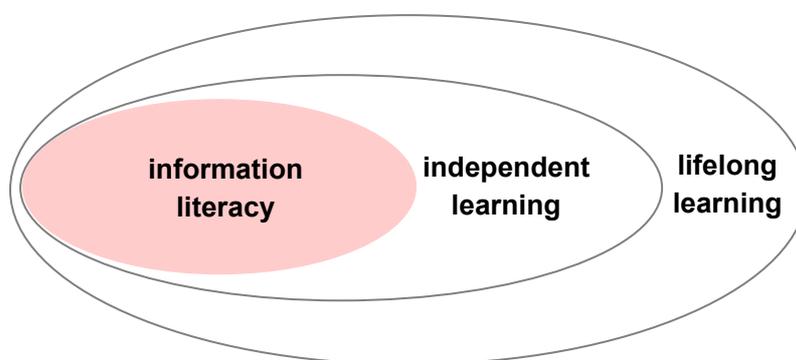
Figure 1 Relationship of information literacy to lifelong learning

In 1994, Candy, Crebert and O'Leary's report *Developing lifelong learners through undergraduate education* connected information literacy with lifelong learning. Its profile of the lifelong learner included the following information literacy qualities or characteristics

- knowledge of major current resources available in at least one field of study
- ability to frame researchable questions in at least one field of study
- ability to locate, evaluate, manage and use information in a range of contexts
- ability to retrieve information using a variety of media
- ability to decode information in a variety of forms: written, statistical, graphs, charts, diagrams and tables
- critical evaluation of information[11]

Information literacy is common to all disciplines, to all learning environments, and to all levels of education. It enables learners to engage critically with content and extend their investigations, become more self directed, and assume greater control over their own learning.

Information literacy education

Developing lifelong learners is central to the mission of educational institutions, and is increasingly reflected in descriptions of graduate qualities, attributes or capabilities. By leading individuals to think critically, and by helping them construct a framework for learning how to learn, educational institutions provide the foundation for continued growth throughout the careers of graduates, as well as in their roles as informed citizens and members of communities.

Candy, Crebert and O'Leary noted that 'learning to learn' is a major concern for all educational sectors and that

> It involves the higher order skills of analysis, synthesis and evaluation, the ability to think critically, to construct meaning and reconstruct understanding in the light of new learning experiences. Courses where reflective practice is central inevitably help students develop into independent learners much more readily than those whose focus is on the acquisition of a large body of knowledge.[12]

Information literacy education should create opportunities for self directed and independent learning where students become engaged in using a wide variety of information sources to expand their knowledge, construct knowledge, ask informed questions, and sharpen their critical thinking. This approach is evident in the increasingly widespread introduction of student centred constructivist pedagogy such as inquiry based, problem based and resource based learning. Characteristics of inquiry based and problem based curriculum design include an emphasis on experiential learning. In these models, a learning environment is provided that enables students to construct learning through asking questions and framing problems. The process of investigating and solving problems involves active, student driven, learning, and there is a strong implicit and explicit emphasis on effective use of information.[13]

Vocational education and training uses competency based curriculum, where students typically demonstrate attainment of learning outcomes.

Information literacy requires sustained development throughout all levels of formal education, primary, secondary and tertiary. In particular, as students progress through their undergraduate years and graduate programs, they need to have repeated opportunities for seeking, evaluating, managing and applying information gathered from multiple sources and obtained from discipline specific research methods. Achieving information literacy requires an understanding that such development is not extraneous to the curriculum but is woven into its content, structure, and sequence. Furthermore, information literacy 'cannot be the outcome of any one subject. It is the cumulative experience from a range of subjects and learning experiences which creates the information literate person.'[14]

Incorporating information literacy across curricula, and in all programs and services, requires the collaborative efforts of educators, including teachers, staff developers, learning advisers/facilitators, librarians, other information professionals, trainers, curriculum designers and administrators. Current practice in information literacy curriculum design incorporates a mix of generic, parallel, integrated and embedded components (Table 1).

Table 1 Information literacy program components[15]

Generic	Extra curricular classes and/or self paced packages
Parallel	Extra curricular classes and/or self paced packages that complement the curriculum
Integrated	Classes and packages that are part of the curriculum
Embedded	Curriculum design where students have ongoing interaction and reflection with information

The most effective of these components is the embedding of information literacy throughout the curriculum. As Bruce[16] argues, the critical elements of learning to be information literate are

      1   Experiencing information literacy (learning)
      2   Reflection on experience (being aware of learning)
      3   Application of experience to novel contexts (transfer of learning)

Curricula at all educational levels therefore needs to include opportunities to experience, reflect and apply learning to novel contexts.

Use of the *Information literacy framework*

The *Framework* incorporates standards and learning outcomes that consist of the characteristics, attributes, processes, knowledge, skills, attitudes, beliefs and aspirations associated with the information literate person. The standards are grounded in generic skills, information skills and values and beliefs. These will be affected by the specific disciplinary context (see Figure 2).

Generic skills include problem solving, collaboration and teamwork, communication and critical thinking. Information skills include information seeking, information use and information technology fluency. Values and beliefs include using information wisely and ethically, social responsibility and community participation. These dimensions of learning combine in information literacy.
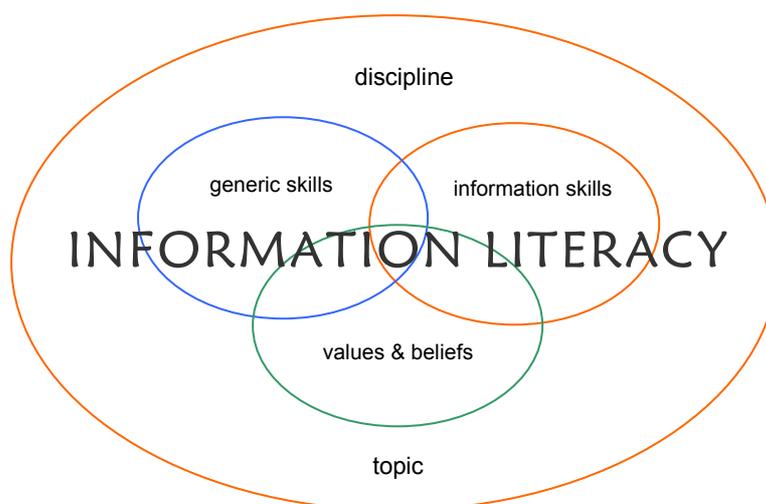
Figure 2 Information literacy elements

The *Framework* supports the embedding of information literacy in the design and teaching of educational programs across the curriculum. It can be used to frame curriculum objectives, learning outcomes and assessment criteria. It also provides higher and vocational education sectors with an opportunity to articulate the standards with those of the other education sectors, so that opportunities for explicit development can occur for students at all levels. The standards offer a means by which educators can identify learning outcomes that describe a student as information literate.

The *Framework* provides institutions with guidance for policy development within disciplines and professions, and a basis for whole of institution evaluation of the effectiveness of strategies to implement institutional policies.

Best practice evaluation
- establishes the process of ongoing planning/improvement of the program
- measures directly progress toward meeting the goals and objectives of the program
- integrates with course and curriculum assessment as well as institutional evaluations and regional/professional accreditation initiatives
- assumes multiple methods and purposes for assessment/evaluation.[17]

Evaluation of the effectiveness of information literacy programs should reflect the nature of the generic, parallel, integrated and embedded program components. Evaluation of the effectiveness of the implementation of policies at the institutional level should complement and support initiatives at the program level.

Teaching and curriculum design evaluation could incorporate student, peer and self evaluation using a mix of questionnaires, focus groups, teaching portfolios, peer observation and peer debriefing. At the institutional level, strategies could include analysis of curriculum and other documents for evidence of intent and practice in order to establish the essential features of initiatives that are successful. Any mix of evaluation methods should include the achievement of student learning outcomes as demonstrated in formal and informal assessment. One such strategy at the institutional level is the implementation of the *Information skills survey*.[18]

The *Framework* also provides a structure for students to have an awareness and understanding of their interaction with information. In higher education all students are expected to demonstrate all of the standards, but not everyone will demonstrate them to the same level or at the same time. In vocational education, the relevance of some aspects of the standards will be dependent on the type and level of program students are undertaking.

Some disciplines may place greater emphasis on particular learning outcomes at certain points during information seeking and use, and knowledge creation. These outcomes would therefore receive greater weight than others. In addition, the iterative and evolutionary nature of searching for and using information should be emphasised. Many aspects are likely to be performed recursively, in that the reflective and evaluative aspects will require returning to an earlier point in the process, revising the information seeking approach, and repeating the steps. The standards are not intended to represent a linear approach to information literacy.

To implement the *Framework* effectively, an institution should review its mission and educational goals and align these with the development of curricular and quality enhancement practices. Staff development is important, in particular for teachers and librarians, to foster understanding and acceptance of information literacy education.[19]

This overview revises that in the first edition. The revision is by Mandy Lupton, the editorial committee, and the national working group for TAFE library Services

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Statement of principles

The *Australian and New Zealand information literacy framework* is based on four overarching principle*s*. These are, that information literate people

➢ *engage in independent learning through constructing new meaning, understanding and knowledge*

➢ *derive satisfaction and personal fulfillment from using information wisely*

➢ *individually and collectively search for and use information for decision making and problem solving in order to address personal, professional and societal issues*

➢ *demonstrate social responsibility through a commitment to lifelong learning and community participation*

Core standards

The principles frame six core standards which underpin information literacy acquisition, understanding and application by an individual. These standards identify that the information literate person

➢ *recognises the need for information and determines the nature and extent of the information needed*

➢ *finds needed information effectively and efficiently*

➢ *critically evaluates information and the information seeking process*

➢ *manages information collected or generated*

➢ *applies prior and new information to construct new concepts or create new understandings*

➢ *uses information with understanding and acknowledges cultural, ethical, economic, legal, and social issues surrounding the use of information*

Standard One

The information literate person recognises the need for information and determines the nature and extent of the information needed

Learning outcomes

The information literate person

1.1   defines and articulates the information need

1.2   understands the purpose, scope and appropriateness of a variety of information sources

1.3   re-evaluates the nature and extent of the information need

1.4   uses diverse sources of information to inform decisions

1.1   defines and articulates the information need

- explores general information sources to increase familiarity with the topic
- identifies key concepts and terms in order to formulate and focus questions
- defines or modifies the information need to achieve a manageable focus
- may confer with others to identify a research topic or other information need

1.2   understands the purpose, scope and appropriateness of a variety of information sources

- understands how information is organised and disseminated, recognising the context of the topic in the discipline
- differentiates between, and values, the variety of potential sources of information
- identifies the intended purpose and audience of potential resources eg popular vs scholarly, current vs historical
- differentiates between primary and secondary sources, recognising how their use and importance vary with each discipline

1.3   re-evaluates the nature and extent of the information need

- reviews the initial information need to clarify, revise, or refine the question
- articulates and uses criteria to make information decisions and choices

1.4   uses diverse sources of information to inform decisions

- understands that different sources will present different perspectives
- uses a range of sources to understand the issues
- uses information for decision making and problem solving

Standard Two

The information literate person finds needed information effectively and efficiently

Learning outcomes

The information literate person

2.1   selects the most appropriate methods or tools for finding information

2.2   constructs and implements effective search strategies

2.3   obtains information using appropriate methods

2.4   keeps up to date with information sources, information technologies, information access tools and investigative methods

2.1   selects the most appropriate methods or tools for finding information

- identifies appropriate investigative methods eg laboratory experiment, simulation, fieldwork
- investigates benefits and applicability of various investigative methods
- investigates the scope, content, and organisation of information access tools
- consults with librarians and other information professionals to help identify information access tools

2.2   constructs and implements effective search strategies

- develops a search plan appropriate to the investigative method
- identifies keywords, synonyms and related terms for the information needed
- selects appropriate controlled vocabulary or a classification specific to the discipline or information access tools
- constructs and implements a search strategy using appropriate commands
- implements the search using investigative methodology appropriate to the discipline

2.3   obtains information using appropriate methods

- uses various information access tools to retrieve information in a variety of formats
- uses appropriate services to retrieve information needed eg document delivery, professional associations, institutional research offices, community resources, experts and practitioners
- uses surveys, letters, interviews, and other forms of inquiry to retrieve primary information

2.4   keeps up to date with information sources, information technologies, information access tools and investigative methods

- maintains awareness of changes in information and communications technology
- uses alert/current awareness services
- subscribes to listservs and discussion groups
- habitually browses print and electronic sources

Standard Three

The information literate person critically evaluates information and the information seeking process

Learning outcomes

The information literate person

3.1   assesses the usefulness and relevance of the information obtained

3.2   defines and applies criteria for evaluating information

3.3   reflects on the information seeking process and revises search strategies as necessary

Examples for Standard Three

3.1   assesses the usefulness and relevance of the information obtained

- assesses the quantity, quality, and relevance of the search results to determine whether alternative information access tools or investigative methods should be utilised
- identifies gaps in the information retrieved and determines if the search strategy should be revised
- repeats the search using the revised strategy as necessary

3.2   defines and applies criteria for evaluating information

- examines and compares information from various sources to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias
- analyses the structure and logic of supporting arguments or methods
- recognises and questions prejudice, deception, or manipulation
- recognises the cultural, physical, or other context within which the information was created and understands the impact of context on interpreting the information
- recognises and understands own biases and cultural context

3.3   reflects on the information seeking process and revises search strategies as necessary

- determines if original information need has been satisfied or if additional information is needed
- reviews the search strategy
- reviews information access tools used and expands to include others as needed
- recognises that the information search process is evolutionary and nonlinear

Standard Four

The information literate person manages information collected or generated

Learning outcomes

The information literate person

4.1   records information and its sources

4.2   organises (orders/classifies/stores) information

4.1   **records information and its sources**

- organises the content in a manner that supports the purposes and format of the product eg outlines, drafts, storyboards
- differentiates between the types of sources cited and understands the elements and correct citation style for a wide range of resources
- records all pertinent citation information for future reference and retrieval

4.2   **organises (orders/classifies/stores) information**

- compiles references in the required bibliographic format
- creates a system for organising and managing the information obtained eg EndNote, card files

Standard Five

The information literate person applies prior and new information to construct new concepts or create new understandings

Learning outcomes

The information literate person

5.1   compares and integrates new understandings with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information

5.2   communicates knowledge and new understandings effectively

5.1   compares and integrates new understandings with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information

- determines whether information satisfies the research or other information need and whether the information contradicts or verifies information used from other sources
- recognises interrelationships between concepts and draws conclusions based upon information gathered
- selects information that provides evidence for the topic and summarises the main ideas extracted from the information gathered
- understands that information and knowledge in any discipline is in part a social construction and is subject to change as a result of ongoing dialogue and research
- extends initial synthesis at a higher level of abstraction to construct new hypotheses

5.2   communicates knowledge and new understandings effectively

- chooses a communication medium and format that best supports the purposes of the product and the intended audience
- uses a range of appropriate information technology applications in creating the product
- incorporates principles of design and communication appropriate to the environment
- communicates clearly and in a style to support the purposes of the intended audience

Standard Six

The information literate person uses information with understanding and acknowledges cultural, ethical, economic, legal, and social issues surrounding the use of information

Learning outcomes

The information literate person

6.1   acknowledges cultural, ethical, and socioeconomic issues related to access to, and use of, information

6.2   recognises that information is underpinned by values and beliefs

6.3   conforms with conventions and etiquette related to access to, and use of, information

6.4   legally obtains, stores, and disseminates text, data, images, or sounds

6.1   acknowledges cultural, ethical, and socioeconomic issues related to access to, and use of, information

- identifies and can articulate issues related to privacy and security in the print and electronic environments
- identifies and understands issues related to censorship and freedom of speech
- understands and respects Indigenous and multicultural perspectives of using information

6.2   recognises that information is underpinned by values and beliefs

- identifies whether there are differing values that underpin new information or whether information has implications for personal values and beliefs
- applies reasoning to determine whether to incorporate or reject viewpoints encountered
- maintains an internally coherent set of values informed by knowledge and experience

6.3   conforms with conventions and etiquette related to access to, and use of, information

- demonstrates an understanding of what constitutes plagiarism and correctly acknowledges the work and ideas of others
- participates in electronic discussions following accepted practices eg Netiquette

6.4   legally obtains, stores, and disseminates text, data, images, or sounds

- understands fair dealing in respect of the acquisition and dissemination of educational and research materials
- respects the access rights of all users and does not damage information resources
- obtains, stores, and disseminates text, data, images, or sounds in a legal manner
- demonstrates an understanding of intellectual property, copyright and fair use of copyrighted material

Curriculum alignment and assessment[*] of information literacy learning

The *Framework* includes principles and standards that provide a basis for assessing information literacy learning. The learning outcomes are necessarily generic. However 'information literacy manifests itself in the specific understanding of knowledge creation, scholarly activity and publication processes found in…disciplines'.[1] Therefore educators (teachers, librarians, staff developers, learning advisers, trainers, curriculum designers and others) should work together to develop assessment tools and strategies in the context of particular disciplines and workplaces.

Discussion of assessment is a powerful way for students and educators to come to a common understanding about learning outcomes and expectations. It may also reveal different understandings and assumptions about learning that can be clarified and negotiated. Discussing assessment strategies and objectives collaboratively can also facilitate planning a developmental approach to integrating and embedding information literacy across the curriculum. Assessment strategies should 'reach all students, pinpoint areas for further development, and consolidate learning goals already achieved'.[2]

Curriculum alignment

The need for educators to collaborate is apparent in the concept of curriculum alignment. In this concept there is a correlation between goals, objectives, content, learning outcomes, teaching methods, teaching and learning activities, assessment and evaluation (Figure 1). This allows students to be 'entrapped' in a 'web of consistency'.[3] Curriculum alignment not only refers to the consistency within a particular unit of study, but also within a disciplinary major, degree program or training package. It should take into account graduate attributes, qualities or capabilities as well as particular objectives and learning outcomes of majors, programs and packages.
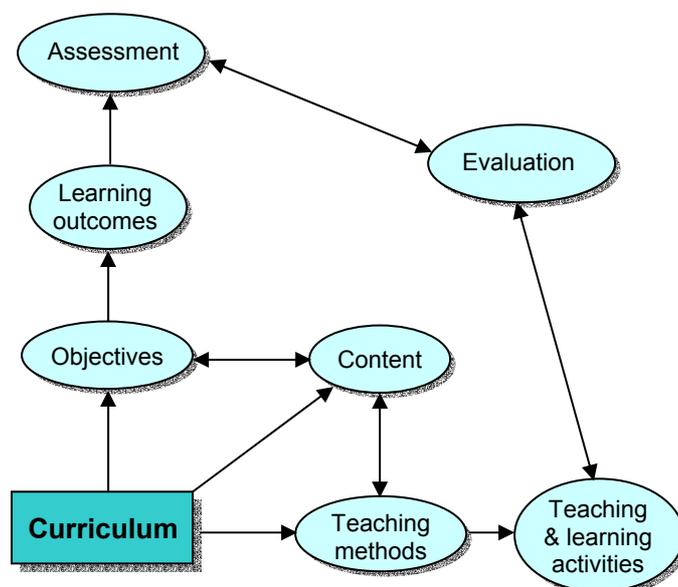
*Figure 1 Curriculum alignment*

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[*]In this context *assessment* refers to measuring and describing student learning, whilst *evaluation* is feedback for the educator regarding the effectiveness of the curriculum and teaching. These terms are often used interchangeably, especially in the US literature.

Assessment purposes and principles

Assessment describes or measures learning outcomes—what has been learnt, or how much has been learnt. The purposes of assessment include to
- facilitate learning
- describe / measure learning
- diagnose learning gaps
- provide a structure for learning
- provide opportunities for students and teachers to talk about learning
- provide information for the evaluation of teaching
- provide information for certification [4]

Assessment can enhance and facilitate learning, but it can also be a barrier to learning.[5] It is possible that certain assessment strategies can limit students' experience and create an environment where students resort to surface approaches to learning.[6]

> From our student's point of view, assessment always defines the actual curriculum… Assessment sends messages about the standard and amount of work required, and what aspects of the syllabus are most important.[7]

Current practice in the assessment of information literacy reflects the nature of generic, parallel, integrated and embedded information literacy program components. The *Framework* can be used to identify particular learning outcomes relevant to particular assessment tasks. For example, various descriptors of attributes, knowledge and skills can be used to phrase learning outcomes and assessment criteria. Grade descriptor rubrics[8] that describe qualitative differences between levels of information literacy attainment can be constructed to guide students and educators. It is emphasised, however, that information literacy is experienced in formal education through *engaging with disciplinary content*. It therefore should be assessed within this context.

There are myriad ways to assess learning of disciplinary content, skills and processes. They include essays, tests, seminars, portfolios, journals, projects, reports, performances, theses, professional experiences, and observations. Those who assess could be the educator, student and peers. Assessment can be informal, such as giving verbal feedback during class, or formal tasks intended to fulfill the requirements of the subject. Assessment can serve both formative and summative purposes
- formative—feedback throughout the course of study that is intended to enhance learning
- summative—a judgment made to generate a grade or mark[9]

Different types of assessment may test different skills, knowledge and understanding. Some test basic skills such as recall and comprehension, while others test critical thinking and problem solving. It is unlikely that assessment designed to test recall can test critical thinking, whereas it is possible that a task designed to test critical thinking may also test recall.[10]

A range of assessment tasks should be used to enable students to demonstrate learning at many levels. As the Association of College and Research Libraries emphasises 'in implementing these standards, recognition is needed that different levels of thinking skills are associated with various learning outcomes. Different instruments or methods are essential to assess those outcomes.'[11] Taxonomies, such as those developed by Bloom,[12] and Biggs and Collis,[13] can be used to design teaching, learning and assessment items that provide the opportunity to experience learning at many levels.

Table 1 illustrates outcomes at different levels

Table 1 Levels of information literacy

Lower level	Identifies keywords, synonyms, and related terms for the information needed
Higher level	Extends initial synthesis at a higher level of abstraction to construct new hypotheses

When designing assessment, the questions that should be addressed include
- what am I assessing in terms of intellectual engagement with content?
- what am I assessing in terms of generic and discipline-specific skills?
- why am I assessing these skills and engagement with content?
- how am I going to assess these skills and engagement with content?
- what resources have I provided that both enable and assist the student to understand the skills and content knowledge they will need to demonstrate to complete this assessment?[14]

These questions serve to focus the design of assessment to include holistic learning. They are highly relevant to the inclusion of information literacy learning outcomes as they emphasise engaging with disciplinary content through generic and discipline specific skills.

The responsibility of educators promoting information literacy learning is to engage in best practice in *all* areas of teaching and learning. The most effective strategy for 'embedding information literacy into the total educational process'[15] starts with incorporating best practice assessment[16] where
- information literacy is included in the objectives and learning outcomes of units of study and assessment tasks
- information literacy assessment is designed to structure and sequence a complex task eg the staged essay with an annotated bibliography, peer reviewed essay draft, final essay and reflections on how the essay could have been improved
- information literacy assessment is planned and sequenced throughout the entire degree providing a developmental framework
- a variety of methods of assessment for information literacy learning are used

Aligned assessment is the most powerful tool available to educators to direct and facilitate student learning. It is therefore essential that information literacy learning outcomes are embedded in the assessment tasks for courses of study.

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Standards, curriculum and learning: implications for professional development

Librarians as educators

As higher and vocational education continue to develop new approaches to learning and teaching, the role of librarians is changing as they seek to devise, develop and implement strategies and systems which embed information literacy in the curriculum.

Comprehensive curriculum infusion demands systemic and systematic change in the design and delivery of core curricula to ensure that the mastery of information literacy concepts and skills occurs in a sequential, hierarchical and developmental manner.[1]

To achieve curricula appropriate to the information intensive society of the 21st century needs systemic change within institutions. To support such change, and the teachers who seek to make these changes within the constraints of a crowded curriculum, the librarian needs to understand the concept of embedded curriculum and to demonstrate a depth of knowledge and understanding across a broad range of educational and strategic arenas. These include

> Learning theory, assessment and evaluation, pedagogical realignment, course reform, policy development and strategic planning, university wide organisational infrastructure, print and online learning resources, teaching and learning partnerships and staff development.[2]

To work in effective collaborative partnership with academic colleagues and facilitate quality outcomes, the academic teaching librarian must also be able to 'deliver' in terms of teaching skills and learning facilitation.

Teachers and librarians require specialist knowledge and skills to fully engage with, and be integrated into, the learning and teaching processes of an institution. Only then will conditions exist which foster a systemic process which empowers students 'as critical and independent users of information by embedding information literacy skills, as an 'emerging skill' and key generic capability, into the whole learning experience'.[3]

Imperatives for change

Tertiary education in Australia and New Zealand is undergoing rapid and, at times, radical change prompted by
- changing student cohorts in terms of numbers of enrolments and demographic diversity, including an ever greater proportion of adult learners
- a growing research base in tertiary student learning, effective teaching, and the development of teaching practice in tertiary education
- the disaggregation of academic work into the scholarship of discovery, integration, application and teaching, as posed by Boyer[4]
- new technologies, and their application to the administrative and teaching functions within tertiary institutions
- the combination of the disaggregation of academic work and new technologies stimulating the possibly rapid demise of the lone teacher approach in universities to curriculum development, delivery and assessment[5]
- increasing demands for, and greater emphasis on, performance, professional standards and public accountability in tertiary education[6]
- curriculum change which demands different pedagogical approaches, characterised more by active learning and vocationalisation of the curriculum and less by theoretical discipline background

- the professionalisation and scholarship of teaching in higher education and increasing specialisation of academic work[7]
- growing emphasis on assessing the learning outcomes of courses. This demands a more comprehensive view of course structures than that which reflects the interests of departments or individual academic staff[8]
- an integrated approach in which vocational competencies and generic skills are assessed in the context of whole work tasks[9]
- growing emphasis on generic and employability attributes such as information literacy, and other attributes critical to a capacity for lifelong learning

These changes increasingly blur the distinctions between academic and other staff in exposure to, and interaction with, students, contribution to classes and the provision of learning materials. Functional silos are being gradually challenged by a more seamless culture, that promotes collaborative approaches to learning and teaching.[10]

Cultures of collaboration, communities of scholarship

Collaborative teaching models are believed by Raspa to be 'the next great transition in higher education'.[11] A revolutionary shift in the learning and teaching paradigm in Australian higher education is demanding that university communities do work more collaboratively.[12] As noted by Coaldrake and Stedman,[13] that collaboration involves curriculum designers, instructional designers, graphic designers, programmers, librarians, technicians and learning advisers, all of whom contribute to teaching quality, and to complex teaching practice. Accordingly, the immediacy of information access now provides motivation and means for enhancing such partnerships between academics and librarians.[14]

Institutions must develop strategies and create opportunities which promote the educative role of librarians with greater clarity and force[15] and engender 'an environment where faculty/ librarian collaboration is not viewed as unusual but rather is valued and regarded as the norm'.[16] Such organisational transformation requires a range of coalitions. It can only exist if there is strong institutional commitment to, and support for, integration of information literacy into the curriculum and pedagogy.[17]

> To develop information literate graduates, Rader[18] argues that 'librarians will have to break out of their traditional reactive mode [and] become leaders and innovators in their interaction with faculty', students and administrative leaders. Librarians need to surmount existing or mythical barriers by ensuring that they have educational credibility and 'engage critically with pedagogical paradigms dominant in higher education [by demonstrating] competence in course design and delivery appropriate to a learning environment that is global, flexible and student centred'.[19]

Librarians therefore need to think and act strategically, applying strategies which foster collaboration, such as the following identified by Doskatsch[20]
- cultivate the development of a common educational philosophy
- giving priority to services and initiatives that are most likely to improve faculty - librarian relationships
- implementing quality assurance strategies for all critical services
- being thoroughly acquainted with the institution's strategic plan
- predetermining the role of the academic teaching librarian in the educational mission of the institution
- communicating ways in which libraries (and the academic teaching librarian) can contribute to the educational mission of an institution
- owning and using the language of those to be influenced
- seeking partnerships with those who influence

As Doskatsch concludes, collaborative partnerships between academic teachers and academic librarians are built on a mutual understanding of how collective expertise can enhance student learning. Thus 'collaboration is sustained by mutual appreciation of how interdependent activities impact upon the partnership'.[21]

Models and strategies

Customarily, both teachers and librarians in tertiary education have been expected to gain pedagogical knowledge during their employment. However, unlike most specialist professions, where requisite knowledge and skill is taught and learned pre practice, expertise in education does not come as an inherent product of either academic pursuit or librarianship education. In an era of outcomes based accountability, quality assurance and student expectations of value for money education, such situational development for academics and for librarians is no longer sustainable.

The onus, therefore, rests upon administrators, faculties, libraries and individuals to take an active role in, and share responsibility for, the evolving professional development needs of academic teachers and academic librarians. Critical peak bodies, governance groups and professional associations also need to step forward, and assume a duty of care for the new developmental needs of their constituencies.

Such a shift in emphasis calls for the scoping, development and/or adoption of alternative, nontraditional forms of professional development for teachers and librarians. Managers, administrators and staff must be resourceful and creative in terms of funding and support. They must seek out and apply innovative solutions to meet new demands, whilst resisting historical notions of principle and practice and removing systemic barriers to change. Any model must be sustainable in terms of staff time, workload, and funding, and may focus upon the following broad areas

- *Knowledge development* refers to the pedagogical underpinnings of teaching and learning. Topics may include learning theory, adult learning, diversity, evaluation and assessment theory and strategies, and developing as a reflective practitioner

- *Skills sets* addresses the practical skills required to effectively facilitate learning and create engaging learning environments. These include presentation skills, organisation of activities, educational design, and classroom and behaviour management techniques as well as critical information and technological skills development

- *Advocacy* includes the tactical skills required to engage in teaching and learning discussion, debate, initiatives and processes at all levels within an institution, such as strategic planning, policy development, promotion and marketing, leadership and collaborative partnerships

- *Observation* applies modeling as a teaching and learning strategy. Academics and librarians have the opportunity to observe the conjunction of content, context and delivery in a variety of authentic learning events

- *Peer appraisal and review* is a form of assessment which is designed to provide feedback to teachers about teaching and learning in their courses, seminars, or clinics. It can provide a more complete view of the teacher's classroom activity and interactions with students[22] by simulating an authentic experience, providing immediate feedback, encouraging reflection and self analysis, and identifying potential future training requirements.[23] Academics and librarians are well placed to complement each other's skills, achievements and provide a supportive critique.

Options may range from simple and immediate solutions through to longterm and multifaceted organisational change. Consider such specific strategies as

- changes to staff induction and probationary procedures and outcomes
- existing institution wide staff training and development activities, programs and courses eg adult and higher education based graduate certificate courses, communities of practice
- professional networks, such as mentoring, learning circles and online forums
- external developmental opportunities, such as conferences, seminars
- maximising accountability, efficacy, cost effectiveness and efficiency by
  - engaging trainers with specific expertise from departments and/or faculties
  - engaging the services of providers external to the university

As with all curricula, effective design and delivery of information literacy rich courses also depends upon that experience and knowledge which comes from extensive and ongoing practice and consistent exposure to a wide variety of teaching and learning interactions.

Whatever solutions are applied, be they at an institutional, organisational or individual level, continuous improvement is critical to developing, supporting and retaining experienced academic and library teaching staff. Whether formal or informal, pathways into ongoing developmental opportunities serve to address advanced knowledge and/or skills and provide for improved performance.[24]

Outcomes

It is holistically essential that teachers and librarians function as educational professionals who can engage in educational debate and decision making processes, influence policy, forge strategic alliances and demonstrate diplomacy.[25] A well planned, supported and strategically aligned professional development program will ensure

- consistent, ongoing, timely and relevant information literacy related professional development
- innovative teaching and learning practice which meets the increasingly sophisticated information literacy needs of a diverse and complex student population
- quality support of collaborative teaching models and teaching and learning partnerships between library professionals, faculty and instructional designers in the ongoing planning, development and implementation of initiatives and activities critical to the educational process
- informed teaching, learning and information literacy discourse within and across institutions which addresses the critical relationships between curriculum design, teaching strategies, learning outcomes and the development of information literacy
- student centred learning experiences which reflect curriculum integrated and embedded approaches to the development of information literacy.[26]

The focus must be on educational design, supporting and developing sound pedagogy, and strong peer to peer collaboration.

- *The first* informs the critical processes required to achieve quality curricula including learning and teaching and assessment outcomes
- *The second* confirms the role of effective learning and teaching
- *The third* affirms the complementary roles of the teacher and the librarian.[27]

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How some Australian and New Zealand universities were using the first edition of the *Information literacy standards* in 2003

Australian National University, Canberra

In March 2001 the Australian National University's Teaching and Learning Committee endorsed in principle the *Information literacy standards*. The goals and objectives of the Information Literacy Program (ILP), including the staff and student competencies to be addressed, are outlined in *Achieving information literacy* http://ilp.anu.edu.au/proposal/.

In 2003 the ILP committee investigated methods of formally acknowledging the acquisition of information literacy skills, such as recognition on student transcripts. Evaluating how students receive recognition for information literacy proficiency required an analysis of linkages between learning outcomes and the *Standards*.

An online information literacy guide for supervisors and selection committee members uses the *Standards* as a source for developing task and responsibility descriptors/questions for duty statements, selection criteria, interviews, and identifying IL training programs for new staff.

Bond University, Queensland

An information literacy program is presented primarily through face to face sessions conducted in class and tutorial time. Librarians have evaluated the content of the information literacy program using the *Standards* as the benchmark.

Central Queensland University, Queensland

The Library and the academic community have endorsed the use of the *Standards*. In 2001 librarians and academics developed a planning framework to support and provide overall structure to the planning process associated with information literacy education www.library.cqu.edu.edu/informationliteracy/standards/index.htm. The *Standards* form the basis of the framework and provide the structure needed to determine learning outcomes, resources required to support learning and the areas of responsibility concerning the delivery of various programs. Teaching and learning advisers looking at the incorporation of all generic skills, curriculum developers, and librarians designing and delivering the information literacy program use the *Standards*.

Charles Sturt University, New South Wales

The Division of Library Services lists as a key objective in its Triennial Plan 2002-2004 *Enhance information literacy skills of students and staff to have a positive impact on the quality of assignments and research product*. The Library is committed to teaching information literacy skills and promoting these skills as a necessary graduate attribute. It has developed a number of partnerships with many faculties and other divisional units that have assisted in the development of information literacy throughout the University.

Curtin University of Technology, Western Australia

The Library has mapped the *Standards* to its information literacy program and has developed a range of online, print, tour, lecture and workshop options to support teaching staff who wish to include information literacy in online or campus based courses. See http://lisweb.curtin.edu.au and http://lisweb.curtin.edu.au/guides/inflitprog/index.html.

Deakin University, Victoria

The Library's information literacy policy incorporates the *Standards*. Developing information literate students is an objective of the University's teaching and learning plans. Faculties are mapping the extent to which their courses are meeting the objectives of the teaching and learning plans. Information literacy is being promulgated through curriculum development and course reviews. As part of this process, the Library has promulgated the *Standards* in the University. Librarians are included on course and curriculum development teams. Teaching librarians are currently involved in mapping information literacy programs to the *Standards* and as part of this process they are identifying educational strategies and setting priorities for current and future program development.

The *Standards* have been endorsed by Deakin University Library, the Library Committee and noted by Academic Board. The Library Committee has drafted an information literacy section for the Deakin advantage document that includes the *Standards* as exemplary characteristics of a Deakin graduate.

Edith Cowan University, Western Australia

The Library's existing research/user education programs meet some elements of the *Standards*. The ECU graduate attribute policy which includes 'Use of technology/ information literacy', has provided the Library with the opportunity to formalise and actively pursue an information literacy approach which includes the *Standards*.

Flinders University, South Australia

The values expressed in the *Standards* are consonant with the intellectual values underlying the University's *Statement of intent*. The Library, through its Strategic Plan 2001–2003, is committed to providing library skills and information literacy training for all commencing undergraduate students and to other students on request from academics. The information literacy program is based on generic core elements and is delivered and assessed electronically. It can be tailored to specific disciplines.

Griffith University, Queensland

A core strategy in the Postgraduate Information Research Skills (PIRS) program is a self assessment activity that asks students to rate their personal information skills using indicators derived from the *Standards*.

Late in 2000, as part of a QULOC research project, the Library's research tutorial was benchmarked against the ACRL *Information literacy competency standards for higher education*, a forerunner of the *Information literacy standards*. This benchmarking process was later updated to reflect the *Standards*.

Curriculum Framework—as part of the Division of Information Services' realignment program, the cluster design team for skills development compiled a 'Curriculum framework for information literacy'. The *Standards* are reflected in the underlying philosophy and core goals. The framework describes a number of information literacy services, their objectives, content, method of delivery and evaluation. In particular, the objectives reflect the overall goal of achieving the outcomes outlined in the *Standards*.

James Cook University of North Queensland

The Library has adopted the *Standards* as the basis for all teaching and training activities. The existence of Australian standards has made it easier to promote the concept of information literacy to academics.

La Trobe University, Victoria

The Library has used the *Standards* as a framework to continue developing an information literacy program appropriate the University's teaching and learning initiatives. Reference librarians use the *Standards* as guiding principles in planning and developing programs. The Library has been working towards promoting and facilitating information literacy through the strategic plan. The publication of a document describing and defining the *Standards* has enabled the Library to refer to them in discussions throughout the University. While there has been no formal endorsement of the *Standards*, they have been presented for information in many forums, including the Library Committee which is a special purpose committee of University Council

Lincoln University, New Zealand

A 100 level professional studies subject includes an information studies module, taught by the Library, and a communication module, taught by social science academics. The information module covers Standards 1-3 and 6 while the communication module covers other parts of Standard 5. A series of web based tutorials, *Making the grade*, (www.lincoln.ac.nz/libr/ findinfo), specially address standards 1-3 and parts of 6. This resource is aimed at undergraduate students who are not exposed to the formal information studies teaching program. One of the Library's goals has been to lobby for the inclusion of information literacy in a wider range of degrees. The *Standards* have been used to support the Library's case.

Massey University, New Zealand

Although the Library has a strong user education program, and library staff are aware of the *Standards*, they do not actively use them at present. However, the Library does incorporate the principles and ideals into teaching programs, website development and in answering inquiries. The University describes a number of graduate attributes, and lifelong learning is one of them.

Monash University, Victoria

The University's *Information literacy framework* recommends that the University embeds information literacy into all courses, using the *Standards* as the basis. The Library also recommends that individual courses define their own set of 'examples' appropriate to the discipline. Some courses have indicated that they will be creating compulsory modules to address graduate attribute issues. Others will be including this in already existing compulsory units. Yet others would like to take a more holistic approach and have graduate attributes explicitly addressed in every unit, but at this stage have not worked out how to do this effectively.

Murdoch University, Western Australia

The information literacy plan incorporates the *Standards*. The Library uses the *Standards* to review the objectives and outcomes of the online literacy programme (LITE), with the aim of ensuring that the tutorials support the *Standards*. The Library is in the process of endorsing the *Standards*, and will be seeking broader endorsement of them across the University.

Charles Darwin University, Northern Territory

The information literacy component of the academic literacies unit consists of face to face classes that span three weeks of each semester, in students' usual tutorial times, and an online information literacy tutorial, 'InfoSmart', which is aimed at undergraduates taking the common units offcampus. Library staff set and mark an information literacy assignment worth 20% of the total marks for of the unit. The lesson plans and objectives and the online tutorial have been mapped against the *Standards*. The Library is working to raise awareness of them with lecturers, starting with academic partners in the common units and in an online project aimed at postgraduate students. Library staff also make reference to aspects of the *Standards* more overtly with students in classes and assignments.

Queensland University of Technology , Brisbane

The Teaching & Learning Committee has endorsed the QUT *Information literacy framework & syllabus* (ILF&S) http://www.library.qut.edu.au/ilfs/ (including the *Standards*) as guiding principles and policy for the University. The *Standards* thus significantly inform and guide practice in curriculum design and teaching and learning practice.

It is a Division of Information & Academic Services strategic action 2002-2006 to progressively implement the *ILF&S* in partnership with faculties, including the development of teaching and assessment methodologies which address the *Standards*. To date, current significant faculty projects underway using the *ILF&S* & the *Standards* include

- F/Science T&L Large grant project – full undergraduate bachelor degree course reform [grant=$150 000] *Enhancing the development of information literacy in science*
- F/Education T&L Large Grant project – B/Education Reconceptualisation & Review (mapping) *Mapping the content & assessment against the IL Standards using the IL syllabus*
- F/Health
  - Nursing-curriculum reform Small T&L Grant project *Building generic skills into undergraduate course IL Standards using the IL Syllabus*
  - Human Movements – T&L workshop on IL curriculum mapping & analysis resulting in a full mapping of the assessment of courses/units against the IL Standards using the IL Syllabus

- QUT Carseldine/School of Psychology – project mapping the *Standards* against course assessment of first year units to ensure that
  - first year assessment is strong in targeted information literacy skills
  - second and third year unit coordinators can be assured certain information literacy skills have been addressed (taught and assessed) in first year (rather than assumed)

- F/Business – 1st yr core units project *Mapping the assessment against the IL Standards using the IL syllabus*

For this latter project, the assistance of the Faculty's instructional designer resulted in the development of a form based diagnostic database to facilitate analysis of individual units, streams and courses using the *Standards*. Reporting mechanisms built into the design allow for detailed reporting and mapping of curricula activity relating to each standard. The diagnostic database is being trialled in a number of discipline areas.

RMIT University, Victoria

The *Standards* are used to
- provide the framework for any programs or courses the liaison librarians develop, including online tutorials
- promote the concept of information literacy to academic staff

RMIT is engaged in an extensive project of program renewal. The Library is explicitly involved in designing the curriculum to include the development of graduate capabilities, which incorporates information literacy. Liaison librarians are part of the development teams and their role is to demonstrate how the existing curriculum matches the *Standards* or how to design learning activities that will assist in the development of information literacy.

Further information about the ways in which the Library is promoting information literacy is at
www.rmit.edu.au/browse?SIMID=fjwepz9ydwrs1
www.rmit.edu.au/browse?SIMID=r1iorus5e1pw

Southern Cross University, New South Wales

While there has been no formal use of the *Standards*, many of the desired outcomes naturally form the basis for the planning and development of information literacy classes and activities. Librarians are designing mechanisms to evaluate their classes specifically using the outcomes to help frame questions etc.

On a university wide basis, the *Standards* have been distributed to key stakeholders and committees. The need for information literacy to be a compulsory and assessable component of curricula has recently been accepted and articulated in the *Learning teaching & curriculum management plan.* The University is reviewing its graduate attributes statement and the associated set of generic capabilities. It is intended that information literacy and the use of the *Standards* will form part of the Library's input to ensure information literacy is embedded in the curriculum.

Swinburne University of Technology, Victoria

A matrix linking the *Standards* to the training programs offered by Swinburne Library and to the attainment of graduate attributes is located on the web at http://www.swin.edu.au/lib/infoskills/grad_attributes.htm

The Lilydale campus is using the *Standards* to guide the development of a multistage model of embedded information literacy education. The intention is to incorporate information literacy modules into core subjects at first, second and third year levels of all undergraduate degrees at the campus.

University of Adelaide, South Australia

Research, Branch and Reference librarians responsible for information literacy programs use the *Standards* as guiding principles in planning and developing programs. In 2002 the Library received a university learning and teaching grant to conduct a *Benchmarked review of information literacy standards.* This project tested the Library's information literacy skills training in the area of medicine.

Aims of the project are to
- assess the *Standards* and provide feedback to CAUL
- benchmark the local program against the *Standards*

- trial the methodology prior to its wider application in the Library

The information literacy skills training program in the area of medicine (Health Sciences Workbook) and the *Standards* have been benchmarked. The *Standards* were the starting point, but as the project progressed, the focus moved to the HSW as a starting point and then the relevant standards and outcomes for each facet of the instructional package were identified. A summary chart of *Standards*, learning outcomes and how each outcome is achieved has been prepared. Those outcomes which do not fall within the remit of the Library have also been identified.

University of Ballarat, Victoria

The Library is investigating the perceptions of first year undergraduate students about the information literacy they regard as necessary in order to succeed at university. A tool was developed to diagnose the existing range of commencing students information literacy experiences using the *Standards* and the ACRL *Best practices* initiative as the criteria. The tool investigates the expectations of academic staff about the information seeking and critical thinking abilities of commencing students.

University of Canberra, Australian Capital Territory

The *Standards* are being used by library staff to map existing activities and identify gaps. Content, delivery and evaluation of generic activities have already been amended to reflect them. The Library's information literacy group has gathered information about university wide effort to support graduate generic skills and attributes outcomes in terms of information literacy and ICT competencies. This is the basis for wider consultation with academic staff and other learner support services about developing a shared framework for IL and coordinating the contributions to be made by the various parties eg course and unit conveners, library, academic skills centre, learning resource centres.

University of Melbourne, Victoria

The Academic Board has endorsed the *Standards* as 'a guide for curriculum planning'. The Chair of Academic Board has accepted accountability for integration of information literacy into programs in 2003 and beyond. A strong case has been made for the compatibility of the *Standards* with graduate attribute statements endorsed by the University, with the teaching and learning management plan, the *Nine principles guiding teaching and learning* published in June 2003, and the move to include reference to generic skills in course outlines.

The Information Division, through the Learning Resources Services section of the Teaching, Learning and Research Support department, has begun mapping its current programs to the *Standards*. This will document existing links with them, identify gaps for attention, and validate the acquisition of skills for accountability within the generic skills endorsed by the University.

The Information Division is finding that the current university environment is increasingly receptive to the adoption of information literacy as an important component of the generic skills the University advocates.

University of Otago, New Zealand

The Library Staff Committee endorsed the *Standards* in 2001. The development of information literacy is central to the Library's teaching and learning program. The *Standards* are integral to its teaching and learning plan http://www.library.otago.ac.nz/ services/TLP.html and also form the basis for the evolving IL skills framework

(http://www.library.otago.ac.nz/services/tandl2.html). This framework informs the user education program as well as providing guidelines for IL modules of academic programs. The Library is working towards embedding information literacy skills throughout the formal academic structure and subject librarians cooperate with academic staff in the development of IL based coursework for a growing number of individual papers.

University of New England, New South Wales

The *Standards* were used to form the structure for a new websuite of information literacy materials on the Library website http://www.une.edu.au/library/infolit/index.htm eSKILLS UNE. The websuite was a joint project by the Library, the Teaching & Learning Centre and the Information Technology Division. The *Standards* were invaluable as an authoritative approach, which could be accepted by educational designers in the Teaching & Learning Centre. A table was created to list the seven standards, their outcomes and some finer details. A final column was used to list the parts where it was thought the Library, the Teaching & Learning Centre and the Information Services Division could contribute content. A copy of the UNE example of mapping the *Standards* to specific topics is at the QULOC site http://www.quloc.org.au/main.htm.

University of New South Wales, Sydney

The *Standards* have been endorsed by the UNSW Library Advisory Committee and by the Academic Services Committee of the Board.

UNSW Library uses the language of the *Standards* to define and explore information literacy as a concept. These opportunities range from the wording of discussions on information literacy as a graduate and postgraduate attribute across the University to the incorporation of the *Standards* into the structure of all new and revised curriculum which embeds information literacy in the wider curriculum. The *Standards* underlie the structure of information literacy materials and programs. The Library's information literacy plan 2003 http://www.library. unsw.edu.au/%7Elibadmin/literacy.html summarises the standards in its definition of attributes of information literacy and commits the Library to

> Ensure that the *Information literacy standards* are incorporated in all new or revised information literacy programs

The principal online basic information skills module is specifically structured on the *Standards* http://www.library.unsw.edu.au/~psl/itet_lilt/intro/enter.htm. These modules have been incorporated into a range of courses in different disciplines. The *Standards* are also used in the design of the assessments of student learning outcomes.

University of Newcastle, New South Wales

The University of Newcastle's strategic plan acknowledges the importance of information literacy as an essential attribute of its graduates: *Facilitation of core graduate attributes, specifically in relation to information literacy, including skills in acquiring, organising and presenting information* (Core skills for graduates. Academic Senate 29 November 2000)

The *Standards* are used as guiding principles in the Library's information literacy programs, achieved though numerous and varied information literacy programs offered generically to the student population, as well as via customised sessions and programs coordinated by the faculty librarian service. The direct application of the *Standards* has been achieved across numerous disciplines via the integration of information literacy units timetabled into some program curriculum, as well as the development of online modules directly addressing components of the standards.

University of Queensland, Brisbane

In October 1999 a report of the information skills working party of the Library Committee of the Academic Board recommended the following

R1 That a university wide policy for the integration of information management competencies into courses and curricula be developed.

R2 That the ACRL (American College and Research Libraries) 'Core information literacy competencies/outcomes for undergraduates' be adapted as the basis for the acquisition of graduate attributes as outlined in the University's Teaching and Learning Enhancement Plan 2000-2002 (draft).

The Library is working with the Tertiary Education Institute to map and embed the graduate attributes into the curriculum, using the *Standards* as a framework for information literacy areas of the graduate attributes.

It is working on linking the *Standards* to the University's graduate attributes, many of which exactly mirror the *Standards*. Library supporting programs and printed publications are being linked into the graduate attributes. Work is also being done with the University's Tertiary Education Department, which is working with the various faculties to map and embed the graduate attributes into all courses and programs. Individual liaison librarians are working with responsive academics in departments to ensure that information literacy and skills are a priority in every program. The *Standards* have been linked on the Library's webpage and further links with the UQ graduate attributes will be added. Work has also been done with the Library's Teaching and Learning Committee to disseminate information, both to Library and academic staff, about the *Standards* and their use.

University of South Australia, Adelaide

The *Standards* have been endorsed by the University's Teaching and Learning Committee and inform the project *Quality information for lifelong learning* (QILLL). QILLL is a collection of generic and discipline specific resources for the development of lifelong learning as a quality of all UniSA graduates. For teachers, QILLL provides information literacy resources and best practice examples of strategies for embedding the characteristics of a lifelong learner into curriculum development and creating lifelong learning opportunities for students. For learners, QILLL facilitates self directed learning, critical discernment of information sources and an enhanced awareness of the graduate quality pertaining to lifelong learning

The Library's online tutorials *Information search methods* and *How to find information for your assignment* reflect the *Standards*

Liaison Librarians have used the *Standards* to analyse three undergraduate programs in their portfolio and identify assignments or learning activities that promote information literacy outcomes.

The printed version of the *Standards* has been found to be very useful as an awareness raising tool with academics.

University of Sydney, New South Wales

The Library has developed an information literacy policy in which it states that 'the Library has adopted the *Standards* as guidelines to provide a framework in which activities can be planned, presented and promoted'. The information literacy policy is at http://www.library.usyd.edu.au/skills/infolitpolicy.html

A review of the University of Sydney graduate attributes is progressing. Information literacy is being included as one of the major cluster areas in the new policy.

University of Tasmania

The Library has produced a policy stating its role in developing information literate graduates. This policy supports the university policy on generic attributes of graduates and the *Standards*, and outlines for all stakeholders the Library's contribution to information literacy initiatives.

The Flexible Education Unit of the University is developing a set of tools for mapping the incorporation of generic attributes into the curriculum at course and unit level. The Library will be using this as the basis for consultation with academic staff about the incorporation of information literacy skills into the curriculum.

University of Technology, Sydney. New South Wales

The Library has developed an information literacy framework which identifies and utilises the *Standards*. In collaboration with the University's Quality Development Unit, the Library is considering a means of identifying actual learning outcomes of information literacy training through an assessment of the longterm impact and benefits for graduates.

University of the Sunshine Coast, Queensland

The learning outcomes for tutorials offered as part of the University's information literacy program are aligned with the *Standards*.

University of Waikato, New Zealand

The Library tries to ensure that library teaching programs are based on the *Standards*. In the next 18 months it intends to use them when developing an online information literacy tutorial.

University of Western Australia, Perth

The Library's Strategic Plan 2002-2004 includes as an objective 'Identify information skills requirements of target groups in order to apply the *Information literacy standards* in a relevant context.'

It has adopted the *Standards* as the basis for the development of its information literacy curriculum framework. Outcomes have been developed for each of the standards at the introductory level. Suggested teaching and learning activities and associated assessments have also been identified at this introductory level. Responsibility for each of the outcomes has been allocated to library staff, academic staff or both. This has formed the basis of the Library's *Outcomes based introductory information literacy curriculum framework* and an *Information skills checklist*.

The Library's online tutorial for new students and students returning to study, *InfoPathways*, has outcomes derived from the *Outcomes based introductory information literacy curriculum*

framework. Using the Library's *Framework* as a starting point and then examining graduate outcomes, some disciplines (law, medicine, social work) have mapped the *Standards* to the entire course curricula. Work is also being done in other disciplines to embed information skills in the course. These include dentistry, engineering and human movement.

University of Western Sydney, New South Wales

To provide every student and staff member with the opportunity to acquire information literacy skills, and to strengthen its role in the learning, teaching and research activities of the University, the Library has developed a formalised and integrated information literacy program which commenced in 2003. This program is underpinned by the *Standards*.

The program will take an incremental approach, beginning with the development of basic information skills for first year students in 2003. Close collaboration between academic staff and liaison librarians will ensure that the outcomes for all participants will be relevant and skills transferable.

A series of workshops focusing on the *Standards* and their underlying intent were conducted in 2003 for all liaison librarians to ensure shared understandings. Meetings with the majority of heads of schools and program managers were then organised by the information services librarian to promulgate the new IL program, promoting the *Standards* and their importance.

An information literacy work group has been formed to guide the development of an equitable program across all disciplines and campuses. Information literacy is an articulated graduate attribute of the University, with the Library responsible for carriage of the development and delivery of IL programs.

University of Wollongong, New South Wales

The University Education Committee endorsed the *Standards* as the basis for the information literacy section of the University's latest tertiary literacies policy.

An information literacy standards team has been created within the Library's information and research services team. The team has responsibility for fostering the application of the standards across all faculties. A new, comprehensive, information literacy website that includes development and practice was released in May 2003. It includes the Library's framework (based on the *Standards* and linked to the University's graduate attributes and tertiary literacies) as well as the current application of the *Standards* in the faculties and generic instruction.

There are plans to use the *Standards* to further evaluate current information literacy programs and develop future ones. The information literacy standards team will be mentoring staff to integrate the *Standards* in these programs to ensure that policy and practice match. The coordinator of the team is also participating in a university funded grant project looking at ways the University's attributes (including information literacy) are being achieved. It is envisaged that this project will be the vehicle for promoting the *Standards* and information literacy across campus, and particularly for the new website to be used as a collaborative tool with academics.

Victoria University of Wellington, New Zealand

The University has established a Learning and Teaching Committee to implement its draft learning and teaching plan. The Library is represented on this committee. The *Standards* will be used as reference document to support having information literacy listed directly as a graduate attribute rather than as a support strategy to achieve other graduate attributes.

The Library's draft information literacy plan outlines information literacy as an institutional responsibility. Aspects of the *Standards* were reformulated to an inhouse standard. This defines the Library's role in contributing to information literacy, and also outlines the basic responsibilities of faculty and students.

The *Standards* were used to develop a template for self paced tutorials which correlate directly to coursework (essays, assignments etc) set by faculty. These tutorials were implemented in 19 courses in the first year of the initiative. This number is expected to increase over the next two years.

Victoria University of Technology, Melbourne

There is no formal university endorsement of the *Standards*, but they do underpin one of the five *Core graduate attributes for higher education graduates*.

Individual librarians are using them in program planning. Elements of the *Standards* have been used in the online tutorial InfoWiz, and in a number of the links from the Library webpage (library.vu.edu.au), including the information literacy webpage itself, which is maintained by the Library.

One of the University's five core graduate attributes include the main elements of the information literacy standards. These core graduate attributes are being mapped across all higher education courses in 2003 with a view to implementing any changes to the curricula in 2004-6. The Library's information literacy coordinator and subject liaison librarians are playing a key role in this mapping and implementation.

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Information literacy: a selective chronology 1965–2003

- In 1965 one of Australia's most distinguished educators, Ernest Roe, Professor of Education at the University of Queensland observed that

  > In general, 'promoting the efficient use' of resources has been nobody's business. Even where there has been active concern, significant gaps persist. A teacher may urge his students to use the library resources, provide book lists, set work which effectively directs them to the library, but takes no interest in how they use the resources he is so keen for them to use, or in whether they have the necessary skills to do so…A librarian may be actively involved in helping, in actually training, users to be skilful in search strategies, be most eager that the resources are in every sense accessible to students; but regard what students do with the 'right' book when they have located it as none of their business… *The Australian journal of education* 9(1) 1965 p1

- The term *information literacy* was first used by US educator Paul Zurkowski in a 1974 report *The information service environment, relationships and priorities* ED 100391

- Information literacy initiatives in Australia originated in the school library sector during the 1970s and in New Zealand during the mid 1980s

- In 1989 the American Library Association (ALA) Presidential Committee on Information Literacy issued a *Final report* which defined four components of information literacy: the ability to recognise when information is needed and to locate, evaluate and use effectively the needed information

- In 1989 the Australian National Board of Employment, Education and Training commissioned the Ross report *Library provision in higher education institutions* AGPS, Canberra 1990. It was the first of many Australian governments reports to refer to the importance of information literacy, and had as its ninth term of reference 'The role of higher education libraries in preparing those training for the professions in information literacy'. In its section *The library as educator* (pp66-71) the report stated

  > It is thought that the concept of information literacy does not have wide currency outside library circles, where it is the subject of a considerable literature p66

  > The elements of Cooperative Program Planning and Teaching, and identically for library user education in higher education are
  > - close cooperation between teachers/academics and librarians must exist
  > - information skills need to be taught 'in context', not as they often have been, in a vacuum
  > - librarians have an important perspective to contribute to the teaching/learning process for they see the problems clients have in carrying out research/inquiry based tasks
  > - librarians have a teaching role to perform, a role that focuses on information and the skills needed to access and use it
  > - the skills for independent learning are fundamental to both lifelong learning and the economic and social wellbeing of our society
  > - the resourcing implications must be explored at the same time as the curriculum is being developed p69

- In 1991 volume 1 of *Australia as an information society* Report of the House of Representatives Committee for Longterm Strategies AGPS, Canberra 1991

  > There is also a need for people to develop an understanding of their information rights and become information literate. This could take the form of increased opportunities for students

to develop information awareness and skills in a more concerted way than is currently the case in education. *At the tertiary level there is a need for all graduates to have an understanding of the links between values and information as well as information handling skills.* There is also a need for specific programs to be put in place at all levels of education to develop information handling skills in students. These programs should allow for the subtle nature of information and not be equated with computer skills p26

- In 1992 in the Australian Higher Education Council's *Achieving quality of higher education* AGPS, Canberra 1992

  The characteristics of graduates
  Generic skills. They include such qualities as critical thinking, intellectual curiosity, problem solving, logical and independent thought, effective communication and related skills in identifying, accessing and managing information p22

- Also in 1992, the Mayer reports *Employment related key competencies for post compulsory education and training* (NBEET) Canberra 1992 identified as the first key competency

  - *Collecting, analysing and organising ideas and information*
    The capacity to locate information, sift and sort information in order to select what is required and point out in a useful way, and evaluate both the information itself and the sources and methods used to obtain it

- From 1992 national information literacy conferences were conducted biennially for ten years by the University of South Australia in association with the Australian Library and Information Association. Information on the conference proceedings is at www.library.unisa.edu.au

- In 1994 *Developing lifelong learners through undergraduate education* AGPS, Canberra 1994

  In the information age, mastery of all manner of electronic databases, indexes and networks is essential just to keep in touch with current developments in the field and to be familiar with information retrieval systems which enable the new graduate to function both as a competent professional, and as a member of the community. It is important, therefore, that graduates leave university equipped with the skills and strategies to locate, access, retrieve, evaluate, manage and make use of information in a variety of fields, rather than with a finite body of knowledge that will soon be outdated and irrelevant. Mastery of these skills

    provides the potential for lifelong learning—learning which will no longer be dependent on a lecture centred exposition of knowledge but which provides the student with an awareness of the relevance and purpose of their own learning (S35 p1) pp102-103

  Gradually, however, university libraries are becoming the focus of the undergraduate curriculum and academic staff are beginning to draw more on the resources at their disposal when they design their course content. The role of the librarian is assuming far greater importance as change agent/staff developer and less as mere custodian or even reference person p104

- In 1994 the Australian School Library Association promulgated its information literacy policy statement www.asla.org.au/policy/p_infol.htm

- In 1996 information literacy special interest groups were established in the Auckland and Aoraki/Canterbury regions in New Zealand. A user education seminar was organised by Palmerston North College of Education and TELSIG. Information literacy issues were prominent at the annual NZLIA Conference in Queenstown

- Between 1996 and 2000 the Library and Information Association of New Zealand Aotearoa Taskforce on Information Literacy identified issues and made recommendations to the national government relating to the development of information literacy in NZ in the context of a national information policy

- In 1997 Auslib Press in Adelaide published *The Seven faces of information literacy* by Dr Christine Bruce. This award winning Australian doctoral research, which has attracted worldwide interest and usage, provides a theoretical and phenomenological approach to information literacy research

- In 2000 Charles Sturt University published *Information literacy around the world: advances in programs and research* edited by Professor Philip Candy and Dr Christine Bruce

- The May 2000 issue of LIANZA's *Library life* was dedicated to information literacy

- In 2000 Australia and NZ librarians participated in the 'Information literacy competency standards for higher education national workshop', initiated by Dr Alan Bundy and convened and sponsored by the University of South Australia. The first edition of the Australian and New Zealand *Information literacy standards* was drafted at this workshop.

- In 2001 the Australian Library and Information Association endorsed its *Statement on information literacy for all Australians* initiated and developed by its President Dr Alan Bundy www.alia.org.au/policies/information.literacy.html

- In 2001 the Library and Information Association of New Zealand Aotearoa endorsed *Towards a national information strategy* www.lianza.org.nz/nis.htm

- In 2001 the Australian Library and Information Association conducted the first national roundtable on information literacy to bring together educators, librarians, business, professional and community leaders. It was convened by Prue Mercer, State Library of Victoria

- In 2001, initiated by Dr Alan Bundy and led by Irene Doskatsch, the University of South Australia undertook the establishment of the Australian and New Zealand Institute for Information Literacy (ANZIIL)

- By December 2002 most Australian universities had defined and publicized the attributes acquired by their graduates during their studies. Information literacy is a specific graduate attribute in some, and an underpinning strategy to achieve graduate attributes in others. Numerous universities had formally endorsed the *Information literacy standards* as a resource to inform the information literacy practice of academic and library staff

- In 2003 the Australian National Information Literacy Coalition Advocacy Project assessed the feasibility of a national coalition among the education, government and corporate sectors. Funds received for this project enabled the Australian Library and Information Association InfoLit Forum to employ the Australian Council for Educational Research to conduct the feasibility study and report. The final report on the feasibility of a national coalition has been received and the steering committee is developing a communication/action strategy to advance the project

- In 2003 the National Working Group for TAFE Library services was asked to appear before a Senate hearing into the role of libraries in the online environment. The Senate Committee was most interested in the role that TAFE libraries play in developing the

information literacy of learners as part of the educational process with particular reference to support services for online learners. Of interest was also the role that TAFE libraries play nationally in the flexible learning environment and mechanisms for addressing the digital divide and learners' information technology skills development as part of the learning process

- In 2003 the Council of Australian University Librarians published the *Information skills survey for assessment of information literacy in higher education* developed by Dr Ralph Catts. It is designed for use by librarians and academics who have signed an authority to investigate the information literacy of student cohorts in specified academic disciplines

- In 2003 New Zealand librarians contributed to the redrafting of the *Information literacy standards* and the NZ Tertiary Alliance Group organised an information literacy seminar in Hamilton, at which ANZIIL was launched in New Zealand

- In 2003 the Australian Senate's committee report on *Libraries in the online environment* www.aph.gov.au/Senate/committee/ecita_ctte/online_libraries/Index.htm

> One message which resonated throughout the Committee's inquiry was that online connectivity and content provision alone were not the ultimate answer to society's needs. An ability to identify, locate, evaluate and use information effectively was also vital.
>
> …the achievement of information literacy for all Australians clearly requires the impact of more agencies than libraries.   They already make a highly valuable contribution…to an information literate Australia ....

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