

learner-based inquiry and the scientific inquiry process" (Lenox, 1993). There should be a shift of some of the responsibility of gaining knowledge from the teacher to the student and allowing students to develop questions, strategies to search for answers, and formulate conclusions. It also means having fewer lectures and replacing them with applied strategies for information literacy

Teachers have to involve students in complex tasks that have purposes beyond the classroom and the teacher's critical evaluation. They have to create collaborative situations to develop students' social skills and problem-solving skills. They have to familiarize with variety of learning tools, both print and electronic, and they need to encourage their students to move beyond the textbook for seeking information and solving problems.

Teachers need to review, evaluate the existing online information resources to include them as readings for the students. It is imperative for the teachers that information gathered on the Web be subjected to the same methods of evaluation as information that is being gathered from books and other publications. There are many useful, high quality Web pages. Many sites have been reviewed, authenticated, or sponsored by highly reputable organizations. Some sites are dedicated to gathering valuable educational resources for educators.

Teachers need to undergo some tasks and the first task is to master searching for pages relevant in their subject. One must research and practice searching techniques to narrow search results to pages that are most relevant to the search topic. After learning to effectively find topical Web pages, the next and most critical task is assessing the pages found. Teachers can filter the information and suggest to students as readings as part of course outline.

7. Librarians and Information Literacy:

Librarians are deeply involved in addressing the issues associated with developing information literacy programs and national and regional efforts to improve program quality. "Librarians led the way in the early 1970s in conceptualizing the idea of information literacy and its relationship to lifelong learning. Early development of the concept of information literacy focused on the future role of libraries and librarians in helping with the use and application of information" (Beherens, 1994). In the field of library and information science, information literacy is rooted in the concepts of library instruction and bibliographic instruction to recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information.

The impact of moving from text-based learning to resource-based learning will involve heavier use of library materials and a demand for more and variety of resources, including print and non-print. This results into the library to re-

evaluate how funds are allocated between the textbook budget and the budget for other resources. Public libraries have to coordinate closely with schools and other learning institutions to ensure access to information resources and technology for all ages and also to remain as a strong community resource for lifelong learning.

Librarians need to strengthen the information literacy programs in the educational institutions. The Information Literacy Librarian, if identified will work with library and teaching faculty to design and implement information literacy programs and initiatives. The Information Literacy Librarian will be a liaison in information literacy matters and will work closely with university general education to assure attention to information literacy issues. He/she will provide faculty development for library and teaching faculty and work to assess information literacy initiatives and programs. In addition, the Information Literacy Librarian can also assume reference services and collection development responsibilities. Responsibilities of Information Literacy Librarian include:

- Serve as the leader of the Instruction Team and play a lead role integrating information literacy into University curricula
- Work with librarians to assess and evaluate the information literacy programs
- Serve as liaison between the departments and programs with respect to information literacy
- Teach library instruction classes
- Assist with the development of tutorials and online or web based instruction to better support students off campus
- Provide traditional and virtual reference and research assistance to the students, users.
- Participate in collection development programs of the library.

As information specialists, librarians need to interact frequently with teachers and learners to provide training and guidance toward sharpening of information literacy skills not only in school and academic libraries but also in public and special libraries as well.

8. Information Literacy Standards:

The Information Literacy standards provide framework in the designing of teaching programs and also assessing the information literacy levels of individuals. These standards help measure the progress of educators and librarians in the schools, Colleges and Higher Education sectors. This provides higher education sector to bring in uniformity to develop students at all levels. The academics, librarians and others can draw certain indicators using the standards to identify the students as information literates.

Standards benefit the Students because they provide a framework for their interaction with information in their area of study. Students will be aware of the need for a meta-cognitive approach to learning, and actions required for recognition of need, identification, and gathering, analyzing, and using information. An Information Literate Student need to demonstrate all the standards though may not be at the same level or at the same time. "The Standards are:

1. The information literate person recognizes the need for information and determines the nature and extent of the information needed
2. The information literate person accesses needed information effectively and efficiently
3. The information literate person evaluates information and its sources critically and incorporates selected information into their knowledge base and value system
4. The information literate person classifies, stores, manipulates and redrafts information collected or generated
5. The information literate person expands, reframes or creates new knowledge by integrating prior knowledge and new understandings individually or as a member of a group
6. The information literate person understands cultural, economic, legal, and social issues surrounding the use of information and accesses and uses information ethically, legally and respectfully
7. The information literate person recognizes that lifelong learning and participative citizenship requires information literacy". (AUL 2001)

9. Benefits of information literacy

The need to handle and use information is present in all stages of life and the acquisition of the competencies of information literacy must be interlinked with the acquisition of the other literacies. Teachers, Librarians and the Students are the triangle in the Information Literacy activities. The first two cooperate, discuss among themselves and integrate the students in the process of learning. The students are guided in their efforts to become information literates.

9.1. Students:

Information Literacy and the resource-based learning programs relieve the information dependency of students from the prepared textbooks and the lectures of teachers for information. It requires active learning, where students take more responsibility in their learning, and the teacher is relieved from the role of an expert. The teacher becomes more important in the role of facilitator of discussions at small-groups or at individual student level. The final result of resource-based learning is usually reflects in preparation of a paper, presentation or end performance. Regardless of where and how information

literacy skills are acquired, they are applicable in any school, play, or work situation.

Resource-based learning accommodates variety of interests and ability levels. Students don't need to read exactly the same materials on the same topic when they are identifying their own approaches to a theme or topic of study. When teachers encourage students to do their own research, students take responsibility for their learning, and they retain more of the information they have gathered for themselves.

- Information literate students are more effective consumers of information resources.
- They learn to recognize that information is packaged in a variety of ways,
 - it is packaged using a variety of techniques,
 - it serves a variety of interests, and
 - it contains a variety of value messages.
- Information literate students are more critical when they make decisions about the resources they use.

9.2. Citizens:

An idle mind is devils workshop as the saying goes and the lengthening life spans and increasing leisure time need information support to be productive, healthy, and also to lead a satisfying life. To respond effectively to an ever-changing environment, people need more than just a knowledge base. They need techniques for exploring, making connections, and making practical use of information.

Information-literate or informed citizens know how to use information to their best advantage in everyday life.

- They will identify the most useful information when making decisions such as where to locate a business, how to vote, or when to have a child etc.
- They will be able to evaluate newscasts, advertisements, and political campaign speeches etc.

Current policy poses unprecedented complexity and international implications in every country like the immigration and "brain drain," the illegal activities, and the global environment. When statistics saturate all aspects of an issue, information literacy enables citizens to recognize deception and disinformation to make a truly informed decision.

The informed citizens appreciate the value and power of information. They believe in the need for information to address problems and questions in their own lives, in their communities, and in society. They understand that information is not necessarily knowledge until it has been analyzed, questioned, and

integrated into their existing body of knowledge and experiences. They are equipped to be lifelong learners because they know how to learn.

9.3. Employees:

Workers must be information literate because the workplace of the present and future demands a new kind of workers. Reading and arithmetic ability simply are not enough. In a global marketplace, data is dispatched in fraction of seconds and in gigabits. The deluge of information must be sorted, evaluated, and applied, and workers must be able to gather, synthesize, interpret, and evaluate. Lack of these skills currently costs business billions annually in low productivity, accidents, absenteeism, and poor product quality.

Employees are expected to keep up with rapid technological advances, to streamline operations and to possess the ability to be proactive problem solvers (Hancock 1993). For the individual worker, the workplace has become a place of overwhelming changes and unlimited opportunities. Adapting to a rapidly changing work environment will mean multiple career and job changes. An early commitment to learning and understanding the role information literacy will enable workers to see the changes as transitional, not traumatic.

10. Conclusions:

Information literacy is a process and the Information literacy skills must be taught in the context of overall process. To be successful, information literacy skills instruction must be integrated with the curriculum and reinforced both within and outside of the educational setting. Information literacy skills are vital to future success.

Knowing how to ask the right questions may be the single most important step in learning. The process that is conducted in order to find answers to the right questions leads to the point at which information becomes knowledge

"In this next century, an "educated" graduate will no longer be defined as one who has absorbed a certain body of factual information, but as one who knows how to find, evaluate, and apply needed information" (Breivik, 1998, p.2). Our ability to be information literate depends on our willingness to be lifelong learners as we are challenged to master new technologies that will forever alter the landscape of information.

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Information Literacy Standards*

Council of Australian University Librarians

The first edition of these standards derives from the US *Information literacy standards for higher education* approved by the Association of College and Research Libraries in January 2000, and subsequently endorsed by the American Association for Higher Education and US accreditation bodies.

The US standards were reviewed at a national workshop initiated and conducted 22-23 September 2000 by the University of South Australia for the Council of Australian University Librarians (CAUL). The 62 participants were representative of Australian and New Zealand universities, the schools sector, the Technical and Further Education sector, the Council of Australian State Libraries and the Australian Library and Information Association. In reviewing the standards, consideration was given to the implications of Australian research, theory elaboration and practice which may not have been available or accessed when the US standards were developed. The relational model of information literacy¹ was considered in this context.

Permission to use and vary the US standards² has been granted by the Association of College and Research Libraries. The major difference between the US and Australian versions is the addition of two standards. The new standard four addresses the ability to control and manipulate information. Standard seven represents information literacy as the intellectual framework which provides the potential for lifelong learning.

At its Canberra meeting 27-28 October 2000 the Council of Australian University Librarians approved the revision of the US standards as *Information literacy standards*. The intended primary application is to higher education, but they may be applied to other educational sectors.

Endorsement and promulgation of the standards by policy makers, educational institutions, professional and educational associations is encouraged. They may be freely used and adapted for a specific context, subject to acknowledgment of their US and Australian provenance. *Information literacy standards* is a 'living'

*Council of Australian University Librarians. (2001). **Information literacy standards**. Canberra: Council of Australian University Librarians.

document. It will alter to reflect the prevailing information and education environment. Suggestions for changes for the 2003 second edition are invited, using the form at the end of this publication.

Information literacy defined

Information literacy is 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'.³ An information literate person is able to

- recognise a need for information
- determine the extent of information needed
- access the needed information efficiently
- evaluate the information and its sources
- incorporate selected information into their knowledge base
- use information effectively to accomplish a purpose
- understand economic, legal, social and cultural issues in the use of information
- access and use information ethically and legally
- classify, store, manipulate and redraft information collected or generated
- recognise information literacy as a prerequisite for lifelong learning

Information literacy - the need

Information literacy is required because of proliferating information access and resources. Individuals are faced with diverse, abundant 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.

Information literacy and lifelong learning

Information literacy is a prerequisite for lifelong learning and 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.

A 1999 report of the US National Research Council⁴ promotes the concept of 'fluency' with *information technology* and delineates several distinctions useful in understanding relationships within information literacy, computer literacy, and broader technological competence. The report notes that 'computer literacy' is concerned with rote learning of specific hardware and software applications, while 'fluency with technology' focuses on understanding the underlying concepts of technology and applying problem solving and critical thinking to using technology. It also discusses differences between information technology fluency and information literacy as it is understood in K-12 and higher education. Among these are information literacy's focus on content, communication, analysis, information searching, and evaluation; whereas information technology 'fluency' focuses on a deep understanding of technology and graduated, increasingly skilled, use.

With digitisation of scholarly publications and the growth in online delivery, 'fluency' with information technology requires more intellectual abilities than the rote learning of software and hardware associated with 'computer literacy'. The focus is still, however, on the technology itself. Information literacy, on the other hand, is an intellectual framework for recognising the need for, understanding, finding, evaluating, and using information—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 higher education

Developing lifelong learners is central to the mission of higher and other educational institutions, and is increasingly reflected in descriptions of graduate qualities. Information literacy extends learning beyond formal classroom settings and supports individuals in self directed learning in all arenas of life.

By ensuring that individuals can think critically, and by helping them construct a framework for learning how to learn, educational institutions provide the foundation for continued growth throughout their careers, as well as in their roles as informed citizens and members of communities.

Information resources are increasingly available online. Flexible delivery, online or print based, requires the development of the information literacy of the learner.

Incorporating information literacy across curricula, and in all programs and services, requires the collaborative efforts of academics, staff developers, learning advisers, librarians and administrators.

- Through course materials, lectures and by leading face to face or online discussions, academics establish the context for learning. They also inspire students to explore the unknown, offer guidance on how best to fulfil information needs, and monitor student progress.
- Librarians coordinate the evaluation and selection of intellectual resources for programs and services; organise, and maintain collections and points of access to information; and provide advice and coaching to students and academic staff who seek information.
- Learning advisers develop generic and course specific materials to support student learning and provide a range of services related to transition to university, and academic literacy—reading, writing, listening and speaking in a university setting, time and task management, and learning in an online environment.
- Administrators and staff developers facilitate opportunities for collaboration and staff development among academics, learning advisers, librarians, and other professionals who provide students with opportunities to develop their information literacy according to their developmental level, mode of study and information needs.

Information literacy and pedagogy

The 1994 Australian National Board of Employment, Education and Training report *Developing lifelong learners through undergraduate education* notes that 'learning to learn' is a major concern of 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.⁵

Information literacy development multiplies the opportunities for self directed learning, as students become engaged in using a wide variety of information sources to expand their knowledge, ask informed questions, and sharpen their critical thinking for still further self directed learning. Achieving information literacy fluency requires an understanding that such development is not extraneous to the curriculum but is woven into its content, structure, and sequence. Information literacy is a validated construct⁶ which can be incorporated in the instructional design of programs. This curricular integration also affords many possibilities for furthering the influence and impact of student centred teaching methods such as problem based learning, evidence based

learning, and inquiry learning. Guided by academics and others in problem based approaches, students reason about course content at a deeper level than is possible through the exclusive use of lectures, textbooks and collections of readings. To take fullest advantage of problem based learning, students must often use thinking skills requiring them to become effective users of information sources in many locations and formats, thereby increasing their responsibility for their own learning.

Students have many information options available to obtain the information they seek for their research. One is an information retrieval system, such as may be found in a library or online databases from any location. Another option is to select an investigative method for observing phenomena directly. In many professions, practitioners depend upon physical examination to gain information about particular phenomena. Practitioners may also utilise technologies such as statistical software or simulators to create artificial conditions in which to observe and analyse the interaction of phenomena. 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.

Use of the standards

These standards provide a framework for embedding information literacy in the design and teaching of educational programs, and for assessing the information literate individual. They extend the information literacy progress of educators, teacher librarians and librarians, in the school and Technological and Further Education sectors. This provides higher education with an opportunity to articulate the standards with those of the other education sectors so that a continuum of expectation can be developed for students at all levels. The standards outline the process by which academics, librarians, and others, pinpoint specific indicators which identify a student as information literate.

Students also will find the standards useful, because they provide a framework for their interaction with information in their environment. This will help to develop their awareness of the need for a metacognitive approach to learning, making them conscious of the explicit actions required for recognition of need, gathering, analysing, and using information. 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

Some disciplines may place greater emphasis on the mastery of specifics of the standards at certain points in the process. Certain specifics would therefore receive greater weight than others in any rubric for curriculum design. Many of

the specifics are likely to be performed recursively, in that the reflective and evaluative aspects included within each standard will require the students to return to an earlier point in the process, revise the information seeking approach, and repeat the steps. The standards are not intended to represent a linear approach to information literacy.

To implement them fully, an institution should first review its mission and educational goals to determine how information literacy would improve learning and enhance the institution's effectiveness. To foster acceptance of the concept, staff development is important for academics and librarians in particular.

Information literacy and assessment

The seven standards describe outcomes and examples for assessing student progress towards becoming information literate. The outcomes serve as guidelines for academics, librarians, and others in developing local methods for measuring student learning within an institution's unique mission. The standards focus upon the needs of students in higher education at all levels. Information literacy manifests itself in the specific understanding of the knowledge creation, scholarly activity, and publication processes found within different disciplines. Academics, instructional designers and librarians should therefore work together to develop assessment instruments and strategies in the context of particular disciplines.

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. For example, both 'higher order' and 'lower order' thinking skills, based on Bloom's *Taxonomy of educational objectives*,⁷ are evident throughout the standards. Assessment methods appropriate to the thinking skills associated with each outcome should be identified as an integral part of the institution's implementation plan.

The following outcomes illustrate 'higher order' and 'lower order' thinking skills

'Lower order' thinking skills

Outcome 2.2.2 Identifies keywords, synonyms, and related terms for the information needed

'Higher order' thinking skills

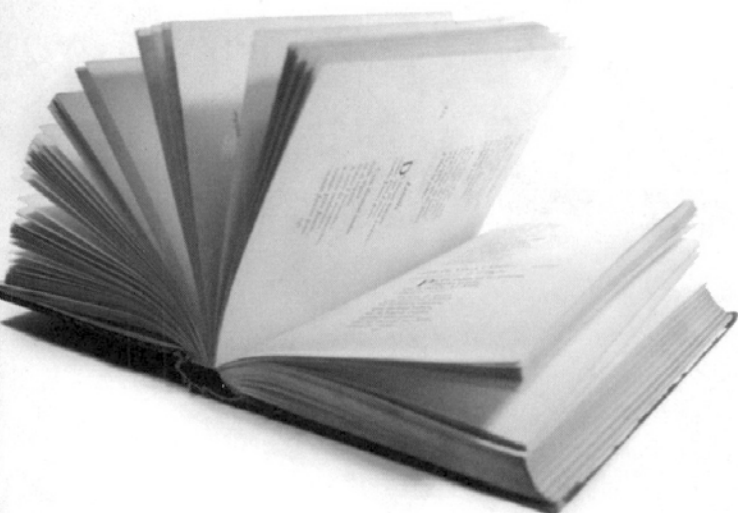
Outcome 5.2.2 Extends initial synthesis, when possible, at a higher level of abstraction to construct new hypotheses that may require additional information

Academics, librarians, and others will find that discussing assessment methods collaboratively is very productive in planning a systematic approach to integrating contextualised information literacy experience into curricula. Assessment strategies should reach all students, pinpoint areas for further development, and consolidate learning goals already achieved. They also should make explicit to the institution's constituencies how information literacy contributes to improved learning outcomes and helps to produce graduates with the capacity for lifelong learning.



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Standards and Outcomes

Standard One

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

Outcomes

1.1 *The information literate person defines and articulates the need for information*

Examples

- 1.1.1 Confers with others, including peers and experts, and participates in face to face and electronic discussions with peers to identify a research topic, or other information need
- 1.1.2 Explores general information sources to increase familiarity with the topic
- 1.1.3 Identifies key concepts and terms by mapping the information need and from that formulates and focuses questions
- 1.1.4 Defines or modifies the information need to achieve a manageable focus
- 1.1.5 Recognises that information can be combined with original thought, experimentation, and/or analysis to produce new information
- 1.1.6 Identifies their existing knowledge framework

1.2 *The information literate person understands the purpose, scope and appropriateness of a variety of information sources*

Examples

- 1.2.1 Understands the formal and informal processes of information production and knows how information is organised and disseminated
- 1.2.2 Recognises that knowledge can be organised into disciplines that influence the way information is produced, organised and accessed within and across disciplines
- 1.2.3 Differentiates between, and values the variety of potential sources of information eg people, agencies, multimedia, database, website, dataset, audiovisual, book
- 1.2.4 Identifies the intended purpose and audience of potential resources eg popular vs scholarly, current vs historical
- 1.2.5 Differentiates between primary and secondary sources, recognising how their use and importance vary with each discipline
- 1.2.6 Realises that information may need to be constructed with raw data from primary sources

1.3 *The information literate person consciously considers the costs and benefits of acquiring the needed information*

Examples

- 1.3.1 Determines the availability of needed information and makes decisions on broadening the information seeking process beyond immediate resources eg using resources at other locations; obtaining images, videos, text, or sound; document delivery
- 1.3.2 Considers the feasibility of learning a new skill(s) to gather needed information and understands its context, possibly beyond a single discipline or knowledge framework
- 1.3.3 Defines a realistic overall plan and timeline to acquire the needed information

1.4 *The information literate person re-evaluates the nature and extent of the information need*

Examples

- 1.4.1 Reviews the initial information need to clarify, revise, or refine the question
- 1.4.2 Uses and can articulate the criteria used to make information decisions and choices

Standard Two

The information literate person accesses needed information effectively and efficiently

Outcomes

2.1 *The information literate person selects the most appropriate investigative methods or information access tools for finding the needed information*

Examples

- 2.1.1 Identifies appropriate investigative methods eg laboratory experiment, simulation, fieldwork
- 2.1.2 Investigates benefits and applicability of various investigative methods
- 2.1.3 Investigates the scope, content, and organisation of information access tools

- 2.1.4 Selects efficient and effective approaches for accessing the information needed for the investigative method or information access tools
- 2.1.5 Consults with information professionals to help identify information access tools

2.2 *The information literate person constructs and implements effectively designed search strategies*

Examples

- 2.2.1 Develops a research plan appropriate to the investigative method
- 2.2.2 Identifies keywords, synonyms and related terms for the information needed
- 2.2.3 Selects appropriate controlled vocabulary or classification specific to the discipline or information access tools
- 2.2.4 Constructs a search strategy using appropriate commands for the information access tool selected eg Boolean operators, truncation, and proximity operators for databases/search engines; internal organisers such as indexes for books
- 2.2.5 Implements the search strategy in various information access tools with appropriate command languages, protocols and search parameters
- 2.2.6 Implements the search using investigative methodology appropriate to the discipline

2.3 *The information literate person retrieves information using a variety of methods*

Examples

- 2.3.1 Uses various information access tools to retrieve information in a variety of formats
- 2.3.2 Uses various classification schemes and other systems eg call number systems or indexes, to locate information resources within a library or to identify specific sites for physical exploration
- 2.3.3 Uses specialised online or in person services to retrieve information needed eg document delivery, professional associations, institutional research offices, community resources, experts and practitioners
- 2.3.4 Uses surveys, letters, interviews, and other forms of inquiry to retrieve primary information

Standard Three

The information literate person evaluates information and its sources critically and incorporates selected information into their knowledge base and value system

Outcomes

3.1 *The information literate person assesses the utility of the information accessed*

Examples

- 3.1.1 Assesses the quantity, quality, and relevance of the search results to determine whether alternative information access tools or investigative methods should be utilised
- 3.1.2 Identifies gaps in the information retrieved and determines if the search strategy should be revised
- 3.1.3 Repeats the search using the revised strategy as necessary

3.2 *The information literate person summarises the main ideas extracted from the information gathered*

Examples

- 3.2.1 Reads the text and selects main ideas
- 3.2.2 Restates textual concepts in own words and selects data accurately
- 3.2.3 Identifies verbatim material that can then be appropriately quoted

3.3 *The information literate person articulates and applies initial criteria for evaluating both the information and its sources*

Examples

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

3.4 The information literate person validates understanding and interpretation of the information through discourse with other individuals, subject area experts, and/or practitioners

Examples

- 3.4.1 Participates in peer group and other discussions
- 3.4.2 Participates in electronic communication forums designed to encourage discourse on the topic eg email, bulletin boards, chat rooms
- 3.4.3 Seeks expert opinion through a variety of mechanisms eg interviews, email, listservs

3.5 The information literate person determines whether the initial query should be revised

Examples

- 3.5.1 Determines if original information need has been satisfied or if additional information is needed
- 3.5.2 Reviews search strategy and incorporates additional concepts as necessary
- 3.5.3 Reviews information access tools used and expands to include others as needed

Standard Four

The information literate person classifies, stores, manipulates and redrafts information collected or generated

Outcomes

4.1 The information literate person extracts, records, and manages the information and its sources

Examples

- 4.1.1 Selects the most appropriate technology for extracting the needed information eg copy/paste software functions, photocopier, scanner, audiovisual equipment, or exploratory instruments
- 4.1.2 Creates a system for organising and managing the information eg card files, *Endnote*
- 4.1.3 Differentiates between the types of sources cited and understands the elements and correct citation style for a wide range of resources
- 4.1.4 Records all pertinent citation information for future reference
- 4.1.5 Manipulates digital text, images, and data transferring them from their original locations and formats to a new context

4.2 *The information literate person preserves the integrity of information resources, equipment, systems and facilities*

Examples

- 4.2.1 Respects the access rights of all users and does not damage information resources
- 4.2.2 References correctly the information resources that have been used
- 4.2.3 Takes precautions against spreading computer viruses

4.3 *The information literate person legally obtains, stores, and disseminates text, data, images, or sounds*

Examples

- 4.3.1 Observes the requirements of moral rights and similar legislation
- 4.3.2 Complies with stated wishes of the owner of intellectual property
- 4.3.3 Understands copyright and privacy laws and respects the intellectual property of others
- 4.3.4 Acquires, publishes and disseminates information in ways which do not breach copyright laws or privacy principles.
- 4.3.5 Understands fair dealing in respect of the acquisition and dissemination of educational and research materials

Standard Five

The information literate person expands, reframes or creates new knowledge by integrating prior knowledge and new understandings individually or as a member of a group

Outcomes

5.1 *The information literate person applies prior and new information to the planning and creation of a particular product*

Examples

- 5.1.1 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
- 5.1.2 Organises the content in a manner that supports the purposes and format of the product eg outlines, drafts, storyboards
- 5.1.3 Articulates knowledge and skills transferred from prior experiences to planning and creating the product
- 5.1.4 Integrates the prior and new information, including words and ideas, in a manner that supports the purposes of the product

5.2 The information literate person synthesises main ideas to construct new concepts

Examples

- 5.2.1 Recognises interrelationships among concepts and combines them into potentially useful primary statements with supporting evidence
- 5.2.2 Extends initial synthesis, when possible, at a higher level of abstraction to construct new hypotheses that may require additional information
- 5.2.3 Utilises information technology applications eg spreadsheets, databases, multimedia, and audiovisual equipment, for studying the interaction of ideas and other phenomena

5.3 The information literate person compares new understandings with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information

Examples

- 5.3.1 Determines whether information satisfies the research or other information need
- 5.3.2 Uses consciously selected criteria to determine whether the information contradicts or verifies information used from other sources
- 5.3.3 Draws conclusions based upon information gathered
- 5.3.4 Tests theories with discipline appropriate techniques eg simulators, experiments
- 5.3.5 Determines probable accuracy by questioning the source of the data, the limitations of the information gathering tools or strategies, and the reasonableness of the conclusions with previous information or knowledge
- 5.3.6 Selects information that provides evidence for the topic

5.4 The information literate person revises the development process for the product

Examples

- 5.4.1 Maintains a record of activities related to the information seeking, evaluating, and communicating process
- 5.4.2 Reflects on past successes, failures and alternative strategies

5.5 The information literate person communicates the product effectively to others

Examples

- 5.5.1 Chooses a communication medium and format that best supports the purposes of the product and the intended audience
- 5.5.2 Uses a range of appropriate information technology applications in creating the product

- 5.5.3 Incorporates principles of design and communication appropriate to the environment
- 5.5.4 Communicates clearly and in a style to support the purposes of the intended audience

Standard Six

The information literate person understands cultural, economic, legal, and social issues surrounding the use of information and accesses and uses information ethically, legally and respectfully

Outcomes

6.1 *The information literate person understands cultural, ethical, legal and socioeconomic issues surrounding information and information technology*

Examples

- 6.1.1 Identifies and can articulate issues related to privacy and security in both the print and electronic environments
- 6.1.2 Identifies and can articulate issues related to free vs fee based access to information
- 6.1.3 Identifies and can discuss issues related to censorship and freedom of speech
- 6.1.4 Demonstrates an understanding of intellectual property, copyright and fair use of copyrighted material
- 6.1.5 Recognises the 'information divide' as a contributing factor to socioeconomic divisions

6.2 *The information literate person follows laws, regulations, institutional policies, and etiquette related to the access and use of information resources*

Examples

- 6.2.1 Obtains, stores, and disseminates text, data, images, or sounds in a legal manner
- 6.2.2 Complies with institutional policies on access to information resources
- 6.2.3 Demonstrates an understanding of what constitutes plagiarism and does not represent work or ideas attributable to others as their own
- 6.2.4 Demonstrates an understanding of institutional policies related to ethical research
- 6.2.5 Participates in electronic discussions following accepted practices eg Netiquette

6.3 *The information literate person acknowledges the use of information sources in communicating the product*

Examples

- 6.3.1 Selects an appropriate citation style and uses it consistently to cite sources used
- 6.3.2 Acknowledges sources in accordance with copyright legislation
- 6.3.3 Understands and respects indigenous and multicultural perspectives of using information

Standard Seven

The information literate person recognises that lifelong learning and participative citizenship requires information literacy

Outcomes

7.1 *The information literate person appreciates that information literacy requires an ongoing involvement with learning and information technologies so that independent lifelong learning is possible*

Examples

- 7.1.1 Uses diverse sources of information to inform decisions
- 7.1.3 Seeks to maintain current awareness in areas of interest and/ or expertise by monitoring information sources
- 7.1.4 Derives satisfaction and personal fulfilment from locating and using information
- 7.1.5 Keeps up to date with information sources, information technologies, information access tools and investigative methods
- 7.1.6 Recognises that the information search process is evolutionary and nonlinear

7.2 *The information literate person determines whether new information has implications for democratic institutions and the individual's value system and takes steps to reconcile differences*

Examples

- 7.2.1 Identifies whether there are differing values that underpin new information or whether information has implications for personal values and beliefs
- 7.2.2 Applies reasoning to determine whether to incorporate or reject viewpoints encountered
- 7.2.3 Maintains an internally coherent set of values informed by knowledge and experience

Information Literacy Competency Standards for Higher Education*

Association of College and Research Libraries

Information Literacy Defined

Information literacy is a set of abilities requiring individuals to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information." ¹ Information literacy also is increasingly important in the contemporary environment of rapid technological change and proliferating information resources. Because of the escalating complexity of this environment, individuals are faced with diverse, abundant information choices--in their academic studies, in the workplace, and in their personal lives. Information is available through libraries, community resources, special interest organizations, media, and the Internet--and increasingly, information comes to individuals in unfiltered formats, raising questions about its authenticity, validity, and reliability. In addition, information is available through multiple media, including graphical, aural, and textual, and these pose new challenges for individuals in evaluating and understanding it. The uncertain quality and expanding quantity of information pose large challenges for society. The sheer abundance of information will not in itself create a more informed citizenry without a complementary cluster of abilities necessary to use information effectively.

Information literacy forms the basis for lifelong learning. It is common to all disciplines, to all learning environments, and to all levels of education. It enables learners to master content and extend their investigations, become more self-directed, and assume greater control over their own learning. An information literate individual is able to:

- Determine the extent of information needed
- Access the needed information effectively and efficiently
- Evaluate information and its sources critically
- Incorporate selected information into one's knowledge base
- Use information effectively to accomplish a specific purpose
- Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally

*Association of College and Research Libraries. (2007). **Information literacy competency standards for higher education**. Retrieved October 31, 2007, from <http://www.ala.org/ala/acrl/acrlstandards/informationliteracycompetency.cfm#stan>

Information Literacy and Information Technology

Information literacy is related to information technology skills, but has broader implications for the individual, the educational system, and for society. Information technology skills enable an individual to use computers, software applications, databases, and other technologies to achieve a wide variety of academic, work-related, and personal goals. Information literate individuals necessarily develop some technology skills.

Information literacy, while showing significant overlap with information technology skills, is a distinct and broader area of competence. Increasingly, information technology skills are interwoven with, and support, information literacy. A 1999 report from the National Research Council promotes the concept of "fluency" with information technology and delineates several distinctions useful in understanding relationships among information literacy, computer literacy, and broader technological competence. The report notes that "computer literacy" is concerned with rote learning of specific hardware and software applications, while "fluency with technology" focuses on understanding the underlying concepts of technology and applying problem-solving and critical thinking to using technology. The report also discusses differences between information technology fluency and information literacy as it is understood in K-12 and higher education. Among these are information literacy's focus on content, communication, analysis, information searching, and evaluation; whereas information technology "fluency" focuses on a deep understanding of technology and graduated, increasingly skilled use of it.²

"Fluency" with information technology may require more intellectual abilities than the rote learning of software and hardware associated with "computer literacy", but the focus is still on the technology itself. Information literacy, on the other hand, is an intellectual framework for understanding, finding, evaluating, and using information--activities which may be accomplished in part by fluency with information technology, in part by sound investigative methods, but most important, through critical discernment and reasoning. Information literacy initiates, sustains, and extends lifelong learning through abilities which may use technologies but are ultimately independent of them.

Information Literacy and Higher Education

Developing lifelong learners is central to the mission of higher education institutions. By ensuring that individuals have the intellectual abilities of reasoning and critical thinking, and by helping them construct a framework for learning how to learn, colleges and universities provide the foundation for continued growth throughout their careers, as well as in their roles as informed citizens and members of communities. Information literacy is a key component of, and contributor to, lifelong learning. Information literacy competency extends

learning beyond formal classroom settings and provides practice with self-directed investigations as individuals move into internships, first professional positions, and increasing responsibilities in all arenas of life. Because information literacy augments students' competency with evaluating, managing, and using information, it is now considered by several regional and discipline-based accreditation associations as a key outcome for college students.³

For students not on traditional campuses, information resources are often available through networks and other channels, and distributed learning technologies permit teaching and learning to occur when the teacher and the student are not in the same place at the same time. The challenge for those promoting information literacy in distance education courses is to develop a comparable range of experiences in learning about information resources as are offered on traditional campuses. Information literacy competencies for distance learning students should be comparable to those for "on campus" students.

Incorporating information literacy across curricula, in all programs and services, and throughout the administrative life of the university, requires the collaborative efforts of faculty, librarians, and administrators. Through lectures and by leading discussions, faculty establish the context for learning. Faculty also inspire students to explore the unknown, offer guidance on how best to fulfill information needs, and monitor students' progress. Academic librarians coordinate the evaluation and selection of intellectual resources for programs and services; organize, and maintain collections and many points of access to information; and provide instruction to students and faculty who seek information. Administrators create opportunities for collaboration and staff development among faculty, librarians, and other professionals who initiate information literacy programs, lead in planning and budgeting for those programs, and provide ongoing resources to sustain them.

Information Literacy and Pedagogy

The Boyer Commission Report, *Reinventing Undergraduate Education*, recommends strategies that require the student to engage actively in "framing of a significant question or set of questions, the research or creative exploration to find answers, and the communications skills to convey the results..."⁴ Courses structured in such a way create student-centered learning environments where inquiry is the norm, problem solving becomes the focus, and thinking critically is part of the process. Such learning environments require information literacy competencies.

Gaining skills in information literacy multiplies the opportunities for students' self-directed learning, as they become engaged in using a wide variety of information sources to expand their knowledge, ask informed questions, and sharpen their critical thinking for still further self-directed learning. Achieving

competency in information literacy requires an understanding that this cluster of abilities is not extraneous to the curriculum but is woven into the curriculum's content, structure, and sequence. This curricular integration also affords many possibilities for furthering the influence and impact of such student-centered teaching methods as problem-based learning, evidence-based learning, and inquiry learning. Guided by faculty and others in problem-based approaches, students reason about course content at a deeper level than is possible through the exclusive use of lectures and textbooks. To take fullest advantage of problem-based learning, students must often use thinking skills requiring them to become skilled users of information sources in many locations and formats, thereby increasing their responsibility for their own learning.

To obtain the information they seek for their investigations, individuals have many options. One is to utilize an information retrieval system, such as may be found in a library or in databases accessible by computer from any location. Another option is to select an appropriate investigative method for observing phenomena directly. For example, physicians, archaeologists, and astronomers frequently depend upon physical examination to detect the presence of particular phenomena. In addition, mathematicians, chemists, and physicists often utilize technologies such as statistical software or simulators to create artificial conditions in which to observe and analyze the interaction of phenomena. As students progress through their undergraduate years and graduate programs, they need to have repeated opportunities for seeking, evaluating, and managing information gathered from multiple sources and discipline-specific research methods.

Use of the Standards

Information Literacy Competency Standards for Higher Education provides a framework for assessing the information literate individual. It also extends the work of the American Association of School Librarians Task Force on Information Literacy Standards, thereby providing higher education an opportunity to articulate its information literacy competencies with those of K-12 so that a continuum of expectations develops for students at all levels. The competencies presented here outline the process by which faculty, librarians and others pinpoint specific indicators that identify a student as information literate.

Students also will find the competencies useful, because they provide students with a framework for gaining control over how they interact with information in their environment. It will help to sensitize them to the need to develop a metacognitive approach to learning, making them conscious of the explicit actions required for gathering, analyzing, and using information. All students are expected to demonstrate all of the competencies described in this

document, but not everyone will demonstrate them to the same level of proficiency or at the same speed.

Furthermore, some disciplines may place greater emphasis on the mastery of competencies at certain points in the process, and therefore certain competencies would receive greater weight than others in any rubric for measurement. Many of the competencies are likely to be performed recursively, in that the reflective and evaluative aspects included within each standard will require the student to return to an earlier point in the process, revise the information-seeking approach, and repeat the same steps.

To implement the standards fully, an institution should first review its mission and educational goals to determine how information literacy would improve learning and enhance the institution's effectiveness. To facilitate acceptance of the concept, faculty and staff development is also crucial.

Information Literacy and Assessment

In the following competencies, there are five standards and twenty-two performance indicators. The standards focus upon the needs of students in higher education at all levels. The standards also list a range of outcomes for assessing student progress toward information literacy. These outcomes serve as guidelines for faculty, librarians, and others in developing local methods for measuring student learning in the context of an institution's unique mission. In addition to assessing all students' basic information literacy skills, faculty and librarians should also work together to develop assessment instruments and strategies in the context of particular disciplines, as information literacy manifests itself in the specific understanding of the knowledge creation, scholarly activity, and publication processes found in those disciplines.

In implementing these standards, institutions need to recognize that different levels of thinking skills are associated with various learning outcomes--and therefore different instruments or methods are essential to assess those outcomes. For example, both "higher order" and "lower order" thinking skills, based on Bloom's Taxonomy of Educational Objectives, are evident throughout the outcomes detailed in this document. It is strongly suggested that assessment methods appropriate to the thinking skills associated with each outcome be identified as an integral part of the institution's implementation plan.

For example, the following outcomes illustrate "higher order" and "lower order" thinking skills:

"LowerOrder" thinking skill:

Outcome 2.2.2. Identifies keywords, synonyms, and related terms for the information needed.

"Higher Order" thinking skill:

Outcome 3.3.2. Extends initial synthesis, when possible, to a higher level of abstraction to construct new hypotheses that may require additional information.

Faculty, librarians, and others will find that discussing assessment methods collaboratively is a very productive exercise in planning a systematic, comprehensive information literacy program. This assessment program should reach all students, pinpoint areas for further program development, and consolidate learning goals already achieved. It also should make explicit to the institution's constituencies how information literacy contributes to producing educated students and citizens.

Notes

1. American Library Association. Presidential Committee on Information Literacy. Final Report.(Chicago: American Library Association, 1989.)
2. National Research Council.Commission on Physical Sciences, Mathematics, and Applications. Committee on Information Technology Literacy, Computer Science and Telecommunications Board. *Being Fluent with Information Technology*. Publication. (Washington, D.C.: National Academy Press, 1999) <http://www.nap.edu/catalog/6482.html>
3. Several key accrediting agencies concerned with information literacy are: The Middle States Commission on Higher Education (MSCHE), the Western Association of Schools and College (WASC), and the Southern Association of Colleges and Schools (SACS).
4. Boyer Commission on Educating Undergraduates in the Research University. *Reinventing Undergraduate Education: A Blueprint for America's Research Universities*.
<http://notes.cc.sunysb.edu/Pres/boyer.nsf/>

Standards Performance Indicators and Outcomes

Standard One

The information literate student determines the nature and extent of the information needed.

Performance Indicators:

1. The information literate student defines and articulates the need for information.

Outcomes Include:

- a. Confers with instructors and participates in class discussions, peer workgroups, and electronic discussions to identify a research topic, or other information need
 - b. Develops a thesis statement and formulates questions based on the information need
 - c. Explores general information sources to increase familiarity with the topic
 - d. Defines or modifies the information need to achieve a manageable focus
 - e. Identifies key concepts and terms that describe the information need
 - f. Recognizes that existing information can be combined with original thought, experimentation, and/or analysis to produce new information
2. The information literate student identifies a variety of types and formats of potential sources for information.

Outcomes Include:

- a. Knows how information is formally and informally produced, organized, and disseminated
- b. Recognizes that knowledge can be organized into disciplines that influence the way information is accessed
- c. Identifies the value and differences of potential resources in a variety of formats (e.g., multimedia, database, website, data set, audio/visual, book)
- d. Identifies the purpose and audience of potential resources (e.g., popular vs. scholarly, current vs. historical)
- e. Differentiates between primary and secondary sources, recognizing how their use and importance vary with each discipline
- f. Realizes that information may need to be constructed with raw data from primary sources

3. The information literate student considers the costs and benefits of acquiring the needed information.

Outcomes Include:

- a. Determines the availability of needed information and makes decisions on broadening the information seeking process beyond local resources (e.g., interlibrary loan; using resources at other locations; obtaining images, videos, text, or sound)
 - b. Considers the feasibility of acquiring a new language or skill (e.g., foreign or discipline-based) in order to gather needed information and to understand its context
 - c. Defines a realistic overall plan and timeline to acquire the needed information
4. The information literate student reevaluates the nature and extent of the information need.

Outcomes Include:

- a. Reviews the initial information need to clarify, revise, or refine the question
- b. Describes criteria used to make information decisions and choices

Standard Two

The information literate student accesses needed information effectively and efficiently.

Performance Indicators:

1. The information literate student selects the most appropriate investigative methods or information retrieval systems for accessing the needed information.

Outcomes Include:

- a. Identifies appropriate investigative methods (e.g., laboratory experiment, simulation, fieldwork)
- b. Investigates benefits and applicability of various investigative methods
- c. Investigates the scope, content, and organization of information retrieval systems
- d. Selects efficient and effective approaches for accessing the information needed from the investigative method or information retrieval system

2. The information literate student constructs and implements effectively-designed search strategies.

Outcomes Include:

- a. Develops a research plan appropriate to the investigative method
 - b. Identifies keywords, synonyms and related terms for the information needed
 - c. Selects controlled vocabulary specific to the discipline or information retrieval source
 - d. Constructs a search strategy using appropriate commands for the information retrieval system selected (e.g., Boolean operators, truncation, and proximity for search engines; internal organizers such as indexes for books)
 - e. Implements the search strategy in various information retrieval systems using different user interfaces and search engines, with different command languages, protocols, and search parameters
 - f. Implements the search using investigative protocols appropriate to the discipline
3. The information literate student retrieves information online or in person using a variety of methods.

Outcomes Include:

- a. Uses various search systems to retrieve information in a variety of formats
 - b. Uses various classification schemes and other systems (e.g., call number systems or indexes) to locate information resources within the library or to identify specific sites for physical exploration
 - c. Uses specialized online or in person services available at the institution to retrieve information needed (e.g., interlibrary loan/document delivery, professional associations, institutional research offices, community resources, experts and practitioners)
 - d. Uses surveys, letters, interviews, and other forms of inquiry to retrieve primary information
4. The information literate student refines the search strategy if necessary.

Outcomes Include:

- a. Assesses the quantity, quality, and relevance of the search results to determine whether alternative information retrieval systems or investigative methods should be utilized
- b. Identifies gaps in the information retrieved and determines if the search strategy should be revised
- c. Repeats the search using the revised strategy as necessary

5. The information literate student extracts, records, and manages the information and its sources.

Outcomes Include:

- a. Selects among various technologies the most appropriate one for the task of extracting the needed information (e.g., copy/paste software functions, photocopier, scanner, audio/visual equipment, or exploratory instruments)
- b. Creates a system for organizing the information
- c. Differentiates between the types of sources cited and understands the elements and correct syntax of a citation for a wide range of resources
- d. Records all pertinent citation information for future reference
- e. Uses various technologies to manage the information selected and organized

Standard Three

The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.

Performance Indicators:

1. The information literate student summarizes the main ideas to be extracted from the information gathered.

Outcomes Include:

- a. Reads the text and selects main ideas
 - b. Restates textual concepts in his/her own words and selects data accurately
 - c. Identifies verbatim material that can be then appropriately quoted
2. The information literate student articulates and applies initial criteria for evaluating both the information and its sources.

Outcomes Include:

- a. Examines and compares information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias
- b. Analyzes the structure and logic of supporting arguments or methods

- c. Recognizes prejudice, deception, or manipulation
 - d. Recognizes the cultural, physical, or other context within which the information was created and understands the impact of context on interpreting the information
3. The information literate student synthesizes main ideas to construct new concepts.

Outcomes Include:

- a. Recognizes interrelationships among concepts and combines them into potentially useful primary statements with supporting evidence
 - b. Extends initial synthesis, when possible, at a higher level of abstraction to construct new hypotheses that may require additional information
 - c. Utilizes computer and other technologies (e.g. spreadsheets, databases, multimedia, and audio or visual equipment) for studying the interaction of ideas and other phenomena
4. The information literate student compares new knowledge with prior knowledge to determine the value added, contradictions, or other unique characteristics of the information.

Outcomes Include:

- a. Determines whether information satisfies the research or other information need
 - b. Uses consciously selected criteria to determine whether the information contradicts or verifies information used from other sources
 - c. Draws conclusions based upon information gathered
 - d. Tests theories with discipline-appropriate techniques (e.g., simulators, experiments)
 - e. Determines probable accuracy by questioning the source of the data, the limitations of the information gathering tools or strategies, and the reasonableness of the conclusions
 - f. Integrates new information with previous information or knowledge
 - g. Selects information that provides evidence for the topic
5. The information literate student determines whether the new knowledge has an impact on the individual's value system and takes steps to reconcile differences.

Outcomes Include:

- a. Investigates differing viewpoints encountered in the literature
- b. Determines whether to incorporate or reject viewpoints encountered
- 6. The information literate student validates understanding and interpretation of the information through discourse with other individuals, subject-area experts, and/or practitioners.

Outcomes Include:

- a. Participates in classroom and other discussions
- b. Participates in class-sponsored electronic communication forums designed to encourage discourse on the topic (e.g., email, bulletin boards, chat rooms)
- c. Seeks expert opinion through a variety of mechanisms (e.g., interviews, email, listservs)
- 7. The information literate student determines whether the initial query should be revised.

Outcomes Include:

- a. Determines if original information need has been satisfied or if additional information is needed
- b. Reviews search strategy and incorporates additional concepts as necessary
- c. Reviews information retrieval sources used and expands to include others as needed

Standard Four

The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.

Performance Indicators:

- 1. The information literate student applies new and prior information to the planning and creation of a particular product or performance.

Outcomes Include:

- a. Organizes the content in a manner that supports the purposes and format of the product or performance (e.g. outlines, drafts, storyboards)
- b. Articulates knowledge and skills transferred from prior experiences to planning and creating the product or performance

- c. Integrates the new and prior information, including quotations and paraphrasings, in a manner that supports the purposes of the product or performance
 - d. Manipulates digital text, images, and data, as needed, transferring them from their original locations and formats to a new context
2. The information literate student revises the development process for the product or performance.

Outcomes Include:

- a. Maintains a journal or log of activities related to the information seeking, evaluating, and communicating process
 - b. Reflects on past successes, failures, and alternative strategies
3. The information literate student communicates the product or performance effectively to others.

Outcomes Include:

- a. Chooses a communication medium and format that best supports the purposes of the product or performance and the intended audience
- b. Uses a range of information technology applications in creating the product or performance
- c. Incorporates principles of design and communication
- d. Communicates clearly and with a style that supports the purposes of the intended audience

Standard Five

The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

Performance Indicators:

1. The information literate student understands many of the ethical, legal and socio-economic issues surrounding information and information technology.

Outcomes Include:

- a. Identifies and discusses issues related to privacy and security in both the print and electronic environments

- b. Identifies and discusses issues related to free vs. fee-based access to information
 - c. Identifies and discusses issues related to censorship and freedom of speech
 - d. Demonstrates an understanding of intellectual property, copyright, and fair use of copyrighted material
2. The information literate student follows laws, regulations, institutional policies, and etiquette related to the access and use of information resources.

Outcomes Include:

- a. Participates in electronic discussions following accepted practices (e.g. "Netiquette")
 - b. Uses approved passwords and other forms of ID for access to information resources
 - c. Complies with institutional policies on access to information resources
 - d. Preserves the integrity of information resources, equipment, systems and facilities
 - e. Legally obtains, stores, and disseminates text, data, images, or sounds
 - f. Demonstrates an understanding of what constitutes plagiarism and does not represent work attributable to others as his/her own
 - g. Demonstrates an understanding of institutional policies related to human subjects research
3. The information literate student acknowledges the use of information sources in communicating the product or performance.

Outcomes Include:

- a. Selects an appropriate documentation style and uses it consistently to cite sources
- b. Posts permission granted notices, as needed, for copyrighted material

Appendix I: Selected Information Literacy Initiatives

- 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 recognize when information is needed and to locate, evaluate and use effectively the needed information.

- In 1990, the National Forum on Information Literacy (NFIL) was founded as a response to the recommendations of the ALA Presidential Committee *Final Report*. NFIL is a "coalition of over 75 education, business, and governmental organizations working to promote international and national awareness of the need for information literacy and encouraging activities leading to its acquisition." Forum members promote information literacy nationally, internationally, and within their own programs.

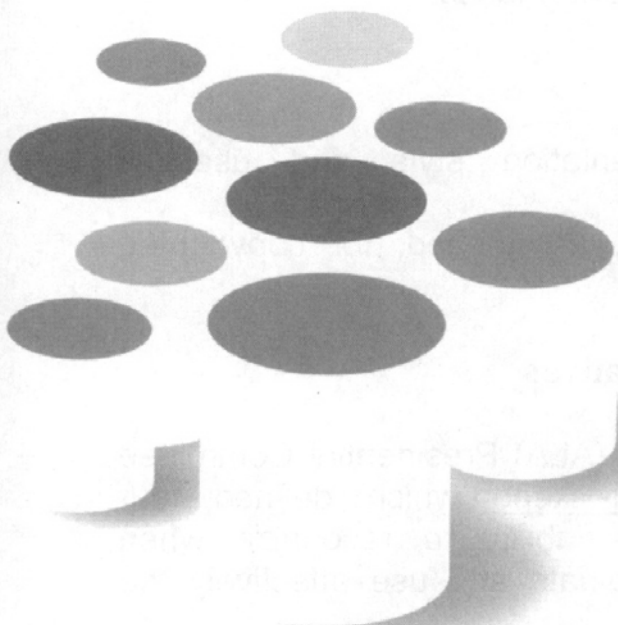
<http://www.infolit.org/index.html>

- In March 1998 NFIL issued, *A Progress Report on Information Literacy: An Update on the American Library Association Presidential Committee on Information Literacy: Final Report*.

<http://www.infolit.org/documents/progress.html>

- In 1998 the American Association of School Libraries (AASL) and the Association of Educational Communications and Technology (AECT) published *Information Literacy Standards for Student Learning*. The AASL/AECT standards detail competencies for students in K-12.
- Since 1989, in the absence of national standards, many states, school districts, state university systems, and local institutions have developed information literacy competency standards.

<http://www.fiu.edu/~library/ili/iliweb.html>



Australian and New Zealand Information Literacy Framework *

Australian and New Zealand Institute for Information Literacy

Overview

Provenance

The 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.

* Australian and New Zealand Institute for Information Literacy. (2004).

The Australian and New Zealand information literacy framework. South Australia:
University of South Australia Library.

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 Australians⁴

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 Association⁹ describes information literacy as 'synonymous with knowing how to learn'. Further, the American Library Association¹⁰ 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

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 information¹¹

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

The most effective of these components is the embedding of information literacy throughout the curriculum. As Bruce¹⁶ 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

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.

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 principles. 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

Examples for Standard One

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

Examples for Standard Two

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

Examples for Standard Four

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

Examples for Standard Five

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

Examples for Standard Six

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



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ภาคที่ 3

บทคัดย่อรายงานวิจัย/วิทยานิพนธ์



พฤติกรรมการใช้สารสนเทศของนักศึกษาระดับบัณฑิตศึกษา

มหาวิทยาลัยรามคำแหง *

จันทร์พิษย สิงหนุต

บทความนี้มีจุดมุ่งหมายเพื่อศึกษาพฤติกรรม ปัญหา อุปสรรคการใช้สารสนเทศ และเปรียบเทียบพฤติกรรมการใช้สารสนเทศด้าน สถานภาพการมาเรียน เพศ อายุ และคณะของนักศึกษาระดับบัณฑิตศึกษามหาวิทยาลัยรามคำแหงเพื่อใช้เป็นแนวทางในการปรับปรุงการดำเนินการจัดทรัพยากรสารสนเทศของ สำนักหอสมุดกลางห้องสมุดคณะ และศูนย์สารสนเทศภายในมหาวิทยาลัยรามคำแหง และสามารถตอบสนองการใช้สารสนเทศของนักศึกษาระดับบัณฑิตศึกษาให้มีประสิทธิภาพมากยิ่งขึ้น

ความเป็นมาและความสำคัญของปัญหา

สารสนเทศนับเป็นปัจจัยที่มีความสำคัญของสังคมปัจจุบันในการกำหนดแนวทาง การพัฒนา เศรษฐกิจ สังคม และวัฒนธรรม และยังมีความสำคัญต่อการพัฒนาทรัพยากรบุคคลทุกระดับที่สามารถกระจายและใช้สารสนเทศ ดังที่เรียกกันว่าสังคมสารสนเทศ (information society) ซึ่งแสดงถึงความเจริญก้าวหน้าทั้งทางด้านอุตสาหกรรม เทคโนโลยี และยังก่อให้เกิดการพัฒนาประเทศ ทำให้บุคลากรได้รับการเสริมสร้างความรู้และนำไปใช้ประโยชน์ในการดำรงชีวิตประจำวัน การทำงาน การแก้ปัญหา การตัดสินใจได้อย่างรอบคอบและในเรื่องของการศึกษาโดยเฉพาะอย่างยิ่งการศึกษาในระดับมหาวิทยาลัย หรือสถาบันอุดมศึกษา เพราะปัจจุบันมหาวิทยาลัยสนับสนุนส่งเสริมและแนะแนวทางให้นักศึกษาได้ค้นคว้าหาความรู้เพิ่มเติมด้วยตนเอง ซึ่งสารสนเทศที่มีไว้ให้ศึกษา ค้นคว้ามีรูปแบบแตกต่างกันไปตามพฤติกรรมการใช้ เช่น สิ่งพิมพ์ วัสดุย่อส่วน โสตทัศนวัสดุ สื่ออิเล็กทรอนิกส์ ฐานข้อมูลสำเร็จรูป หรือข้อมูลที่ได้มีการพัฒนาขึ้นเอง ทั้งนี้ จะต้องขึ้นอยู่กับปัจจัยประกอบอื่นด้วย เช่น ทรัพยากรสารสนเทศที่มีความพร้อม อุปกรณ์ที่ใช้ประกอบใน การให้ความรู้ และตัวของนักศึกษาเอง ฯลฯ การตอบสนองการใช้สารสนเทศตามหลักสูตรการเรียนการสอน ด้านการศึกษา วิจัยของนักศึกษา อาจารย์ บุคลากรของสถาบัน ตลอดจนบุคคลทั่วไป ซึ่งมีความแตกต่างกันไปตามพฤติกรรมการใช้สารสนเทศ เพราะถ้าไม่รู้ไม่เข้าใจรูปแบบของสารสนเทศ วิธีการแสวงหาสารสนเทศและแหล่ง

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สารสนเทศต่างๆ เช่น ห้องสมุด ศูนย์สารสนเทศหรือสื่อต่างๆ ก็ไม่สามารถจัดสารสนเทศให้มีประสิทธิภาพได้ ดังนั้นในการจัดทรัพยากรสารสนเทศให้เหมาะสมกับการใช้ของผู้ใช้จะต้องคำนึงถึงตัวผู้ใช่ว่ามีพฤติกรรมการใช้อย่างไร แหล่งสารสนเทศที่ยอมรับในสถาบันก็คือห้องสมุด ซึ่งนับเป็นหน่วยงานที่มีความสำคัญของมหาวิทยาลัย และถือว่าเป็นกลไกที่จำเป็นอย่างยิ่งเพราะมีหน้าที่ให้การสนับสนุนภารกิจของมหาวิทยาลัยในการเปิดหลักสูตรการเรียนการสอนสาขาวิชาต่างๆ ที่หลากหลายมากขึ้น หน้าที่โดยตรงของห้องสมุดนอกจากจะเป็นศูนย์กลางในการศึกษารวบรวมสรรพวิทยาการต่างๆ และเป็นแหล่งจัดเก็บทรัพยากรสารสนเทศที่มีอยู่เป็นจำนวนมากมามหาศาลในรูปแบบต่างๆ แล้วยังเป็นหัวใจสำคัญด้านการทำงานของสถาบันอีกด้วย ดังนั้นห้องสมุดจึงต้องพัฒนาการทำงานทุกด้านโดยการจัดเก็บข้อมูลให้เกิดความสะดวก รวดเร็ว ถูกต้อง และไม่เกิดความล่าช้าในการให้บริการเพื่อตอบสนองความต้องการของผู้ใช้และอำนวยความสะดวกต่อการเรียนการสอน การศึกษาค้นคว้า การวิจัยให้เหมาะสมกับสภาพปัจจุบันและสอดคล้องกับเทคโนโลยีสมัยใหม่ที่ปรับเปลี่ยนมาใช้ระบบห้องสมุดอัตโนมัติ ปัจจุบันห้องสมุดมหาวิทยาลัยต่างก็มุ่งพัฒนาเข้าสู่การดำเนินการประกันคุณภาพห้องสมุดให้เป็นไปตามนโยบายของทบวงมหาวิทยาลัยที่จะยกระดับคุณภาพการศึกษาให้สามารถแข่งขันกับนานาประเทศได้ และยังเป็นการสร้างเชื่อมั่นให้กับผู้ใช้บริการสารสนเทศด้านความสะดวก รวดเร็ว และตรงตามความต้องการได้อย่างมีประสิทธิภาพและประสิทธิผลเพื่อให้เกิดมาตรฐานในการปฏิบัติงานที่ดีขึ้นในอนาคต

วิธีดำเนินการวิจัย

การศึกษาเรื่องพฤติกรรมการใช้สารสนเทศของนักศึกษาระดับบัณฑิตศึกษามหาวิทยาลัยรามคำแหง ได้ศึกษาจากกลุ่มตัวอย่าง คือ นักศึกษาระดับปริญญาโทของมหาวิทยาลัยรามคำแหง ที่ลงทะเบียนเรียนภาคเรียนที่ 1 ปีการศึกษา 2544 จากจำนวน 4,075 คน จำแนกเป็น คณะนิติศาสตร์ 588 คน คณะบริหารธุรกิจ 926 คน คณะมนุษยศาสตร์ 340 คน คณะศึกษาศาสตร์ 1,244 คน คณะวิทยาศาสตร์ 250 คน คณะรัฐศาสตร์ 487 คน และคณะเศรษฐศาสตร์ 240 คน ตัวแปรที่ใช้ในการวิจัยประกอบไปด้วยตัวแปรอิสระคือ เพศ อายุ สถานภาพการมาเรียนและคณะที่ศึกษา ส่วนตัวแปรตาม คือ ประเภทของสารสนเทศ เครื่องมือที่ใช้ค้นหาสารสนเทศ และแหล่งสารสนเทศ

เครื่องมือที่ใช้วิจัยโดยการสำรวจจำนวนนักศึกษาระดับปริญญาโทที่ลงทะเบียนเรียนภาคเรียนที่ 1 ปีการศึกษา 2544 ที่มหาวิทยาลัยรามคำแหง หัวหมาก และสร้างแบบสอบถามโดยแบ่งข้อคำถามออกเป็น 5 ส่วน เมื่อได้รับการแก้ไขปรับปรุงเรียบร้อยแล้วนำไปทำการทดสอบกับนักศึกษาระดับบัณฑิตศึกษา จำนวน 30 คนได้ระดับความเชื่อมั่นที่ .942 หลังจากได้นำแบบสอบถามมาปรับให้