GUIDELINES ON INFORMATION LITERACY FOR LIFELONG LEARNING*

Final draft

By

Jesús Lau
Chair, Information Literacy Section / IFLA
jlau@uv.mx / www.jesuslau.com
Universidad Veracruzana / DGB / USBI VER
www.uv.mx/usbi_ver
Boca del Río, Veracruz, México
Reviewed July 39, 2006

Abstract

The International Guidelines on Information Literacy have been compiled by the Information Literacy Section (InfoLit) of the International Federation of Library Associations and Institutions (IFLA) with the aim of providing a pragmatic framework for those professionals who need or are interested in starting an information literacy program. The guidelines will aid information professionals engaged in educational programs, i.e., basic and higher education, in their efforts to meet their current information needs. However, most of the concepts, principles and procedures can be applied with minimal adaptation to any library setting. Information professionals working in all types of libraries should have as one of their main institutional goals the facilitation of users' efforts to acquire information competencies. Information skills are vital to the success of lifelong learning, employment, and daily interpersonal communication of any citizen, such as when a person needs information about health services for someone in his/her care, or a student requires specific information to complete an assessment.

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Acknowledgments

These guidelines have received public review during the period September, 2004 to March, 2005. The author received comments, suggestions, and complete new paragraphs from different information professionals around the world. Every thought submitted was evaluated according to the objectives of the guidelines, excluding only those that were out of the scope of the guidelines or could not be included because of time limitations. Thanks to these contributions the second draft of the guidelines is a more comprehensive document. It is also a clearer reflection of the international information literacy needs of the library community. The first feedback came from the participants (more than 120), who attended the IFLA Open Discussion Session held in Buenos Aires. A second set of suggestions came from those who contacted me (more than 50) with general suggestions or inquires by email. A third group of enhancements came from those who provided more comprehensive contributions or specific revisions to the guidelines. Their names are included, with special thanks, in the following list ordered according to the estimated input:

- Jesus Cortes (UACJ/Mexico) provided the first revision to the whole draft document

- Forest Woody Horton, Jr. (USA) contributed several new paragraphs related to information literacy and lifelong learning

- Thomas Kirk (USA) provided a detailed revision of the complete document

- Sylvie Chevillotte (France) revised and enhanced Chapter 3

- SCONUL Advisory Committee on Information Literacy (Headed by Liz Hart (United Kingdom) provided an invaluable set of recommendations for all of the sections

- Angela Peragallo and members of Grupo Programa de Educación en Información, Universidad de Antofagasta (Chile) partially revised the document and provided some conceptual contributions

- Geoff Walton (Great Britain) contributed recommendations for all of the sections

- Berenice Mears (Mexico) provided overall suggestions for the document

- Viggo Gabriel Borg Pedersen (Norway) sent comments on evaluation and assessment

- Jayme Spencer, Hildy Benham, and Alison Armstrong (Egypt) offered general comments

- Olle Rimsten (Sweden) provided some general comments on the document

- Christina Tovoté (Sweden) offered general comments on Chapter 4

Introduction

Information competencies are a key factor in lifelong learning. They are the first step in achieving educational goals. The development of such competencies should take place throughout citizens' lives, especially during their educational years, where librarians, as a part of the learning community and, as experts in information management, have or should assume the key role of facilitating information literacy. Through the creation, with faculty, of curriculum-integrated programs, librarians should actively contribute to the students' learning processes in their search to enhance or develop the skills, knowledge and values needed to become lifelong learners.

These guidelines are a conceptual template to guide the creation of information literacy (IL) programs in academic and school libraries, although most of the principles can also be applied to public libraries. The document provides information to frame the IL efforts of educators, librarians and information facilitators at the international level, particularly in nations where IL is in the early stages of development. It is also of value to anyone who may need to start an IL program and would like a general conceptual framework, regardless of their geographical location.

<u>Funding.</u> The initial funding of the International Literacy Guidelines Project was provided by IFLA, the parent organization of the Information Literacy Section. Complementary funding was provided by the Universidad Veracruzana, and from the author responsible for the IL compilation project. The final step of translating and promoting these guidelines was completed with the generous funding of the United Nations Educational, Scientific and Cultural Organization (UNESCO).

<u>Compilation.</u> The principles, procedures, recommendations, and concepts listed in the document are a compilation from different international documents related to information literacy. Most of the content is based on published experiences generated by national library associations, as follows: the extensive work of the Association of College and Research Libraries (ACRL), the seminal and early contributions of the American Association of School Libraries (AASL), the work done by the Big Blue project, the information skills problem-solving models of the Big Six expounded by Eisenberg and Berkowitz (1997), all from the United States, the contribution of the Society of College, National, and University Libraries (SCONUL) from the United Kingdom, the Australian and New Zealand Institute for Information Literacy and the contributions of the Mexican Information Literacy Forum.

<u>Use of the guidelines.</u> These Information Literacy Guidelines can be reviewed, changed or adapted by librarians according to their institutional needs so that IL elements can be better suited to local or national needs where local budget, policies, procedures, and priorities may be different. The only copyright requirement for any of this document is to cite it. The guidelines serve as a checklist during the planning and implementation of an IL program, or to reinforce previous information literacy work. Information professionals must keep in

mind that they need to do whatever they can with the resources that they may have. It is better to do something than to wait for the crafting of the perfect information literacy program.

Arrangement of guidelines. The document is divided into ten chapters that comprise the organizational spectrum of information literacy work, including a definition of concepts, a proposal for information literacy standards, a section on obtaining institutional commitment, the management of the learning process, including personnel development, educational theories, among other basic topics on how to implement the program, plus a list of key IL terms with their definitions, and a bibliography for further reading. In most cases each topic is briefly introduced, followed by paragraphs with lists of bulleted points and a graphic summarizing the processes involved. The writing style is simple and schematic for easy reading.
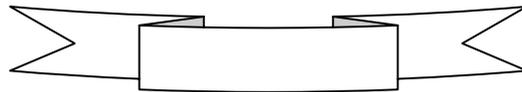
Chapter 1

Information Literacy Concepts

It is important to know the different concepts[1] that are related to information literacy to identify a clear direction for an information literacy program. This section contains a brief definition of relevant terms followed by the key concepts of information literacy[2].

What is information? Information is a resource that has varied definitions according to the format, and media used to package or transfer it, as well as the discipline that defines it. Case (2002) provides a broader definition. Here the term is synonymous with:
- Encapsulated knowledge
- Packaged human experience
- A source that can provide a myriad of data
- A resource that takes different formats, packaging, transfer media, and varied methods of delivery
- People: family, friends, tutors, fellow students
- Institutions, i.e., national health service professionals or help facilities

The need for effective use of information.   Information has become a vital source for world economies and is certainly the basic component of education. Information is a vital element to technological and scientific change. It poses several challenges to individuals of all walks of life: students, workers, and citizens of all types. The current information overload requires people to validate and assess information to verify its reliability. Information by itself does not make people information literate. Information is certainly a:

- A vital element for creativity and innovation
- A basic resource for learning and human thought
- A key resource in creating more knowledgeable citizens
- A factor that enables citizens to achieve better results in their academic lives, with regard to health, and at work
- An important resource for national socio-economic development

What is literacy? The basic definition of literacy is "the condition of being literate" according to the Chambers English Dictionary (2003). This reference work, on the other hand, defines literate as "…learned; able to read and write; having a competence in or with" (p. 1856). In education parlance, "Basic Literacy" means the classic or traditional literacies of learning how to read, to write, and to perform numeric calculations and operations; basic literacies in almost all societies are learned in basic and secondary formal education

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[1] A search with the search engine "Scirus" asking "IL" and "concept" between 1994-2005 gives 1,765 journal results
[2] For more information, read: Bawden *(2001), and* Owusu-Ansah *(2003)*

settings, primarily public or private schools, but sometimes basic literacies are learned at home or in community centers.

Other "Literacy" concepts related to information literacy. Information literacy is linked with other types of related literacies, but it should be differentiated from them, especially from information technology, media literacy, network literacy, digital literacy, network or Internet literacy, "Computer Literacy" and "Media Literacy" (Bawden, 2001). These last two literacies are clearly defined by Horton (F. Horton, Jr., personal communication, December, 2004) in the following terms:

- Computer Literacy. The knowledge and skills necessary to understand information and communication technologies (ICTs), including the hardware, the software, systems, networks (both local area networks and the Internet), and all of the other components of computer and telecommunications systems.

- Media Literacy. The knowledge and skills necessary to understand all of the mediums and formats in which data, information and knowledge are created, stored, communicated, and presented, i.e., print newspapers and journals, magazines, radio, television broadcasts, cable, CD-ROM, DVD, mobile telephones, PDF text formats, and JPEG format for photos and graphics.

The information literacy concept. There are several definitions assumed by associations and authors. The American Association of School Librarians (AASL), a precursor in the IL field, and the Association for Educational Communications and Technologies state that "information literacy is - the ability to find and use information – is the keystone of lifelong learning" (Byerly/Brodie, 1999). Under the component of information literacy, AASL states that: "information literate student accesses information efficiently and effectively, evaluates information critically and competently, and uses information accurately and creatively" (Byerly/Brodie, 1999). Users "should have both information-gathering strategies and the critical thinking skills to select, discard, synthesize, and present information in new ways to solve real-life problems" (Byerly/Brodie, 1999). This information literacy definition extends beyond library skills and beyond the use of discrete skills and strategies to the ability to use complex information from a variety of sources to develop meaning or solve problems (Kuhlthau, as cited in Stripling, 1999).

A generally used definition. Attempts to define "Information Literacy" have been made for several years, mostly by librarians or professionals related to library science, and there are more similarities than dissimilarities in these definitions (Owusu-Ansah, 2003). The most commonly cited and used IL definition is the one adopted by the American Library Association (ALA), 1998: "To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information. The information literate individuals are those who have learned how to learn" (pp. 55-56). They know how to learn because they know how knowledge is organized, know how to find information, and know how to use information in such a way that others can learn from them (Byerly/Brodie, 1999). "Whatever semantics we assume for the IL term, the ALA definition, itself, is broad enough to encompass the entire

spectrum of information skills; from Inuit traditional knowledge to high-tech search engines, and will probably be applicable for many decades" (Campbell, 2004).

Information competencies. A competent citizen, whether a student, a professional or a worker is able to recognize her/his information needs, knows how to locate, identify access, retrieve, evaluate, organize, and use information. To be an information literate person, one has to know how to benefit from the worlds of knowledge, and incorporate the experience of others into one's background. The information literate person is capable, in Mackenzie's words, of:

- "Prospecting:
  The ability to locate relevant information, to sift it, to sort it, and to select it
- Interpreting:
  The ability to translate the data and information into knowledge, insight, and understanding
- Creating new ideas:
  Developing new insights"

Library actions that contribute to information literacy. There are several terms that are part of or contribute to the information literacy (IL) concept. They each have their own semantic content in addition to differences characterized by the type of skills, level, the categories of learning, and instructional facilitating methods. Comprising many different concepts, IL has evolved beyond early library instruction and information skills-focused programs to the current concept of information literacy. While library instruction emphasizes the location of library materials, another IL concept focuses on information strategies, and in yet another concept, IL is used to describe the process of information-seeking and information use competencies. To reiterate, information literacy focuses on information use rather than on bibliographic skills, that is, students must develop information competencies to become effective learners. Some of the IL-related terms are (See Glossary for additional definitions):

- Information fluency – Capability or mastering of information competencies
- User education – Global approach to teach information access to users
- Library instruction – Focuses on library skills
- Bibliographic instruction – User training on information search and retrieval
- Information competencies – Compound skills and goals of information literacy
- Information skills – Focuses on information abilities
- Development of information skills – Process of facilitating information skills

Figure 1. The Concept of Information Literacy
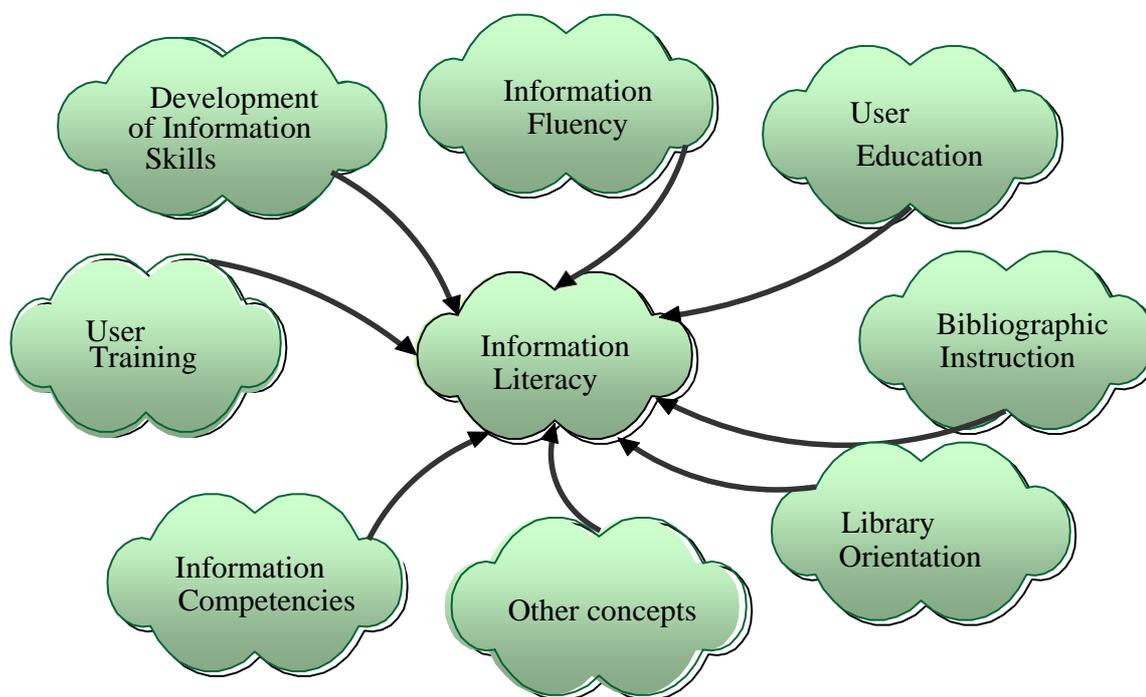
Constructivist approach. The library skills of locating and accessing information are not the same as the higher thinking competencies of knowing how to evaluate, interpret, and use information. Lifelong learning instructional methods and education theories have influenced information literacy instruction. A constructivist approach focuses on students engaging with information to solve a problem and thereby creating new understanding through active investigation and thought, instead of memorizing facts presented in class lectures. Such a pedagogical approach, where information literacy is needed, enables students to become qualified learners. Information literacy is or should be based, on the other hand, on resource-based-learning, information discovery, and inquiry- and problem-based-instruction. The fundamental issue is to attempt to become "pedagogically sophisticated" using a number of appropriate approaches to enable the intended learning outcomes to be realized, enable students to do the assessment and recognize as many learning styles and approaches as is realistically possible (Walton, 2004). This "triangulated" approach is mentioned by Bligh (1998, 5p.)

Translation of the term. The translation of the information literacy term from English into other languages is difficult, so information professionals from different countries should consider which words convey the right meaning to avoid semantic rejection by their learning communities. In Spanish, the IL literal translation is strongly related to the general concept of "Literacy." Teachers and faculty particularly dislike the term information literacy because of the correlation to the "rather" basic skills of reading and writing. The most commonly accepted term is "Desarrollo de habilidades informativas (DHI)" / Development of information skills, a definition that, instead of using a noun, stresses the IL process. A similar semantic challenge also occurs in the French language, and the choice

of a common expression is under process. Most countries use literal translation of literacy, while others choose to stress "competency."

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Chapter 2

Information Literacy and Lifelong Learning

With contributions by
Forest Woody Horton, Jr.

Information literacy and lifelong learning have a strategic, mutually reinforcing relationship with each other that is critical to the success of every individual, organization, institution, and nation-state in the global information society. These two modern paradigms should ideally be harnessed to work symbiotically and synergistically with one another if people and institutions are to successfully survive and compete in the 21st century and beyond.

Inter-relations of the two concepts. Both of these concepts:

- Are largely self-motivated and self-directed. They do not require the mediation of an outside individual, an organization, or a system beyond the individual himself or herself, although advice and assistance from a respected friend such as a mentor or coach can be helpful.
- Are self-empowering. They are aimed at helping individuals of all age groups to help themselves, regardless of their social or economic status, role or place in society, gender, race, religion or ethnic background.
- Are self-actuating. The more information literate an individual becomes, and the longer the individual sustains good information literacy learning and practices those habits, the greater the self-enlightenment that will occur, especially if practiced over an entire lifetime.

Theoretically one could pursue the goal of becoming more information literate but not continuously over one's lifetime. Conversely, one could pursue the goal of lifelong learning but without having first become information literate. Taken alone, neither path maximizes the potential of the individual to "learn to learn."

Information literacy and lifelong learning. Harnessed together, information literacy and lifelong learning substantially improve the:

- Set of personal choices and options opened up for, and offered to, an individual in the context of personal, family and societal matters.
- Quality and utility of education and training in both formal school settings preceding entry into the workforce, and later in informal vocational or on-the-job training settings.
- Prospects of finding and keeping a satisfying job and moving up the career ladder rapidly and with appropriate rewards, and making cost-effective and wise economic and business decisions.

- Participation of the individual effectively in social, cultural and political contexts, both at the local community level and at higher levels, and in identifying and fulfilling professional goals and aspirations.

Information literacy is a "set of skills" that can be learned. That set of skills includes a certain attitude toward learning itself, the use of tools, such as online tutorials, the use of techniques, such as working with groups, and the use of methods, such as a reliance on mentors, coaches and ombudspersons.

In contrast, lifelong learning is a good habit that must be acquired and accompanied by the adoption of a positive frame of mind. The willingness to change and a curiosity or thirst for knowledge are very helpful pre-conditions to lifelong learning.

Figure 2. Information Literacy and Lifelong Learning

Inter-relationships
Self-motivated
Self-directed
Self-empowering
Self-actuating

Both improve
Set of personal choices and options
Quality and utility of education and training
Prospects of finding and keeping a job
Effective participation in social contexts

Differences
Information literacy is a set of skills
Lifelong learning is a good habit
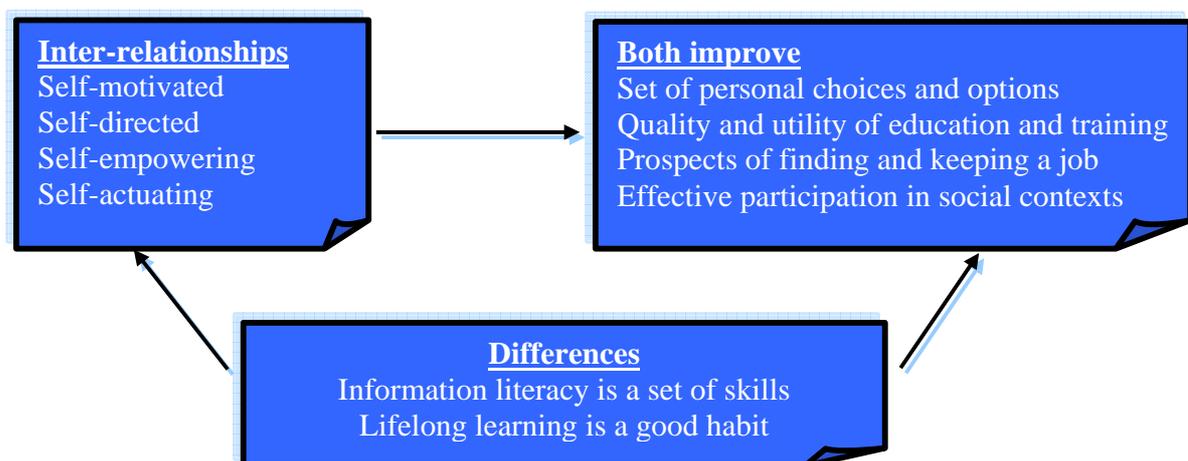
Libraries and librarians as partners in an information literacy/lifelong learning team. This is an IFLA document, and it is clear that IFLA is concerned with libraries and librarians. However, putting an information literacy/lifelong learning program in place cannot be done exclusively by librarians in libraries. This enormous task is the responsibility of all the learning community: teachers, faculty, parents, students and society in general. A team must be formed, and partners identified who can work with the librarian. For example, in the context of school libraries, the partnership team might include one or more teachers, an outside expert, a school counselor and possibly others. In a public library context the partnership team mix would be somewhat different.

Libraries and librarians as information literacy change agents. Information literacy is important beyond the domain of libraries and librarianship. Therefore librarians can serve as change agents to help other domains develop and put their information literacy policies, programs and projects in place. In this context the librarian can serve as an expert

consultant and should not be bashful about offering his/her services in other domains. For example, in a private enterprise context, information literacy/lifelong learning is important to the entire company, not just to librarian*s* and other information professionals. Librarians should play a consultative role to help other departments and units within the enterprise develop their own information literacy programs. The same goes for government agencies at all levels.

<u>Big or small, your library has an IL role</u>. Regardless of its size and resources, the library has the important role as part of an institutional information literacy program, if not the precursor of the IL change. Librarians and other information specialist should be promoters of information literacy programs and activities because their library or information center is a: Remove comma before because

- Repository of knowledge
- Information reservoir in multiple formats
- Center with librarians who are information experts
- Department with learning spaces
- Place for interaction with learning peers and teams
- Space for knowledge socialization
- Place with information advisers / reference specialists and consultants
- Center with computer access, processing and communication of knowledge
- Gateway to the Internet, a world of information

<u>Programs and revised curricula are only one potential product.</u> Information Literacy/Lifelong Learning programs and revised curricula are only one potential product or outcome from this initiative. Equally important are information literacy/lifelong learning:

- Principles
- Policies
- Programs
- Pilot Project
- Models
- Workshops
- Tutorials
- Brainstorming sessions
- Techniques, tools, methods

In short, there is a family of possible products and outcomes that could result from this endeavor that management should prioritize and act upon.

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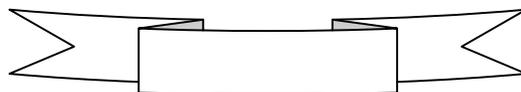
Chapter 3

International Standards

This section includes a proposal for information literacy standards for the IFLA international library community. They are the core component of these guidelines. The standards can be adopted as they are, but, if possible, it would be preferable to adapt them to the local needs of organizations or countries.

Structure of the standards. The information literacy standards for becoming effective learners include three basic components: access, evaluation and use of information. These core goals are found in most of the standards created by library associations, such as the relevant contributions of AASL, ACRL, SCONUL and the Australian and New Zealand Institute for Information Literacy, followed by the work of other countries, like Mexico, and individual educators (Byerly/Brodie, 1999; Kuhlthau, as cited in Stripling, 1999). The IFLA information literacy standards are based on these international experiences and contributions, and are fully described in the bibliography at the end of the document. The IFLA standards are grouped under the three basic IL components.

A. ACCESS. The user accesses information effectively and efficiently

1. Definition and articulation of the information need
Defines or recognizes the need for information
Decides to do something to find the information
Express and defines the information need
Initiates the search process

2. Location of information
Identifies and evaluates potential sources of information
Develops search strategies
Accesses the selected information sources
Selects and retrieves the located information

B. EVALUATION. The user evaluates information critically and competently

1. Assessment of information
Analyzes, examines, and extract*s* information
Generalizes and interprets information
Selects and *synthesizes* information
Evaluates accuracy and relevance of the retrieved information

2. Organization of information
Arranges and categorizes information

Groups and organizes the retrieved information
Determines which is the best and most useful information

C. <u>USE</u>. The user applies/uses information accurately and creatively

<u>1. Use of information</u>
Finds new ways to communicate, present and use information
Applies the retrieved information
Learns or internalizes information as personal knowledge
Presents the information product

<u>2. Communication and ethical use of information</u>
Understands ethical use of information
Respects the legal use of information
Communicates the learning product with acknowledgement of intellectual property
Uses the relevant acknowledgement style standards

Figure 3. Information Competencies

Access　　　　**Evaluation**　　　　**Use**

<u>NEED</u>　　　　<u>ASSESSMENT</u>　　　　<u>INFO USE</u>
Deciding　　　　Analyzing　　　　Applying
Expressing　　　　Generalizing　　　　Learning
Initiating　　　　Evaluating　　　　Using

<u>LOCATION</u>　　　　<u>ORGANIZATION</u>　　　　<u>COMMUNICATING</u>
Searching　　　　Categorizing　　　　Ethical use
Selecting　　　　Structuring　　　　Acknowledging
Retrieving　　　　Organizing　　　　Style standards
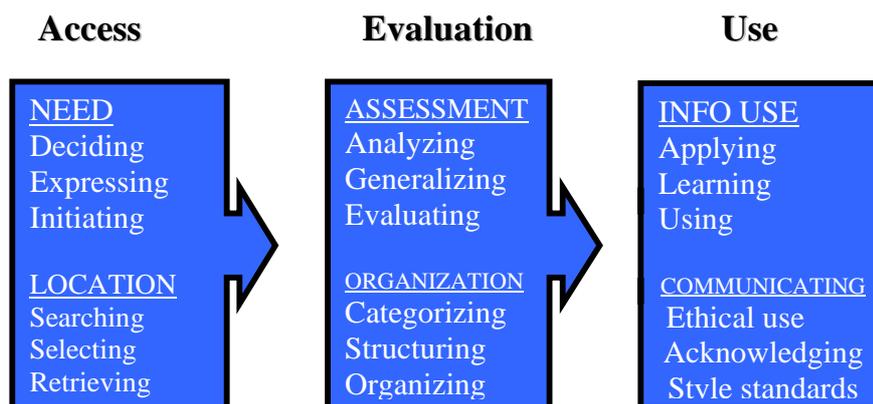
<u>Information literacy</u>. In summary, information literacy is assumed to be the knowledge and skills necessary to correctly identify information needed to perform a specific task or solve a problem, cost-efficiently search for information, organize or reorganize it, interpret and analyze it once it is found and retrieved (e.g. downloaded), evaluate the accuracy and reliability of the information, including ethically acknowledging the sources from whence it was obtained, communicate and present the results of analyzing and interpreting it to others if necessary, and then utilize it for achieving actions and results.

<u>Avoid taking skills and choices for granted.</u> It must be stressed that having an information need does not necessarily translate into the motivation to want to find the information (Case, 2002; Ford, 2004; Wilson, 1999; and Hepworth, 2004). In Walton's terms (personal communication, November, 2004), it is frequently assumed that individuals who locate information are rational human beings who will make the best choice – research indicates that this is not true. Furthermore, with particular reference to students, we should recognize

the power that the reading list has over their choices. In addition, the other routes students use to locate information, such as between students themselves, sharing what they have found or already know, should also be emphasized. In fact, 'constructivist' approaches (particularly in the form of group work) whether face-to-face or virtual, encourage these types of exchanges and should be recognized in these standards.

Finally, information literacy is also sometimes referred to as "critical thinking," or "learning to learn," and has been traditionally taught to students in school libraries and media centers and increasingly is being taught to adults already in the workforce, in both formal educational as well as commercial and continuing education training contexts and settings.

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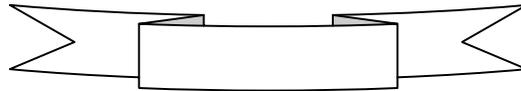
Chapter 4

Institutional Commitment

The complete success of an information literacy program depends on the commitment at the institutional level. However, a commitment is not always present or clear at top management levels. Therefore, information professionals must devote time to create the relevant strategies to convince and sell the benefits of information literacy to institutional leaders to get their support. The basic steps to market an information literacy program, among those recommended by ACRL (2004), and by Byerly and Brodie (1999), are:

General actions.
- Adapt or adopt international information literacy standards and practices
- Identify the information literacy program that works best for you and your institution
- Adopt or design a program based on national and international experiences
- Identify what is required to implement the program
- Regard the information literacy process as non-linear, you may skip steps and change their order
- Work on a strategic plan to chart the course of your goals and actions –See Chapter 5 for specifics
- Involve all relevant parties in the planning process: your library team, faculty/teachers, administrators, and the final decision-maker for the project

Change strategies. Resistance to change is basic to human nature; information professionals should understand the obstacles so that they can overcome them. According to Walton (personal communication, November, 2004), the major problem faced as information professionals is that we are all too often resource-based rather than curriculum-based with a strong emphasis on student-centered learning. In addition, as information professionals we need to sufficiently understand what information literacy- (not necessarily called that by students or tutors) related activities are already taking place between tutors and students. Peterson (1978) has the following recommendations for librarians:

- Changes in methods of instruction are more difficult than changes in curriculum or administration
- When a change requires teachers to abandon an existing instructional practice, it is not likely to succeed
- If retraining is required, success is threatened unless strong incentives are provided
- Efforts to change curriculum by integrating or correlating the content are resisted and are especially at risk
- The cost of change is a significant factor in determining the permanence of the change
- When a change puts a strain on school personnel or requires a substantial investment in learning new facts and procedures, it is not likely to succeed
- Minimal new behavior has more possibility of being accepted

- Librarians need to take a larger share of the work to make things happen until faculty/teachers see the benefits of collaboration
- Collaboration efforts should not be seen as difficult to achieve
- Library collaboration should be viewed by teachers/faculty as essential to their success
- The gains from change should be seen clearly by participants
- Information professionals should be strong advocates for their programs

Share leadership.
- Identify, assign, and share top leadership with the rest of the library team
- Ask to include the information literacy philosophy in the core institutional documents, such as the mission, strategic plan, and relevant policies
- Convince authorities to get the proper financial support for hiring librarians, library staff, building/adopting facilities, training personnel, and developing procedures
- Acknowledge collaboration among your partners, authorities, and different parties involved
- Communicate and promote recognition of the IL support you receive

Institutional culture.
- Analyze the dynamics of politics, personnel, and budget at your institution and its learning communities
- Identify your institution's own organization style of working
- Take the role of building learning partnerships
- Start a collaborative academic scheme with teachers/faculty, other librarians, technology coordinators, administrators, curriculum planners and learning facilitators

Potential challenges.
- Be prepared for obstacles such as limited facilities and scarce or no economic or human resources
- Accept that some administrators may reject or ignore the information literacy benefits
- Know and act upon positive, negative, or lack of interest reactions of teachers/faculty
- Rely on technology to lead your institutional learning collaboration
- Look for support from your lifelong learning community, it may come from students, teachers/faculty, administrators, members from other institutions

Be assertive.
- Recognize that something has to be done and be aware that nothing will be perfect
- Make it a goal to ensure information literacy is incorporated into the curriculum
- Be positive and persuasive about what needs to be done
- Remember, the library should be at the center of information literacy actions

Figure 4. Getting Institutional Commitment

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┌─────────────────────────────┐        ┌─────────────────────────────┐
│  Identify your  IL standards │        │       Share  leadership     │
└─────────────────────────────┘        └─────────────────────────────┘

              ┌─────────────────────────────────────┐
              │           Plan your program          │
              └─────────────────────────────────────┘

              ┌─────────────────────────────────────┐
              │          Become acquainted           │
              │   with  your  institutional  culture │
              └─────────────────────────────────────┘

              ┌─────────────────────────────────────┐
              │       Be prepared for  challenges    │
              └─────────────────────────────────────┘

              ┌─────────────────────────────────────┐
              │        Do whatever you can do        │
              │      *Do not  expect to be perfect*  │
              └─────────────────────────────────────┘
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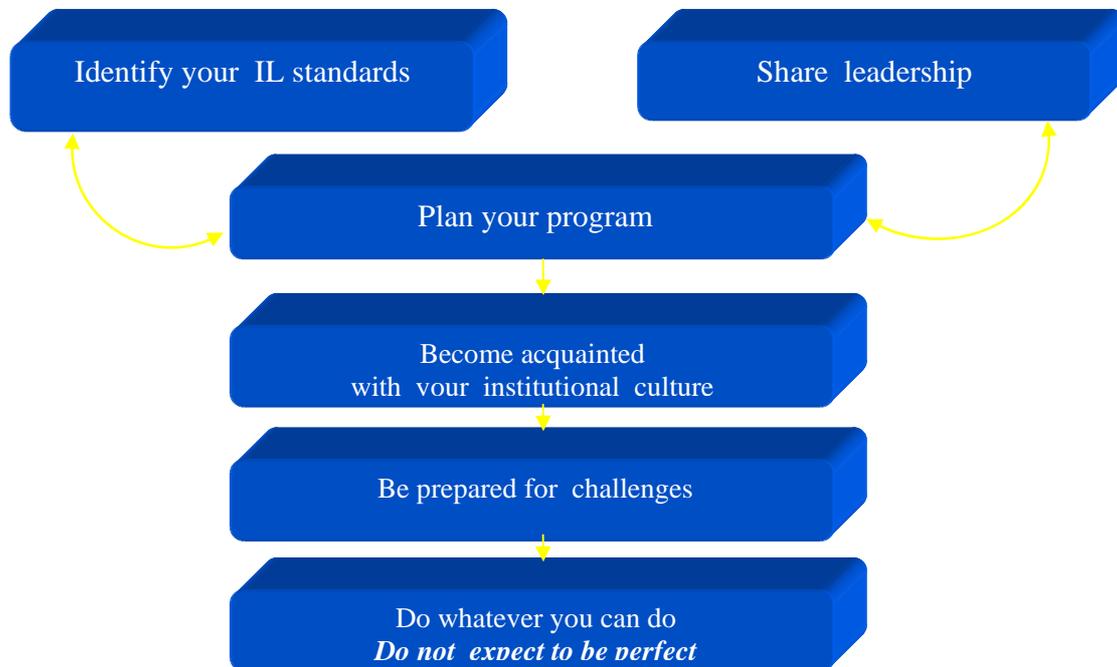
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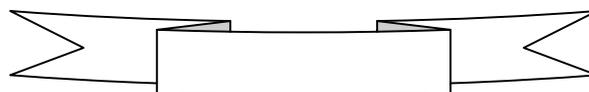
Chapter 5

Action Plan

To create an information literacy program you need to follow a plan with steps that will help you develop clear ideas about what you want to achieve and how you intend to carry out your goals. The methodology for conducting strategic planning exercises varies from person to person and from one institution to another. Find out what the planning standards are in your parent institution. Remember to work with a plan that responds to your planning needs. In other words, you can create a plan just following some simple and essential steps: objectives, goals, justification, requirements, and budget. However, you may need to work on an orthodox or more complete strategic plan, such as the one that is discussed in the following sections. Remember to do whatever planning is relevant to create the appropriate program for your needs.

Planning: An IL first step. A strategic plan is an excellent tool to sell and get support from your learning community and your institutional authorities for your library information literacy goals. The planning steps can be adjusted or adapted from a management textbook depending on the time you have to craft your action. The recommended strategic planning practice is to involve library staff and representatives from the user communities, such as faculty, students and relevant school or university authorities. Ideally, the plan should be created with consensus and input from all the relevant parties. The common elements included in a strategic plan are:

Mission. This should be a paragraph stating the goals and essential roles of the IL plan. Avoid explaining how you plan to accomplish your mission. A mission statement:

- Includes your institutional definition of information literacy
- *C*omplies with a standard or information literacy policies that the library uses
- Relate*s* to the library and institutional missions
- Emphasize*s* the what rather than the how or the why
- State*s* the participation of the different members of the community: librarians, faculty, staff and administration

Vision. The vision should be encapsulated in a statement defining what the program expects to achieve in the future, whether it be short, mid- or long-term planning: 1, 3, or 5 years. The vision should:

- Include expected long-term outcomes of the information literacy program
- Be written in simple and concise language
- Emphasize results rather than how or why to achieve them

Justification. The justification for the program describes the reasons, needs and benefits of creating an information literacy program. The length of this section can be a page or more. It is crucial to convince potential parties to create the IL program. The justification section normally includes:

- Users' information literacy challenges, i.e., what IL do they need to master?
- Qualitative use of information by potential and real users
- Stated benefits of the learning processes for individuals and the institution Statistics to back up your arguments

Figure 5. Strategic Plan

Strengths and weakness
Internal environment

Opportunities and challenges
External environment scan
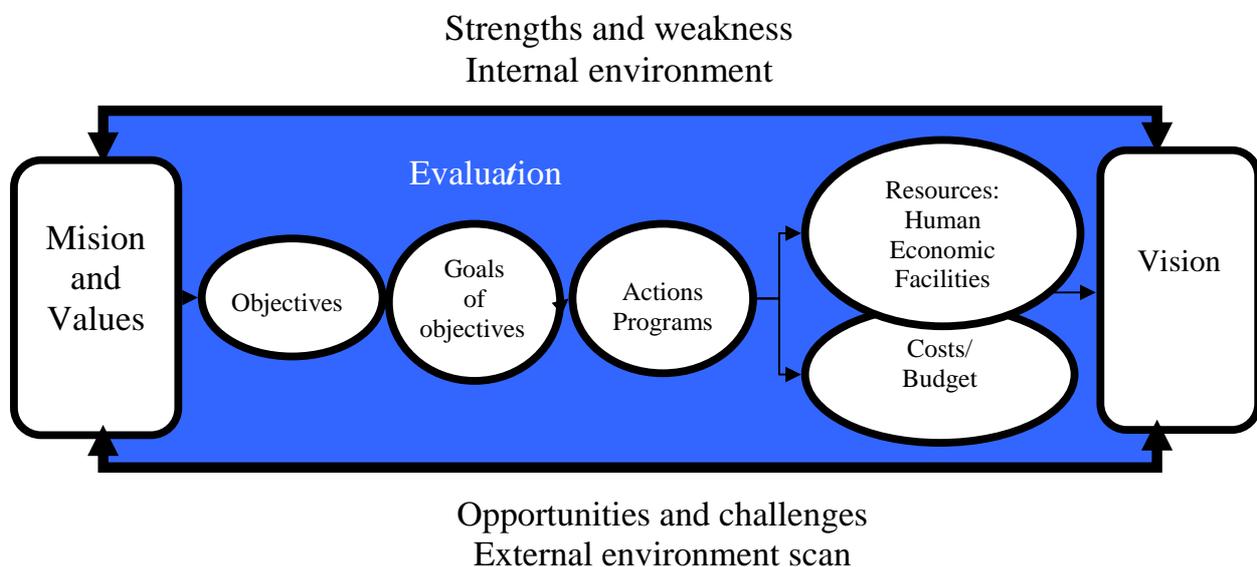
Strengths and weaknesses. In this section briefly analyze the capability of the library to carry out the information literacy plan. You should:

- List all the library's positive factors to ensure the program's success
- Analyze the human, economic and physical resources that are available in the library
- Include the challenges that the library has or may face in IL pursuits on a separate list
- Evaluate your weaknesses in terms of human, economic and physical resources available in the library for the IL program
- Write with positive statements, assuming that problems are opportunities for growth

Environmental scan. Analyze the internal and the external factors that contribute or limit the success of your information literacy plan. The environmental scan should:

- List the institutional factors that can help or limit the program

- Evaluate the external factors to your parent organization that, can contribute or reduce the possibilities of a successful information literacy program
- Be written using positive language

Strategies. Think about the general management approach or principles that you will use to conduct your program. Include:

- Budgetary strategies that you will use to fund the program.
- Descriptions of the efficient and effective strategies that you will apply to achieve the IL plan
- Relevant management principles that you have for the administration of the library

Objectives and goals. Here, describe your general goals. They could be categorized in different ways: an example is grouping them by type of users such as students, faculty and staff, or by disciplines and course grade levels. You can also group objectives by processes such as staff development, creation of IL courses, and infrastructure (adapting/creating an electronic classroom). In this section:

- Each goal could be divided into general and specific goals depending on the details that you may need or want to specify
- Under each objective you should state the goal or goals that you will achieve
- Goals should be specific, on the other hand, keeping in mind and focused on the learning outcomes that you feel should be achieved by all the students, thereby maintaining a student-centered approach.

Actions. These are the main tasks to be completed to achieve each objective. In this section:

- State the different actions required to achieve each goal
- List one action or several, but try to be brief
- Write actions in the order they need to be completed

Resources / Requirements. To achieve your objectives and goals you need to specify the type of resources that you will need under each of your actions. In this section:

- Make a separate list of titles of actions, without any details
- Quantify under each action the number and type of human resources required
- Describe your physical requirements, such as a classroom, office space, furniture, equipment, etc.
- Describe the methodologies, training and management that you need to carry out your actions

Budget. Estimate the cost of each of the resources that you need to perform your actions. In this section:

- Estimate your costs
- Be flexible in estimating costs
- Figures determine how much funding the IL program needs
- Budget information determines the feasibility of the IL objectives and goals

Timetable. Create a table to summarize the deadlines to achieve the goals. This will be a tool for evaluating your IL program's progress. In this section:

- Create a matrix listing objectives subdivided by goals followed by the specific actions necessary to complete each goal
- Create columns for time units (days, weeks, months, years)
- Mark the date cell that corresponds to the expected start and/or finish date for each action
- Different colors could be used to mark beginning and ending dates

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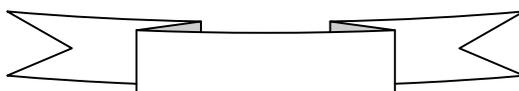
Chapter 6

Learning/Instruction Management

The participation of library professionals in information literacy takes many different forms. The ideal one is to have a program that is part of the curricula because information literacy requires sustained development throughout all formal educational levels, primary, secondary, and tertiary. Achieving information literacy requires students to have had a cumulative experience in most, if not all, subjects in addition to learning experiences. Information literacy should be woven into the content, structure and sequence of the curricula. Information literacy cannot be the product of a single course (Bundy, 2004), therefore institutional collaboration among all learning stakeholders is crucial. Information professionals should consider participating in a teaching course or recognized qualification to be part of the institutional information literacy endeavor.

Starting the program. Students need to experience, reflect and apply information literacy at all levels of their studies. However, this is not always the case, especially at the beginning of the IL program. In some institutions, it may take some time before IL is an integral part of course offerings. Some tips on how to start and run information literacy program/course follow (Bundy, 2004; Stripling, 1999).

General guidelines. There are certain management principles that can be applied to any IL activity, including:

- A clear focus on an IL standard or standards for every IL activity
- Work on standards one by one if you cannot work on all standards at the same time
- Get assistance from faculty if you need to know how to create a course
- Promote your IL activity well—by whatever means you may have
- Work in teams—any activity can be done by more than one information professional
- Appoint a leader for all library IL efforts if possible
- Remember that IL is not the solely domain of the library—you need to collaborate with the different members of your learning community
- Be clear about IL objectives with any type of activity

Information literacy needs differ. Information literacy facilitators should be aware that needs differ from one person to another. Individuals and groups of individuals have very different competencies at the outset, and probably, more importantly, differing motivations regarding fulfilling needs and extending competencies. Students, for example, may appear to be a homogeneous group with similar needs, skills and motivations. However, recent experience (particularly when widening participation is taken into account) contradicts this view of the homogeneous body of students or populations. In teaching and learning terms, these factors are expressed as "presage" factors where individuals come to a learning situation with prior experiences, characteristics and conceptions of learning that, in turn, are affected by developmental factors and social factors as well as learning styles and

approaches. Writers such as Biggs and Moore (1993) suggest that it is imperative that these are taken into account (Walton, personal communication, November, 2004).

Part of regular faculty/school courses. This type of IL facilitation is done as part of a general course conducted by faculty or teachers. It is a good starting point for IL work and provides an opportunity to convince your academic colleagues of   IL benefits. The following are some actions you can take to facilitate this process:

- Meet faculty administrators and share IL benefits with them *(del extra spaces)*
- Meet potential information literacy professors/teacher*s*
- Distribute documents stating the benefits of a faculty-wide IL program to appropriate parties
- Offer your information literacy services to professors/teachers in their course planning
- Prepare IL learning exercises as examples of how to focus the course on information literacy learning
- Make the library the information laboratory
- Prepare a workshop for faculty/teachers where IL concepts and the importance of implementing them in the classroom are discussed

Figure 6. IL Learning Menu

Independent curricular courses

Independent workshops

Extra curricular courses

Courses for faculty/teachers

Other activities:
Demonstrations, lectures, library visits, training sessions
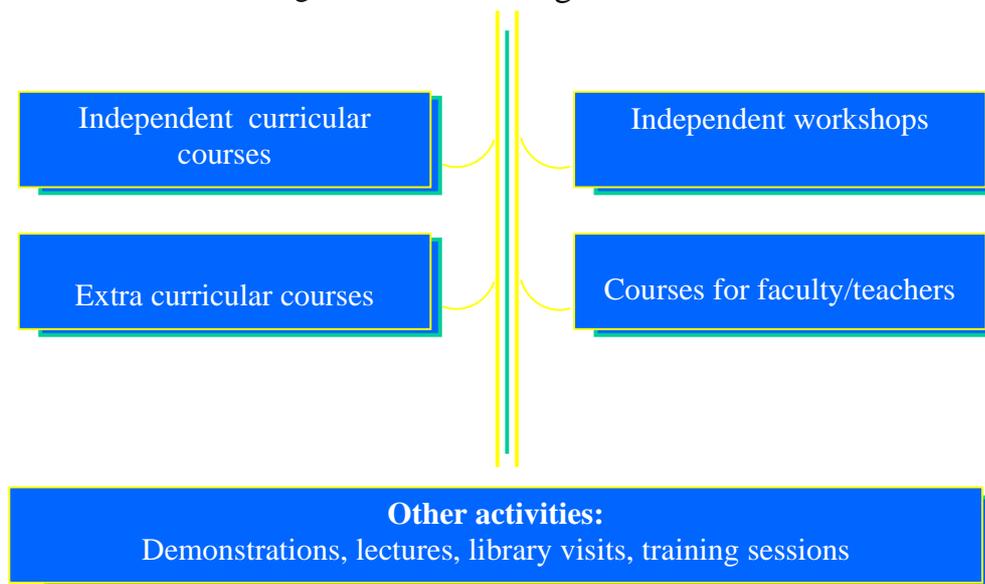
Independent curricular courses. These courses are offered independently and solely devoted to information literacy, but they are part of the students´ curricula. Full responsibility is given to information professionals in the information learning process. If you have the opportunity to plan an independent IL course:

- Plan your course or courses to coincide with the school/faculty design

- Base the course on constructivist pedagogy—incentive is on students to practice concepts
- Make the course interesting and appealing to students according to the subject
- Exercises should focus on something that will benefit students in their regular classes
- When possible, partner with a professor's course, so that your exercises are on the same subject
- Adjust course length according to the available time
- Courses should not be too long—four to ten hours is ideal
- Divide topics and distribute present them in more than one course if necessary

Extra-curricular courses.   An extra curricular course is easier to plan, because it is independent from faculty/school curricula. However, your long-term goal is to have IL courses as part of the curricula. The following are suggestions for extra-curricular courses:

- Follow the format and procedures for any regular school course
- Choose course dates when students may have less academic work
- Students have less time to take this type of course at the beginning and end of terms
- Provide some recognition to those who take the course, such as a certificate
- The library can have its own information certificate program
- Take this independent road only if it is necessary, remember that embedded programs are more successful

Independent short courses. They are the means for training specific IL objectives and for updating skills of the different members of your learning community. Because they need to be linked in a deliberate way to the curriculum, these courses should only be taught as a last resort. Effective learning only takes place when it is contextualized and embedded (the very core of constructivist theory (Walton, personal communication, November, 2004). If you do offer them, a series of short courses can be integrated into a full course. The following steps can be equally applied to embedded as well as independent generic courses/modules:

- Plan information literacy workshops to enhance specific skills
- Workshops should be focused
- Time length should be short and scheduled when students have a study break, i.e., lunch periods or evenings
- Create a program for the whole term with different workshops options
- Workshop facilitation can be shared among other information specialist, if they are available
- Keep the sessions lively
- Name the workshop with catchy words focused on the actual content

Courses for faculty/teachers. They are the key actors for any information literacy program success. Lecturers, professors and teachers need to learn new information competencies, although sometimes, they may not recognize it. Therefore, offer them a diverse and flexible IL training. Keep the following in mind when training educators:

- Faculty/teachers are the most important member of any education institution to convince of IL benefits
- Create a course or courses tailored to the needs of professors/teachers
- With each course you facilitate for this learning community, you will gain IL advocates
- Design a hands-on experiential course where you can facilitate the IL learning that professors/teachers can adapt for use in their classrooms
- Offer the course before or after the term ends
- Make the course part of institutional faculty training program
- Promote the course among those faculty members who are library advocates
- Offer the course at a special time and include a coffee break
- Prepare learning activities that participants can reflect upon, taking into consideration their own teaching needs
- Remember that participants who are faculty members can be more demanding, so prepare you course content and materials well

Other activities. They can include demonstrations, lectures, library visits, and training sessions. A good information literacy program should include a broad menu of regular and complementary IL options to support learning that include:

- Offering faculty/teachers on-request information literacy training sessions
- Creating a menu of options with ready-to-go to teaching sessions
- Providing information about objectives and benefits for participants
- Preparing and distributing handouts for each type of activity
- Providing sessions in classrooms or other venues that may not be as well-suited as the library
- Recognizing academics who offer library IL opportunities
- If your time is limited, reserve dates and times *to* do this IL work

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Chapter 7

Personnel Development

Librarians can best use their time to teach students and faculty how to locate, evaluate, and use information. They should refocus their work to train individuals in information searching and use, rather than on just source location and retrieval. However, the instructional role imposes a challenge: librarians need to train themselves to look for opportunities to learn or enhance their learning facilitation skills.

Need for instructional librarian role (Goldfarb, E. K., as cited in Stripling, 1999). New pedagogical methods used at schools and universities require librarians to play an active part in the learning processes. Therefore librarians ought to:
- Take the new roles as knowledge and instructional facilitators
- Provide essential expertise on a) accessing information, b) selecting information resources, and c) facilitating the use of information in the learning process (Kuhltahu, as cited in Stripling, 1999)
- Learn and teach new information formats (linear and non-linear)
- Facilitate non-traditional or constantly changing points of access as information media and resources evolve

Librarians´ self-growth (Goldfarb, E. K., as cited in Stripling, 1999). Professional growth of librarians depends on self-learning processes and actions. They need to:

- Develop their own information literacy skill
- Develop the ability to facilitate learning and to teach critical thinking and inquiry
- Be responsible for their own learning, and their own technological skills
- Receive constant library training, a crucial form of learning new skills and concepts
- Participate in professional organizations, attend conferences, and purchase technical literature
- Allow adequate time for opportunities to collaborate with peers, have/give ongoing support, and offer/receive task-related curriculum advice

Institutional training. The library needs to provide the proper training according to its means. A program to enhance or develop teaching skills can include the following:

- *C*omprehensive training program for whole library team, including the staff
- The program can be divided into separate sessions for basic, medium and advanced training
- Suggested timeframe for workshops and courses that take place over more than one year

- Include at least four types of courses: pedagogical, technological, self-management, and information-related competencies:
  - o The pedagogical component of the program should include topics on how to create a course, instructional design, assessment and evaluation, class communication, conflict and group management, among other basic teaching skills
  - o The technological training should include courses on office software, course management, web software design, and equipment management
  - o Under self-management, the program must include time management, planning, motivational workshops, and general management
  - o The information-related training should make librarians proficient in the tools and information resources available in the library as well as on the Internet, including search engines, databases, and electronic publications, among other information content available within or outside of the library.

Figure 7. Personnel Development
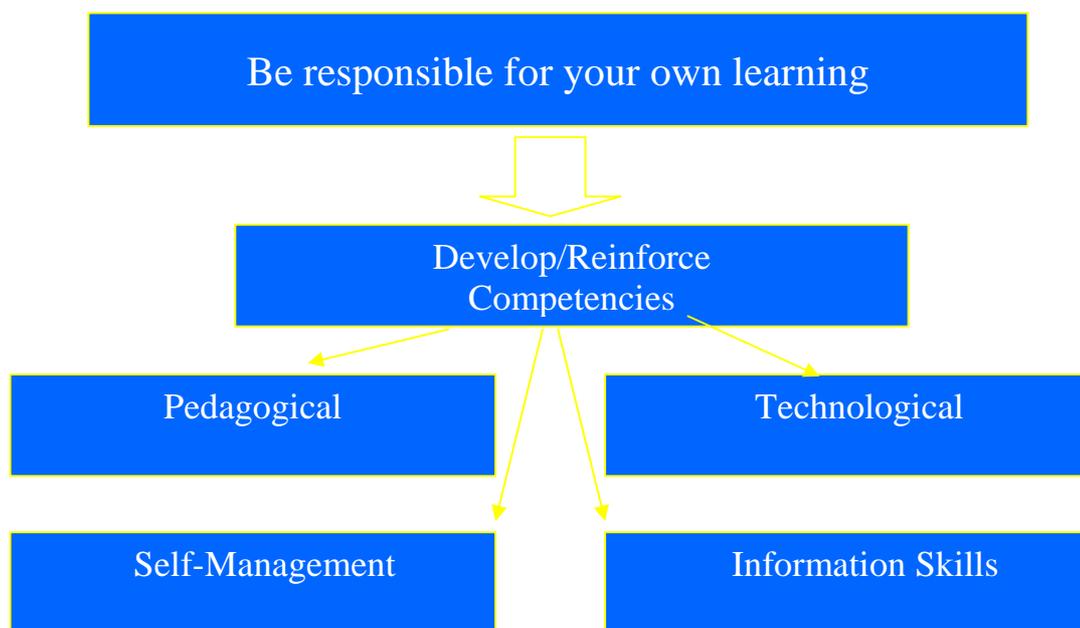
Distance learning and e-learning. The task of facilitating IL to several groups of learners *is* more easily attained when distance and e-learning are used. This could be a solution to the limited number of librarians or information professionals in the library. IL professionals need to master new education and training modalities that employ networks, and especially the Internet, as virtual classrooms, instead of traditional physical classrooms. Librarians can interact with their students online, such that the student may complete his/her research and assignments from home, the office, or anywhere there is access to a computer and telecommunications networks, and similarly the librarian may undertake his/her tutorial work wherever there is access to a computer.

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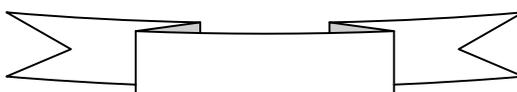
Chapter 8

Learning Theories

Current learning theories are based on cognitive psychology and constructivist education research. Familiarity with these theories is essential if librarians are to develop effective teaching techniques to guide learning (McGregor, as cited in Stripling, 1999). A librarian not only needs to be familiar with the information literacy components to facilitate, but must also demonstrate competence in facilitating knowledge (pedagogy) and be aware of students' individual learning differences.

There are many different theories on learning and within each one there are variations. There is no right or wrong theory, as not all education practices are based on a specific school of thought (Grassian and Kaplowitz, 2001). Librarians need to choose the theory and its variations that is compatible with their teaching style as well as the subject or topic to be taught. Keep in mind that:

- Learning involves change
- This change is fairly permanent
- Learning may involve a change in consciousness (how we think) or behaviour (what we do) or both
- Learning comes about through interaction with elements in our environment, such as, information, events and experiences (including but not limited to teaching and training) (Squires, 1994).

Here is a summary of the main learning theories, learning models and factors that influence learning in individuals and thinking and learning concepts (McGregor, as cited in Stripling, 1999). It needs to be emphasized that they are only a few of the many that exist.

Behaviorist view. Reality is external and absolute. It is measurable, and cause and effect can be determined and standardized; an application example is standardized testing. Some of the main concepts are:

- Conditioning (Pavlov, 2005) – Learning is interpreted according to observable behavior. What people do is what matters rather than what they think.

- Reinforcement (Skinner, 1986) – Stimulus is provided after an act is performed as a way to encourage or discourage repetition of a particular behavior.

- Observation learning (Bandura, 2004) – Learning occurs through watching and then imitating behavior.

Constructivist approach. Reality is something that is socially constructed by individuals who determine their reality based on their unique prior knowledge and experiences. The theory differs from the behaviorist view in assuming that it is possible to examine what is not observable, attempting to understand what happens in the mind when we learn. Current thinking about learning is strongly influenced by constructivist theory and research. Some of the main constructivist education models are:

- Practical problem-solving activity (Dewey, 1967) – Learning can be achieved by reflective thinking to solve problems through analysis of lifelike problems and potential alternative solutions, i.e., teachers acting as guides rather than dispensers of information.

- Cognitive developmental stages (Piaget, 2005) – Children's learning development increases through previous understanding, even though the previous ideas might be inaccurate. He describes the four development stages children must move through. They cannot progress from one stage to the next until certain criteria have been met; recogniz*es* what children can do, rather that what they cannot do.

- Building on prior knowledge (Bruner, 1962) – Learners build on their prior knowledge to reach more advanced levels of understanding. Learning is an active process of discovery and categorization.

Figure 8. Learning Theories
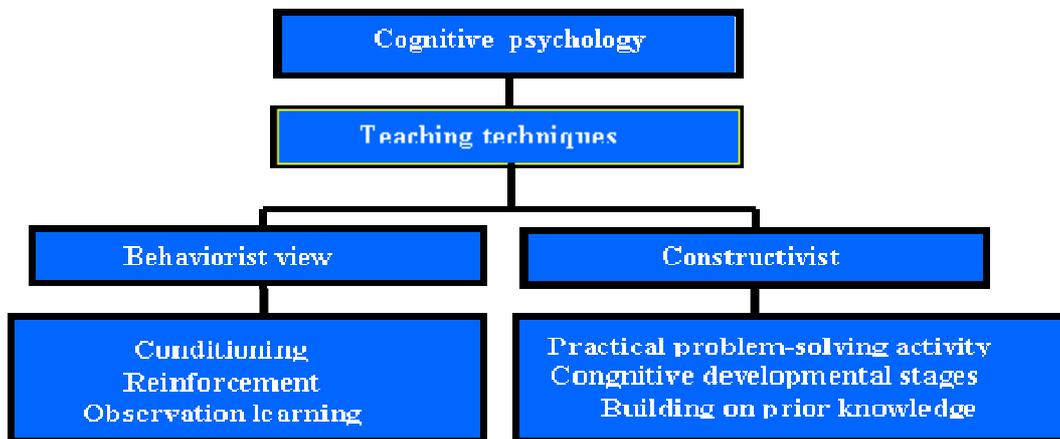
Learning models (McGregor, 1999). In constructivist education models, the pedagogy of both learning and cognitive psychology rely on different learning models that are not necessarily exclusive of one another.

- Inquiry learning (Bruner, 1962). Teachers/faculty provides problems (with open, closed or active answers) for students to solve and the resources with which to solve them.

- Student-centered learning. Students are seen as individuals who should have a say in what they learn. Learning is active and learners are encouraged to be self-directed, taking responsibility for their own learning.

- Cooperative learning (Slavin, 1995) – Interaction among students promotes achievement of learning goals more successfully than learning alone.

- Brain-based learning. This learning style is based on five assumptions: 1) the brain operates by organizing input and making meaning of it. 2) The brain functions by searching patterns. 3) The brain can do more than one thing a time, and it process wholes and parts simultaneously. 4) Emotions play an important role in learning. 5) Each brain is individual and different from every other brain.

- Meaningful learning. Learners are engaged in meaningful, challenging tasks or in solving real-world problems. They construct their own understanding when they are interested in what they are learning, regulating, and controlling, when they set their own learning goals, are aware of and able to choose their own learning strategies, and are able to work with other students. This model involves many of those previous described.

Factors in the learning process (McGregor, 1999). Learning is affected by different factors, including, multiple types of learners' intelligence, learning styles, and motivation.

- Multiple intelligences (Gardner, 1983) – Intelligence is a multifaceted concept and learners simultaneously have multiple ones or ways they analyze their worlds. They are: linguistic, logical-mathematical, spatial, bodily kinesthetic, musical, interpersonal, intrapersonal, and naturalist.

- Learning styles (Gardner, 1983) – A learning style is a general preference whereas intelligence is a capacity for dealing with specific content. Some authors emphasize physical and environmental preferences, cognitive styles, and ways of working. There are various categorizations to assess personality types, sensory preferences (visual, auditory, kinesthetic), environmental preferences and thinking styles.

- Motivation (Wittrock, 2004) – The process of initiating, sustaining, and directing activity strongly influences how people learn. Motivational programs are based on behaviorist theory, i.e., providing extrinsic rewards to encourage students to learn. The drawback is that students tend to focus on the reward rather than on the learning activity itself.

Figure 9. Factors: Learning Process
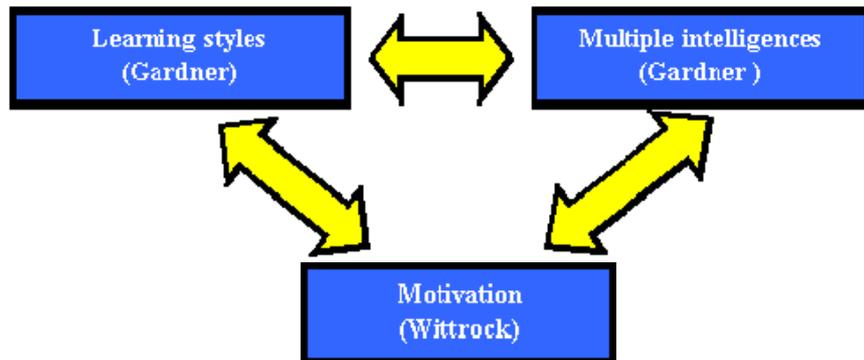
Thinking and learning (McGregor, 1999). The way people think and the kinds of thinking they do is an important element to the process of learning.

- Bloom's Taxonomy (Bloom, 1956) – The taxonomy for classifying learning objectives in the cognitive domain lists thinking skills in a hierarchical order which suggests the skills teachers/faculty should promote. The skills, from the simplest to most complex, are: knowledge, comprehension, application, analysis, synthesis, and evaluation. Knowledge is referred as the simplest meaning unlike the definition in library science.

- Critical thinking (Ennis, 1985) – It is a "reasonable, reflective thinking that is focused on deciding what to believe or do." (pp. 54) Definitions include components of decision making and improvement of thinking.

- Creating thinking (Cave, 1996) – It is the ability to look at things in a different way from the obvious or the traditional. Creative thinking has two components, divergent and convergent thinking. The first is the intellectual ability to think about more than one thing at a time and elaborate ideas, and the second is the ability to evaluate logically, critique and choose the best idea from a selection of ideas.

- Metacognition (Blakey and Spence, 1990) – Thinking about thinking is regarded as metacognition, an important element of both critical and creative thinking. Learners who are aware of what and how they are thinking can improve their thinking. An example of this approach is asking students to reread and analyze thoughts they have recorded in journals.

- Mental models (Glynn, 1997) – Mental models are the framework in constructing new understandings (supports Piaget's and Vygotsky's theories). Learners perceive concepts through mental representations that help them to understand. Mental models stress the importance of prior knowledge, as prior knowledge is held within mental models, and new learning is built on those models.

Tools to promote learning (McGregor, 1999). There are several techniques to encourage learning, including:

Coaching. The guidance (supportive, facilitative) of a student or students through a task or train of thought is a useful technique for teachers/faculty. This is the opposite of directing.

Questioning. A useful tool to access prior knowledge or extend thinking. It is meant to encourage divergent, higher order and critical thinking.

Figure 10. Learning Elements
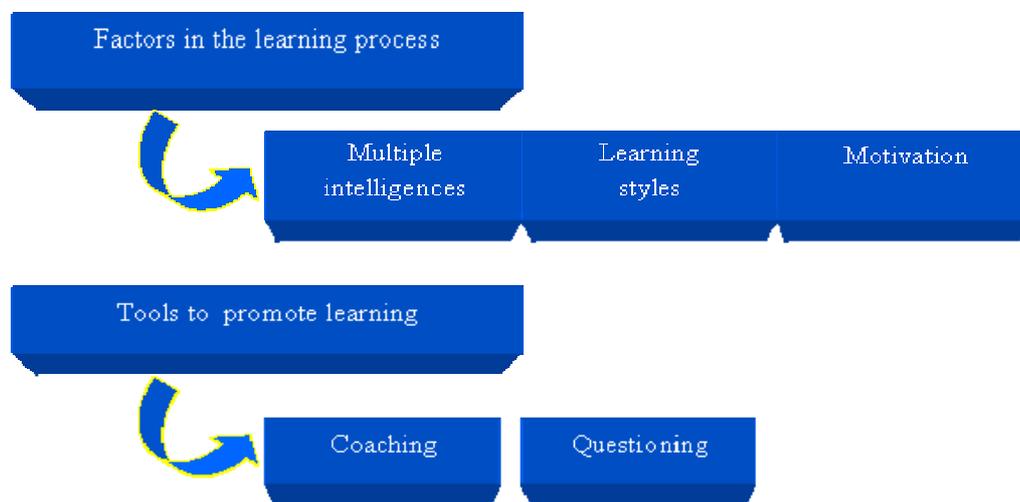
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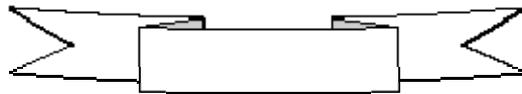
Chapter 9

Learning Assessment

Assessment is the careful judgment from close observation of learners throughout their learning process. It requires the phases of collecting, analyzing, and reporting data through the whole process of information literacy learning (AASL, 1998). Evaluation differs from assessment in the sense that it usually places value on when the student finishes a task. Assessment is a more comprehensive process, because it gathers information on students´ performance during their whole information literacy learning process, as well as when they finish their task. Another important difference between these two terms is that assessment "…is done with the student, while evaluation is done to the student's work. Assessment should engage students in the inquiry and production to communicate and demonstrate what they know" (AASL, 1998, pp. 67). The following aspects include the main factors to take into account when assessing information literacy learning:

Why assess?

- Improve student growth (formative)
- Improve instruction (formative)
- Recognize accomplishment (summative)
- Modify or improve the program (summative)

Importance of assessment

- Students´ achievement is linked to the assessment techniques (Wiggins, 1998)
- Assessment is critical in determining if student learning is occurring (Jones, A. J. and Gardner, C. as cited in Stripling, 1999)
- Find superior ways to evaluate students´ abilities to use academic skills (Baron, 1995)
- Unlock students´ success through assessment (Baron, 1995)
- Performance-based learning and assessment can be implemented at all grade levels and among all disciplines
- Current testing just audits what students do
- Ability to merge assessment and instruction into a single strategy
- There should be] Can conduct ongoing, continuously measuring of student performance throughout the learning cycle (Jones, A. J. & Gardner, C., as cited in Stripling, 1999)
- Information literacy assessment should be integrated into the rest of the curriculum across all levels and all disciplines

Focus on independent learning

- Assessment should be performance-based, so that students are prepared for life not just for school
- By promoting self-assessment techniques, students learn how to evaluate information to solve problems, make decisions and become independent learners
- Enable students to create a set of assessment strategies and criteria to monitor their work (Donnahan, J. and Stein, B. B., as cited in Stripling, 1999)
- Help students in self-reflection
- Assessment should be deliberately designed to improve and educate student performance
- Authentic assessment means measuring student performance based on tasks that are relevant and used in real life (Baron, 1995)
- Design and use assessment focused on the learner's needs

Focus on higher level thinking

- The new information literacy focus is on information searching, evaluating, and utilizing, rather than on source location and retrieval

Information literacy should emphasize higher level thinking processes (applying, synthesizing, and evaluating information), in addition to lower thinking activities (recalling and comprehending information) (Donnahan, J. and Stein, B. B., as cited in Stripling, 1999)

- Teach information processes, such as decision making and problem solving, rather than just knowledge of information, so that students master the ability to learn
- Make information processes explicit in all the assessment techniques
- Assignments and assessments must link process skills with information presentation (Jones, A. J. and Gardner, C., as cited in Stripling, 1999)

Questions of the IL learning facilitator

- What am I trying to assess?
- What have students learned?
- How do participants feel about their own learning?
- Are students really learning?

Questions for the assessment process (Wiggins, 1998)

- Does the assessment measure what it says it measures?
- Is the scoring criteria clear, objective, and explicitly related to the standards?
- Is the scoring system reliable and does it adequately discriminate degrees of work quality?
- Is the task being assessed a challenging one?
- Does the assessment technique offer an appropriate learning challenge for students?
- Does the task being assessed reflect real-world challenges, contexts, and constraints?

<u>Example</u> (Stec, E., 2004). "Select the major assessment criteria and break it into smaller components. These units not only clarify your assessment criteria, they should be the basis of curriculum design. Here is an abbreviated example: What have students learned?

- Can the students incorporate appropriate journal articles into their research papers?
- Can the students locate appropriate journal indexes? In print?
- Can they use computers for electronic searching?
- Can students create a useful search strategy?
- Do they know sufficient words for keyword searches?
- Do they understand controlled vocabulary & use it?
- Do the students employ Boolean search strategies effectively?
- Do students select peer reviewed articles for their research?"(p. 3).

<u>Types of Learning Assessment</u> (Stec, E., 2004). The three types of assessment are:

- Prescriptive or diagnostic. It assesses the knowledge and skill of participants before the instruction is designed. These can take the form of standardized or instructor developed tests, auditions or review of a student's prior work.

- Formative. It provides feedback about student learning while the instruction is ongoing and allows the instructor to adjust teaching methods during a course. For example, requiring students to write a one page 'reaction paper' to a reading assignment, or prepare an annotated bibliography of research materials several weeks before the research paper is completed.

- Summative. A final evaluation of the criteria for assessment occurring at the end of instruction, i.e. multiple choice question, essays given under controlled conditions, or an evaluation of citations used in the student's research paper or a portfolio review. The latter two examples require development of an assessment 'rubric'. Assessment of students' feeling about instruction can take the form of questionnaires or focus groups. These techniques do not evaluate learning and are often mistakenly used for that purpose (p. 3).

Figure 11. Assessment
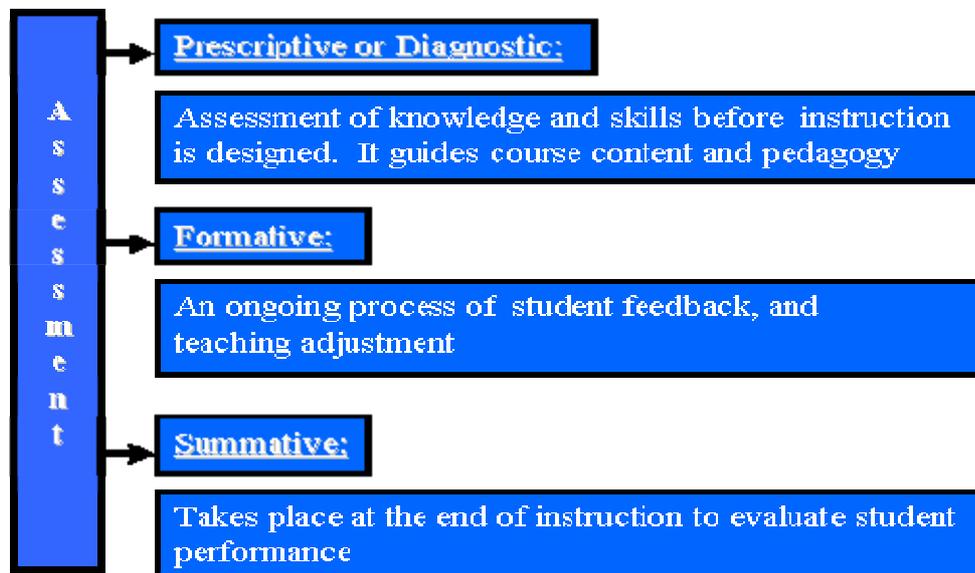
Assessment techniques. There are different assessment methods to support students throughout the information literacy learning process. Here are the primary recommended tools:

- Checklists. These are lists to guide students in the accomplishment of their assignments. They include the different stages, levels or items necessary to complete the assignment. Checklists should be visual task reminders to improve student growth. Checklists should be provided at the beginning of the assignment so that they can be used during the whole learning project or task for self-feedback.

- Rubrics. A rubric is a precisely structured assessment that guides students to achieve a successful performance. It normally includes a graded list of the attributes students ought to perform in their learning tasks. The successful and unacceptable range of performance levels should avoid evaluative language, i.e., judgment labels. Terms should be descriptive of the success outcome the student is to obtain (Donnahan, J. & Stein, B. B., as cited in Stripling, 1999). The rubric can be divided according to the process steps with clear indication of each element to be considered to reach the desired goal.

- Conferencing. A technique that is based on a discussion with the learner, among learners, or among the whole class to orally reflect on the information literacy processes. It can be done at the different stages of the information tasks, as well as at

the end of the process. It uses questions posed by the facilitator inquiring about the process of learning.

- Portfolio. It consists of the accumulation of student work over time and integrated into a final package of IL process products. Portfolios are useful assessment techniques because it gives students the possibility of seeing their learning products become integrated into a final product. They show that students learned (content standards) and/or are able to do (performance standards) (Jones, A. J. & Gardner, C., as cited in Stripling, 1999). They are an excellent way to measure the efficiency of attaining the learning goals, and evaluate the effectiveness of learning strategies, and the clarity of knowledge presentation.

- Reports. These are useful essay exercises as long as they are not cut and paste exercises or a repetition of the information in printed or electronic sources with little synthesis or no evaluation of the retrieved information. Merely producing printed reports defeats the purpose of teaching (Jones, A. J. and Gardner, C., as cited in Stripling, 1999).

- Traditional tests. The list of questions with open or structured answer options is also useful, as long as it does not focus on content of knowledge. Tests can be used when time is limited or when the assessment is specifically focused on a certain aspect of learning.

- Other approaches. An integral evaluation emphasizes the need to triangulate the intended learning outcomes with teaching interventions and assessment into a seamless whole (Bligh, 1998). A similar method is proposed by Biggs, (1999), whose SOLO (Structure of Observed Learning Outcomes) model offers a structure for assessing thinking skills.

Figure 12. Assessment Techniques
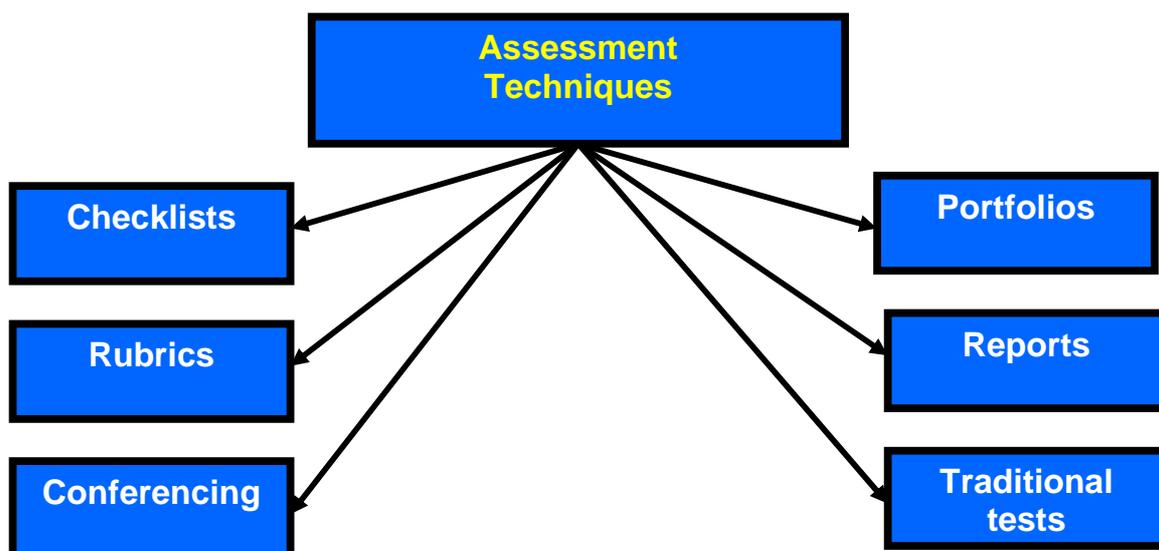
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10. Definitions of Basic Concepts

The concepts included in this list are defined from an operational point of view. They, in general, have more than one semantic connotation that varies depending on the process and place where it is used, that are not included in this glossary. Several concepts are based on definitions created by other authors; when this is the case, the source is quoted. The objective of the vocabulary is to provide a conceptual framework to the study of information literacy.

Academic. A faculty member that is called lecturer, professor, etc. at universities; or "teacher" at middle and elementary schools; the word has the general connotation of teaching-oriented education. A faculty, in the traditional sense, is in charge of the role of providing knowledge in the learning space, centering on his/her own information capability instead on what students can independently do. *Synonyms: professor, educator, lecturer, instructor, academic, teacher.*

Cognitive theory. A group of theories and scientific research primarily derived from Jean Piaget´s theory, which is based on "...the mental processing of information: it's acquisition, organization, codification, review, storage and retrieval from the memory, as well as oblivion (Schunk, 1997)." *Synonyms: cognitive psychology, cognitive science.*

Constructivism. A learning process centered on the student; it uses strategies so that the subject builds his or her own knowledge, using research strategies, case studies, teamwork (or collaborative work), and meaningful learning, among other pedagogical approaches. *Related term: Congnitive science, meaningful learning.*

Development of information skills (DHI): A process facilitated at learning institutions that focuses on the students or faculty, so that they develop their capability to identify, locate, access, retrieve, and use information. *Synonyms: user education, bibliographic instruction, information literacy, user formation.*

Facilitator. A term used in management to denote an individual that democratically supports a group, so that they themselves reach the desired learning objectives. In education, it means the faculty member who works as a manager of the learning process of a group of people or learners, so that they can build their own knowledge. *Synonyms: Learning manager, learning director (similar to a sports team), learning administrator, learning guide.*

Information. It is a perception of a datum or data through the stimulation of one of the human senses. In other words, "an individual acquires information when he is aware of certain data that belongs to an event" (Debons, 1988). This group of relevant data can be acquired by a person when they, obtain, process, organize, transfer, promote and use it to transform themselves in their environment. *Synonyms: data, knowledge.*

Information Competencies. The term "competence" implies a group of skills to identify an information need, as well as retrieving, evaluating, using and reconstructing the knowledge contents of the retrieved information resources. *Synonyms: information skills, information capabilities, information literacy.*

Information Literacy. This term is commonly used in the English speaking world to denominate information competencies that imply the capacity to identify when information is needed, and the competence and skill to locate, evaluate and use information effectively. In Spanish, the meaning of information literacy implies the basic school-skills of reading and writing. Literacy is a term used by ministries of education to call the basic teaching of reading and writing, but not necessarily of learning to learn. The preferred term, therefore, is development of information competencies, at least from the Spanish language point of view. *Synonyms: information skills, bibliographic instruction, user education, information competencies.*

Information Skills. The semantics of this phrase differ from "information competencies" in the sense that "competencies" imply a set of skills, but they could be regarded as synonyms. The *Diccionario de la Real Academia Española* (2005) emphasizes that *competence* is the skill or aptitude to do something; while *ability* is regarded as the capacity and willingness to do something. In other words, information skills could be defined as the capacity to identify an information need and the aptitude to satisfy it. *Synonyms: information competencies, information capacity.*

Learner. This is a term that is becoming popular to name an active student role in the learning process. It can be defined as an individual who participates at a learning-oriented education process, where he or she has the responsibility of constructing knowledge in a flexible environment with or without a facilitator. *Synonyms: learner-actor, student.*

Learning. "The effect of the learning process that is defined as a durable change produced in the behavior or capabilities of an individual, thanks to practice or other forms of experience" (Shuell, 1986). *Synonyms: education, teaching.*

Learning process. Phases required by a learner to build knowledge; it can be done in different educational spaces, such as a classroom, a laboratory, a library or using the internet. *Synonyms: education, instruction, teaching.*

Professor. A synonym of teacher. The word implies a teaching-oriented education. At English education institutions, it means the highest rank that a faculty member can achieve, in other words, to have full academic professional development, especially in research, besides teaching. In México, this term is used to mean university faculty, regardless of the fact that they merely teach and seldom do research. *Synonyms: academic, teacher, facilitator.*

Skill. A developed dexterity to perform an information task. *Synonyms: capacity, competence, aptitude.*

Student. A person involved in the educational process. The meaning implies someone who participates at the teaching oriented educational process, in other words, a passive role. *Synonyms: student, learner, actor learner.*

Student. A common term used in education to call someone who studies at a teaching institution. Current theories emphasize on a superior concept that goes beyond studying, in which the proposed word to call a student is "learner". *Synonyms: student, learner, scholar.*

To learn. "This is the process of acquisition and modification of knowledge skills, strategies, beliefs, attitudes and behavior" (Schunk, 1997). *Synonyms: to study, learning, to think.*

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