Information Literacy Applications in LIS

M.L.I.Sc.

DLSE16 – FIRST SEMESTER

Course material prepared by

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Information Literacy Applications in LIS

Preamble: This course makes possible regarding Fundamental of Information Literacy - Literacy Program - Methodology of Information Literacy - Application of Information Literacy and Trends in Information Literacy

UNIT – I : Fundamental of Information Literacy
Concept, Need and Objectives - Areas of Information Literacy - Standards in Information Literacy - Role of Institution in Information Literacy

UNIT - II : Information Literacy Programmes
Scope of Information Literacy Program - National Program in Information Literacy - International Program in Information Literacy

UNIT – III : Methodology of Information Literacy
Information Literacy Products: Library Brochure, Database Brochure, Web-based Access Instructions, Information Bulletin - Designing of Information Literacy Program - Implementation of Information Literacy Programs

UNIT- IV : Application of Information Literacy in Library and Information Centre's
Information Literacy for Users - Information Literacy for Professionals - Information Literacy for Research and Development

UNIT - V : Trends in Information Literacy
Web based Information Literacy System - OPAC Information Literacy System - Life Long Learning System

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Unit I: Fundamental of Information Literacy

Introduction

Information literacy

It is the set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning.

Information literacy is finding, evaluating, organising, using, and communicating information in various formats, most notably in situations requiring decision-making, problem-solving, or acquiring knowledge. It is a combination of research skills, critical thinking skills, computer technology skills, and communication skills. Information literacy is essential for academic success, effective functioning in the workplace, and participation in society as knowledgeable citizens.

Information is defined as the meaning a human assigns to data utilizing conventions used in their presentation. In other words, information is data that has given shape. It may be considered processed data.

Literacy is “the condition of being literate”. The Govt. of India measured literacy as the ability to read 40 words per minute, write 20 words per minute and do two digits arithmetic. It comprises other skills needed for an individual’s full autonomy and capacity to function effectively in society.

The American Library Association defines information literacy as a set of abilities empowering individuals to recognize when information is needed and to locate it, evaluate it, and use it effectively. While information literacy is often discussed on college campuses regarding

doing library research for papers, annotated bibliographies, and other classroom assignments, we use and need information in every aspect of our lives.

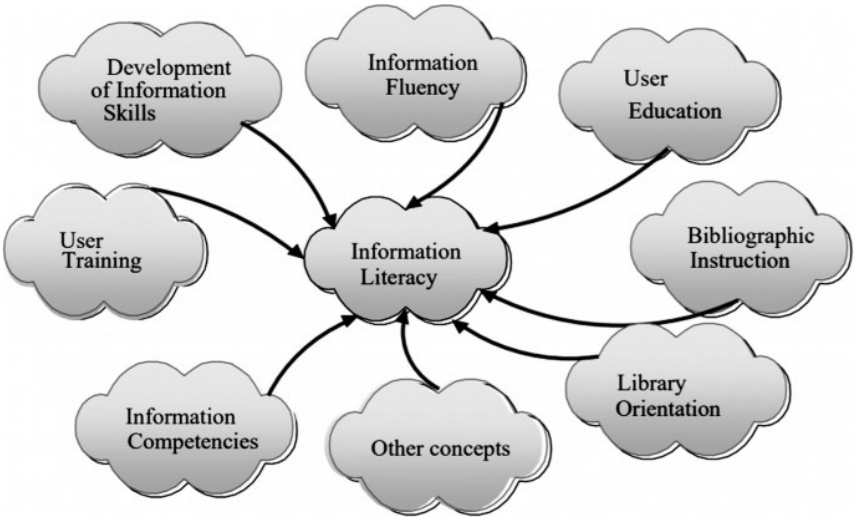


Figure 1: Concept of Information Literacy

HISTORICAL BACKGROUND

As mentioned earlier, the exponential information boom and increasing society's dependence on information gave birth to information literacy in 1974. The introduction of personal computers in the 1980s saw a further rise in information generation. Related developments in telecommunication technology brought people closer, which resulted in information exchange. Developed countries also saw the rise of the 'information society phenomenon during the 1980s, when information occupied central importance. They realised its importance and started programmes to prepare their citizens to use the varied information resources. American Library Association (ALA) took the initiative and recommended forming National Forum for Information Literacy (NFIL). NFIL was formed in 1989 as a first step to promote information literacy across all sections of society collectively. NFIL had representation from over 65 different bodies related to education, industry, governance, etc.

The Forum aimed at creating awareness in society towards information literacy by discussing developments in information literacy and publicising through announcements, advertisements, seminars, and encouraging research. A definition emerged, given by the Presidential Committee of ALA on Information Literacy in 1989. It is the most comprehensive

definition that has been most often quoted and forms the basis of other definitions. The 1990s saw the movement spreading to other countries. Society of College, National and University Libraries (SCONUL), UK, gave the “The Seven Pillars of Information Literacy” model to spread information literacy among the higher education community.

The year 2000 saw another important contribution to information literacy by the Association of College and Research Libraries as it outlined standards for assessing students' information literacy. It included performance indicators and learning outcomes that help to monitor information literacy. IFLA included a section on Information Literacy by replacing the User Education Roundtable in 2002. Later it prepared a draft proposal, “International Guidelines on Information Literacy” 22 Information Use and User Studies, to guide libraries, individuals and organisations in designing information literacy programmes. The Prague declaration is an important event in the history of information literacy which is the result of an international conference on information literacy held jointly by UNESCO, NFIL and the National Commission on Libraries and Information Science in 2003. It described information literacy as a basic human right in lifelong learning and a necessary ingredient for the social, economic and cultural development of individuals, communities, nations and society. IFLA organised a four-day colloquium in Egypt at Alexandria on Information Literacy and Lifelong Learning. It concluded that information literacy and lifelong learning are essential for the development of the information society. Popularly known as the Alexandria Proclamation, it requested that governments and intergovernmental organisations accord information literacy its importance. Specifically, it asked:

- to encourage conferences and seminars on information literacy within specific regions and socio-economic sectors to facilitate the spread of information literacy;
- to train professionals from the LIS, education and archives sectors in the principles and applications of information literacy;
- to include components of information literacy in education as well as continuing education programmes for agriculture, economic and business sectors; and
- to make information literacy and lifelong learning mandatory by accreditation bodies to be necessary components of all education and training programmes.

Institutions were set up for popularising, teaching and researching the subject. Library associations also started having information literacy as an active area for meeting discussions. IFLA introduced a section on information literacy to popularise the subject in institutions worldwide. It also aimed to design a curriculum for imparting information literacy. UNESCO and national associations in other countries undertook similar efforts. IFLA has a blog and listserv also on information literacy. Professionals in India also realised the importance of information literacy and actively participated in discussions. Thus, information literacy became discussed in many seminars, conferences and workshops. A series of meetings were organised under the aegis of UNESCO, ILA and IASLIC to popularise the subject. Central Library of the University of Delhi has designed a programme on information literacy for researchers. More such efforts have to be undertaken to impart information literacy skills. Libraries in other countries have designed tutorials on information literacy that are available on their websites.

Six ways of understanding Information Literacy

- **Authority is Constructed and Contextual**

  It refers to recognising that information resources are drawn from their creators' expertise and credibility based on the information need and the context in which the information will be used. Experts view authority with informed scepticism and an openness to new perspectives, additional voices, and changes in schools of thought.

- **Information Creation as a Process**

  It refers to the understanding that the purpose, message, and information delivery are intentional acts of creation. Recognizing the nature of information creation, experts look to the underlying processes of creation and the final product to critically evaluate the usefulness of the information.

- **Information Has Value**

  It refers to the understanding that information possesses several dimensions of value, including as a commodity, a means of education, influence, and a means of negotiating and understanding the world. Legal, sociopolitical, and economic interests impact the flow of information through production and dissemination systems.

- **Research as Inquiry**

  It refers to an understanding that research is iterative and depends upon asking increasingly complex or new questions whose answers develop additional questions or lines of inquiry in any field.

- **Scholarship as Conversation**

  It refers to the idea of sustained discourse within a community of scholars, researchers, or professionals, with new insights and discoveries occurring over time as a result of competing perspectives and interpretations

- **Searching as Strategic Exploration**

  It refers to the understanding that information searching is often nonlinear and iterative. It requires evaluating a broad range of information sources and the mental flexibility to pursue alternate avenues as new understanding is developed.

Goal

The main goal is to graduate students with these fundamental skills to provide a solid foundation of knowledge and skills after they leave Willamette. These fundamental skills may be taught as one-shot classes by librarians or integrated into the course curriculum and taught by faculty.

Need of Information Literacy

Information is the basic ingredient of our day-to-day working, learning, teaching, research, administration, etc. Information is available all around us. Those who utilise it effectively and efficiently are called information literates. It is not easy to utilise the information available in abundance because: •

- It is increasing exponentially, thereby making it difficult to ascertain whether we have access to all information that currently exists; •
- Anyone can publish on the Internet, thus making it difficult for the user to verify the authenticity and validity of information;

- Sources of information are many, therefore, making its control difficult; • Information is available in different formats, which a user should be adept in handling to use the information; and

Using the information for some work requires skills in analyses and syntheses.

- To develop information literacy skills in learners.
- To help become independent learners.
- To impart the skill of Information Technology to common people.
- To support the people who lack the ability.
- To help information professionals to develop, assess and improve their information literacy Programmes.
- World Wide Web has taken a new shape. Hence, there is a need to promote information•literacy.

Objectives

Education in information literacy is one of the priority objectives of the learning process. Information literacy consists of the following:

- Creating a thinking style that is appropriate to the demands of the contemporary information society expressed by information access capacity, analysis of the information environment and development of alternative information systems;
- Creating skills and working abilities with information sources

Competencies in Information Literacy

A responsible citizen—a student or a professional—should be able to know the need for information, locate information, identify, access, recover, evaluate, organize and use it. A person with information literacy can: • prospect—the ability to locate the relevant information of detailed and critical examination and selection; • interpret—the ability to transform information and data into knowledge, insight and understanding; and • create (new) ideas—the ability to develop new cognitive perspectives.

Importance of Information Literacy

In the present day, understanding Information literacy is very important. It encourages problem-solving approaches, thinking skills, asking questions and seeking answers. It helps to find needed information, locate and evaluate sources and foster decision-making. It is at the core of the Curriculum for Excellence and Literacy across training and outcomes a responsibility of all practitioners.

- Information literacy is important for an effective and civilized society and has implications that can impact many people's lives worldwide.
- For effective utilization of information technologies to find and manage information.
- In the age of the Information explosion, information resources are available to us 24/7 in various information sources; however, so much information is so easily and quickly available does not mean that all information is worthwhile or even true.
- Because of resources like the Internet, it isn't easy to find quality information; finding the good stuff is not always quick, and the good stuff does not always come cheaply.
- Information literacy will improve employability; today's employers are looking for people who understand and can adapt to the characteristics of the Information Age. Whereas information literate have "learned how to learn," they are a much more attractive job candidate. Information-literate individuals--with strong analytical, critical thinking and problem-solving skills. Can be expected to be an adaptable, capable and valuable employee with much to contribute.

Dimensions of Information Literacy

Media Literacy:

It is the ability to access, analyze, evaluate and create media. Or the sum of the skills needed to know when and what information is needed, where and how to find that information, how to evaluate it critically and organize it once it is found and how to use it ethically. The concept extends beyond professional and educational boundaries **Network Literacy**:

It’s an emerging digital literacy which deals with computer and network skills. It helps citizens to participate in the networked society. Web Literacy relates to a subset of information literacy that requires the ability to access, search, utilize, communicate and create information on the World Wide Web (WWW).

Digital Literacy:

It is very relevant in the current context, and DL deals with the users' knowledge, skills and behaviour in a wide range of digital devices such as smart phones, laptops etc.

Scientific Literacy:

It deals with the knowledge and understanding of scientific concepts and processes needed for personal decision-making, civic and cultural affairs participation, and economic productivity. It also includes specific types of abilities. In the National Science Education Standards, the content standards define scientific literacy

Visual Literacy:

It is the ability to understand the information in images and presentations and interpret the same. This includes thinking, learning, and expressing oneself in terms of image. Photographs, cartoons, line drawings, diagrams, concept maps, and other visual representations are all important in visual literacy. Critical literacy, i.e., the ability to critically evaluate the human, intellectual and social strengths, limits, benefits and costs of IT.

Areas of Information Literacy

Information literacy skills, or digital literacy skills, are the ability to locate, retrieve, interpret and process information. Understanding and developing them promotes sustained learning and professional success. When you are information literate, you can use your abilities to discover information, understand its origins and value, use it to create and share knowledge and take part in community discussions. A person who is information literate can:

- Determine whether there is a knowledge or information gap and the type of information required to fill it
- Identify and access information resources
- Plan and monitor the search for relevant information
- Review and critically evaluate information
- Present information in the right manner
- Become familiar with the legal, ethical and social implications of using information

Examples of Information Literacy Skills

Here are some common types of digital literacy skills:

Research skills

Research skills refer to finding, accessing, gathering, compiling, evaluating, utilising and presenting information regarding a particular topic. These skills include conducting investigations, performing critical analysis and forming hypotheses or solutions to particular issues. Some of the research sub-skills employers look for in candidates include:

Problem-solving skills

Problem-solving skills involve taking corrective action to accomplish better results and improve performance. This involves defining the problem, analysing and generating feasible solutions, selecting the best solutions and planning the next course of action. With technology, you can improve your problem-solving skills by automating routine tasks, storing data for easy retrieval and improving data methods.

Attention to detail

Attention to detail is the ability to accomplish and complete a task with a thorough understanding and concern for every element involved and to produce high-quality results. Being attentive in executing tasks often results in sustained productivity and efficiency. This involves staying organised and observant, making checklists, limiting distractions and taking regular breaks.

Time management

An organised approach to managing your priorities and work commitments requires understanding time and task management. Time management skill involves utilising time efficiently and achieving your goals. This skill can help you allocate resources and accomplish tasks more efficiently. It can also help you analyse your workload, delegate tasks, prioritise, and be more productive.

Computer skills

Computer skills are the ability to use a computer and related technologies effectively. It comprises software skills and hardware skills. Software skills involve using computer

programs, while hardware skills include maintaining and troubleshooting computer problems. Candidates with good computer skills in any workplace usually have expertise in the following tools and services:

- Email services such as Gmail and Outlook
- G Suite, including Google Docs, Gmail Drive, Calendar and Sheets
- Web browsers such as Chrome, Safari, Firefox
- Microsoft Office 365, including Word, Excel, OneDrive, PowerPoint and OneNote
- Operating systems, such as Microsoft Windows and macOS, Linux
- Data science and analysis tools such as machine learning, data mining, data modelling, data management
- Enterprise applications, including customer relationship management (CRM), e-commerce systems and enterprise resource planning (ERP)
- Web development and programming languages such as JavaScript, Python, PHP
- Devices and peripherals, such as routers, hard drives, and cables.

Improving Information Literacy Skills

These skills are essential due to the rapid growth of information systems and resources. Depending on your job, a new learning course, or personal interests, you may focus on developing and improving skills relevant to your job or career. Here are the steps to improve your skills:

1. Learn to identify credible sources

An information-literate person can usually recognise reliable sources. To determine if a website is trustworthy, check the author's credentials and the source, assess the sources that the author cites and examine the date that the piece was written. Choosing a credible source is crucial to your research. This helps you support your arguments and findings with the right information. Always find out the author and how regarded they are in the field while reading an article. Find out what other articles they have published.

2. Understand copyright and fair use laws

Copyright laws usually deem someone's original content as their intellectual property. Understanding the copyright laws and knowledge of plagiarism search services can help you obtain permissions before using someone else's works, use citations, learn how to use public

domain content and protect your intellectual property. This helps immensely during research and writing, a key part of information literacy.

3. Improve your logical reasoning

Logical reasoning helps in making rational decisions and finding solutions to problems. You can hone your logical reasoning by learning to differentiate inferences and observations. It also helps you improve pattern recognition skills and understand the causes and consequences of everyday events. Having strong logical thinking skills helps you be more information literate by evaluating content across different disciplines.

4. Learn advanced searches

A key aspect of information literacy is knowledge of advanced search skills and the range of information sources. Most search engines offer advanced search options. By limiting the scope of search queries, they can eliminate irrelevant results and help you find the information you need. You can use specific strategies to make your online search results more relevant and accurate. This involves things like the proper use of keywords and using quality databases other than your basic search engine.

Standards in Information Literacy

Association of College and Research Libraries (ACRL), 2000 formulated standards of information literacy for higher education that help in developing an information literacy curriculum

- The Association of College & Research Libraries (ACRL) is the higher education association for academic libraries and library workers.
- ACRL (a division of the American Library Association) develops programs, products, and services to help those working in academic and research libraries learn, innovate, and lead within the academic community.

Category 1: Information literacy

Standards: The student who is information literate

- accesses information efficiently and effectively.
- Evaluates information critically and competently.
- Uses information accurately and creatively.

Category 2: Independent learning

Standards: The student who is an independent learner is information literate and

- pursues information related to personal interests.
- Appreciates literature and other creative expressions of information.
- Strives for excellence in information seeking and knowledge generation.

Category 3: Social responsibility

Standards: The student who contributes positively to the learning community and society is information literate and

- recognizes the importance of information to a democratic society.
- Practices ethical behaviour concerning information and information technology.
- Participates effectively in groups to pursue and generate information.

Standard 1:

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

Standard 2:

The information-literate student accesses needed information effectively and efficiently.

Standard 3:

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

Standard 4:

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

Standard 5:

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.

These standards were meant to span from the simple to more complicated, or in terms of Bloom's Taxonomy of Educational Objectives, from the "lower order" to the "higher order". Lower-order skills would involve, for instance, using an online catalogue to find a book relevant to an information need in an academic library. Higher-order skills involve critically evaluating and synthesizing information from multiple sources into a coherent interpretation or argument.

Association of College and Research Libraries (ACRL), 2000 formulated standards of information literacy for higher education that help develop an information literacy curriculum for an educational institution. The standards also provide Performance Indicators (PI) and Outcomes for each standard, presented briefly below. Standards of Information Literacy The information literate student:

1) Determines the nature and extent of information needed.

2) Accesses the needed information effectively and efficiently.

3) Evaluates information and its sources critically and incorporate selected information into their knowledge base and value system.

4) Individually or as a group member, information is used effectively to accomplish a specific purpose.

5) Understands many economic, legal and social issues surrounding information and access and uses the information ethically and legally. IL

Standard-1:

The information-literate student determines the nature and extent of information needed. Performance Indicator The information-literate student:

a) Defines and articulates the need for information.

b) Identifies various types and formats of potential sources of information.

c) Considers the costs and benefits of acquiring the needed information.

d) Re-evaluates the nature and extent of information needed. 25 User Education and Information Literacy

Outcomes

- Discuss with peers and in class to identify an information need or a research topic. 2. Explores information sources to gain familiarity with the topic and modifies the need to focus more.
- Identifies key concepts that identify the need.
- Knows how information is produced, organised and disseminated.
- Recognises the difference of sources in different formats.
- Differentiates between primary, secondary and tertiary sources.
- Recognises that information must be constructed with raw data from primary sources.
- 8. Determines the availability of local resources, broadens his search beyond local resources, and goes for an inter-library loan.
- Defines a realistic timeline to acquire the needed information.

Standard-2:

The information-literate student accesses the needed information effectively and efficiently. Performance Indicator The information-literate student:

a) Selects the most appropriate IR(information retrieval) system for accessing the needed information.

b) Constructs and implements effectively designed search strategies.

c) Retrieves information online or in person using a variety of methods.

d) Refines the search strategy if necessary.

e) Extracts, records and manages the information and its sources.

Outcomes

- Identifies appropriate investigative methods for information search.
- Investigates the pros and cons of the different methods.
- Selects efficient and effective methods for information search.
- Develops a research plan appropriate to the investigative method.
- Identifies keywords and related terms for information search.
- Selects controlled vocabulary for information retrieval.
- Constructs a search strategy using appropriate commands.
- Implements the search strategy in various information retrieval systems using user interfaces and search engines with command languages.
- Implements the search using protocols appropriate to the discipline.
- Uses various search systems to retrieve information in a variety of formats.
- Uses class numbers to locate sources in the library physically. 26 Information Use and User Studies
- Uses online or in-person services to retrieve information.
- Assesses the quality of search results to determine if alternative information retrieval systems will be used.
- Checks whether a change in search strategy needs to be made.
- Repeats the search using a revised search strategy.
- Selects an appropriate ICT to extract the information.
- Creates a system to organise the information.
- Records pertinent citations for future reference.

Standard-3 :

The information literate student critically evaluates information and its sources and incorporates selected information into their knowledge base and value system. Performance Indicator The information-literate student:

a) Summarises the main ideas to be extracted from the information gathered. b) Articulates and applies initial criteria for evaluating the information and its sources. c) Synthesises main ideas to construct new concepts. d) Compares new knowledge with prior knowledge to determine the information's value-added, contradictions or other unique characteristics. e) Determines whether the new knowledge impacts the individual’s value system and takes steps to reconcile differences. f) Validates understanding and interpretation of the information through discourse with individuals. g) Determines whether the initial query should be revised.

Outcomes

Reads text selects main ideas, and presents them in their own words.

Quote, verbatim matter in quotes.

Evaluates information regards its reliability, accuracy, validity, timeliness and point of view or bias.

Recognises prejudice, deception or manipulation.

Recognises relationships among concepts and combines them into useful primary statements. Extends initial synthesis when possible to a higher level of abstraction to construct a new hypothesis that may require additional information.

Uses ICT for analysing and presenting the information.

Determines whether information satisfies research or information need.

Draws conclusions based on information gathered.

Integrates new information with the previous information.

Participates in discussions to verify if the information need has been satisfied. 27 User Education and Information Literacy

Review search strategy and information retrieval sources and expands if needed.

Standard-4:

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

Performance Indicator

a. Applies new and prior information to the planning and creating of a new product or performance.

b. Revises the development process for the product or performance.

c. Communicates the product or performance effectively to others.

Outcomes

Organises the content to support the purpose and format of the product or performance.

Articulates knowledge and skills transferred from prior experiences to plan and create a new product.

Maintains a log of activities related to information seeking, evaluating and communicating. Reflects on past successes, failures and alternative strategies.

Chooses a medium that best supports the purpose of the product or performance.

Design in a way that best conveys the thought.

Standard-5:

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

Performance Indicator:

a) Understands many ethical, legal and socio-economic issues surrounding information and information technology.

b) Follows laws, regulations, institutional policies and etiquette regarding accessing and using information resources.

c) Acknowledges the use of information sources in communicating the product or performance.

Outcomes

- Identifies and discusses issues related to privacy and security in print and electronic environments.
- Identifies and discusses issues related to free vs fee-based access to information.
- Identifies issues related to censorship
- Demonstrates an understanding of IPR, copyright and fair use of copyrighted material. 28 Information Use and User Studies
- Participates in electronic discussions following netiquette.
- Uses approved passwords and other forms of passwords to access information.
- Complies with institutional policies on access to information sources.
- Preserves the integrity of information resources, systems, equipment and facilities. Demonstrates an understanding of plagiarism and earnestly practices it.
- Selects an appropriate documentation style and consistently follow it.
- Posts permission granted notices for copyrighted material

Different types of programmes help impart information literacy skills. These range from stand-alone programmes to course-related and course-integrated programmes. A simple information literacy programme could provide details on information sources, their scope and search techniques followed by exercises in searching databases and other sources. Course-related programmes dwell on information literacy skills in different subjects and areas. Course-integrated programmes are also for a particular subject/area.

The difference between a course-related programme and a course-integrated programme is that the former is a separate programme on information literacy. In contrast, the latter is

integrated into the course in a way that forms an inseparable part of the programme. Information literacy programmes may be non-credit or for-credit. There is a feeling that information literacy programmes, like other non-subject programmes, should be non-credit. But the drawback with a non-credit programme is that it is not taken seriously. Learners might take it lightly and not give weightage to it. Even if a condition to pass it is set, learners' seriousness is limited to just passing it.

Course-integrated information literacy programmes have the advantage that the learner cannot sideline them. Smith (2003) has proposed an information literacy curriculum for the Sciences which is an integrated information literacy programme.

Undergraduate: Beginning/ General – includes an introduction to the different types of resources (primary, secondary and tertiary), core resources in a subject, basic research process in the sciences, basic searching skills and applying the same to a database, evaluating a resource and citing a work. 29 User Education and Information Literacy

- Undergraduate/ Advanced- includes the role of information in the process of research, in-depth introduction to the types of resources, core information resources (print and electronic), introduction and application of more sophisticated search strategies, searching online resources, scientific information on the Web, portals, searching and evaluation, the process of publishing scientific information and peer review, evaluating a scientific paper, evaluating information and critical thinking.
- Graduate Students- includes scientific research process and the sources of information at each stage, information tools of practising scientists, scientific publication process in depth from the perspective of the scientist/ producer, key sources and databases in the discipline, information seeking process with a focus on in-depth research for theses and research proposals, information management (including use of bibliographic management software, peer review process), evaluating scientific information and journal articles, citation indexing, Journal Citation Reports (JCR), Internet for scientific communication and information resources and key issues in scholarly publication including copyright, electronic publishing. •
- Professional Scientists: Post-Doctoral and Independent Researcherincludes updates on new features of known resources and introduction to new resources, keeping up with new literature by Table of Contents (TOC) services, browsing, alerts/ Selective Dissemination

of Information (SDI), identifying core journals in a discipline, citation counting and JCR, limitations of citation counting and impact factor, searching the ISI databases, advanced searching the keydiscipline–specific resources, bibliographic and data sources, search on the Web including portals, directories, organisation and publisher information, locating grant news and announcements, e-journals publishing and accessing, managing a personal resource collection, information skills and instruction in undergraduate and graduate courses, training and mentoring.

By providing information literacy,

- ❖ understand the role, value and power of information in modern society;
- ❖ understand and be able to communicate their specific need(s) for information;
- ❖ understand that information varies in its organisation, content and format;
- ❖ retrieve information form a variety of systems and in various formats;
- ❖ evaluate information sources; and
- ❖ understand how to organise information effectively.

"Understand that material in academic libraries is classified by subject (no fiction or biography sections, as in typical high school libraries), and be able to interpret a call number. • Be able to identify the parts of a bibliographic record. • Be able to use reference tools such as dictionaries, encyclopedias, handbooks, almanacks, and statistical sources to achieve a manageable research focus. • Be able to distil a complicated research question into searchable concepts/ keywords/synonyms. • Understand the concept and usefulness of a controlled vocabulary (all online catalogues and many databases & indexes employ controlled vocabularies). • Understand the difference between subject searching and word searching. • Understand commands of the online catalogue (Boolean, truncation, adjacency, etc.). • Be able to formulate a research strategy and understand the process through which questions are refined and redefined in the course of research. • Understand that popular and scholarly material exists on most any topic; be able to distinguish between these two types of material and determine when it's appropriate to use each type and why. • Be able to distinguish between primary and secondary resources; determine when to use these two types of resources and why. • Understand the nature of periodical literature and why and when it's useful. • Understand what periodical literature abstracts and indexes do and why they are useful. Understand that these resources vary in scope (what subjects

are included, how many titles are indexed, etc.), arrangement (classified, subject, etc.), and content (full-text, abstracts, citation only). 31 User Education and Information Literacy

• Be able to critically evaluate the information for usefulness, bias, currency and authority (including Internet resources).

• Have an understanding of plagiarism and intellectual property issues-quoting, paraphrasing, attributing ideas; what is fair use?

• Be able to use a style manual to document information sources in many different formats correctly.

Advanced Information Literacy Skills Include:

• Be familiar with the subject-specific tools in their discipline (indexes, abstracts, electronic texts, and other specialized resources).

• Understand how scholars and practising professionals in their discipline generate, control, and use information (published/unpublished sources, electronic & personal communications, etc.).

• Understand and effectively communicate the steps required for effective research, including formulating a thesis and creating a search strategy using various sources.

• Develop the ability to critique their research process; was the original need met?

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 with 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 how faculty, librarians, and others pinpoint specific indicators identifying a student as information literate.

Students will also find the competencies useful because they provide 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 meta-cognitive approach to learning, making them conscious of the explicit actions required for gathering, analyzing, and using information. All students are expected to demonstrate all the competencies described in this document. Still, not everyone will demonstrate them to the same level of proficiency or at the same speed.

Furthermore, some disciplines may emphasise 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 competencies are likely to be performed recursively. Each standard's reflective and evaluative aspects 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 review its mission and educational goals to determine how information literacy improves learning and enhances effectiveness. Faculty and staff development is also crucial to facilitate acceptance of the concept.

Role of Institutions in Information Literacy

Information & Communication Technologies have changed the complete scenario in libraries. Nowadays, the library has become the centre point of resource-based learning, and the role of the Librarian is changing radically with shifts in education paradigms. The impact of moving from text-based learning to resource-based learning will involve heavier use of library materials and a demand for more varied media resources, including print and non-print. Today information has become a major economic commodity. The Librarian is responsible for locating, acquiring, disseminating and tracking information resources of many types. It might include database searching, interlibrary loans, monitoring Internet newsgroups, or maintenance of a computerized library information system. All these tasks involve managerial expertise and information literacy. Every citizen needs to be educated for productive information use. Libraries and Librarians play an important role in educating people for effective and efficient information use by teaching them information skills at all levels of education to enable informed citizens of the country. Librarians have to identify and select good age-appropriate and age-specific literature. They must look more online and other electronic sources to meet their information needs. Acquisitions and selection criteria have entirely new meanings when considering access to online services. Traditional materials evaluation measures have little meaning when applied to

Internet sites. New paradigms of selection and evaluation evolve with new technologies and their application to the classroom and resource centre.

Librarians are key personnel in the implementation of resource-based programmes. They can design an information literacy curriculum which matches readers' capabilities because they have the expertise and knowledge to teach these skills. They are leaders in new information technologies and extended resources across many disciplines. Their experience with information-finding tools gives them a context for applying new tools such as the World Wide Web. They must accept that they are good educators and knowledge managers. Today, librarians are most likely to lead the development of an information-literate community. Thus, LIS professionals must play a significant role in promoting information literacy in society. There exists a gap between Librarian's and the users' information needs. To bridge this gap, they need to educate and re-educate themselves to acquire new skills and competencies for a new role and cultivate lifelong learning of information literacy skills. LIS professionals need to play an important role in the education process by making people aware of a need and motivating the use of information, a piece of new knowledge and a new ability. Some short-term courses or user-orientation programmes may be organized in libraries. There may be two components of the course for information literacy:

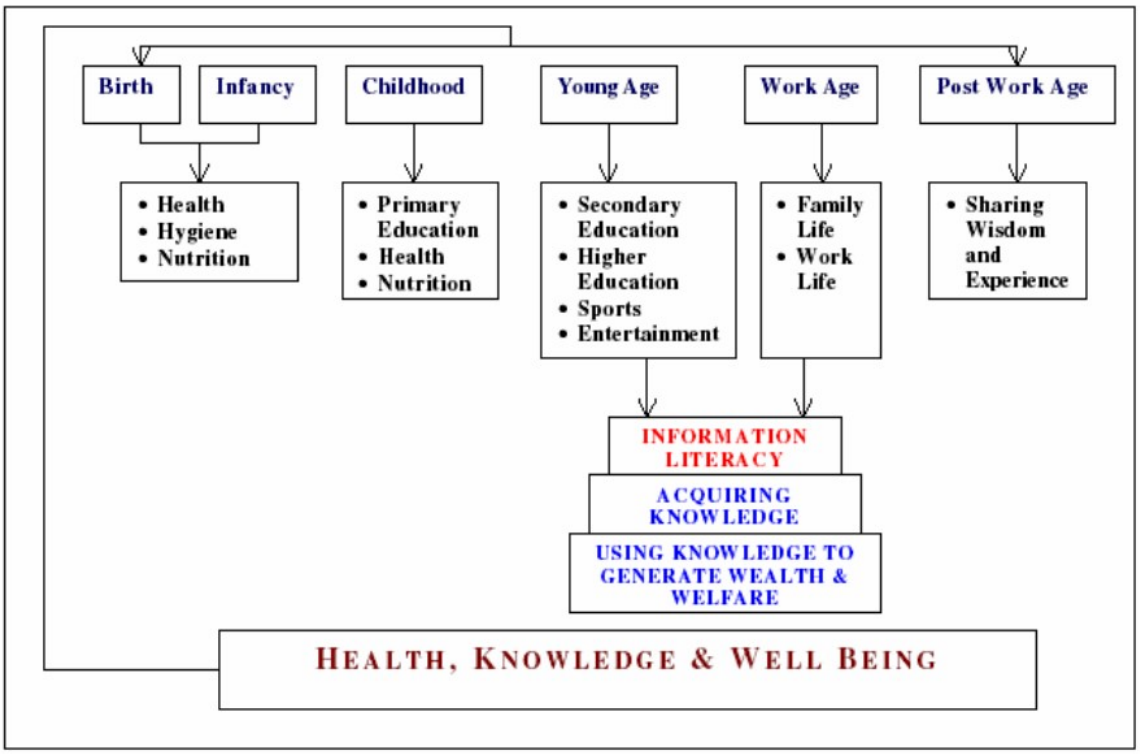
(i) One is orientation, primarily concerned with introducing the users to the general techniques of library usage and services available and the organization layout and facilities of a particular library. During orientation, library staff delivers a lecture, which introduces the program, demonstrates the use of the catalogue and shows readers how to access the self-paced online tutorial. Readers work through the library catalogue unit of the tutorial and also complete an exercise. They can create a network account and configure and e-mail account during one of their orientation week sessions.

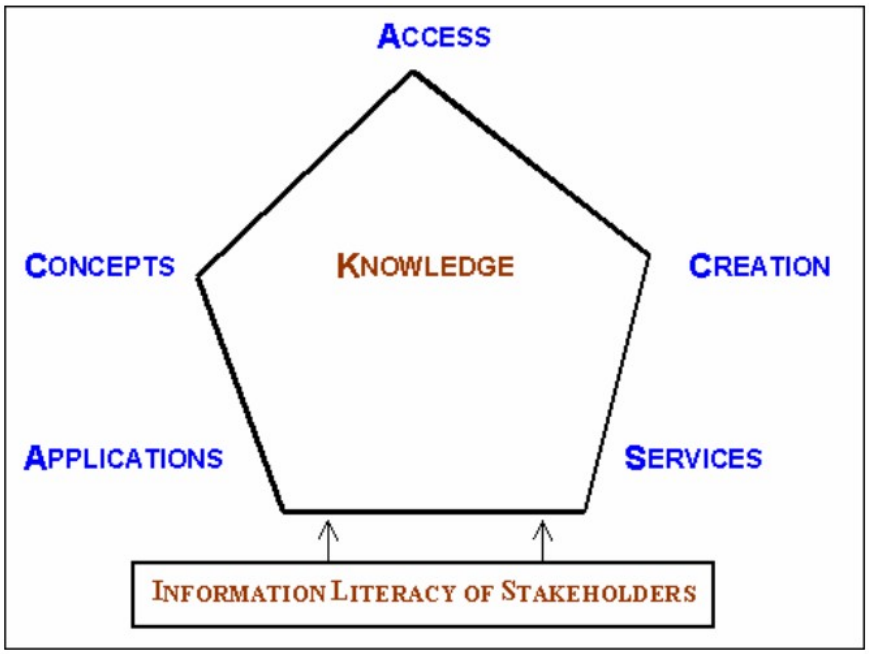
(ii) Other is the instruction concerned with using the information resources available with specific subject disciplines. It consists of library staff demonstrating CD-ROM network and web-based databases and searching the Internet using search engines and subject gateways. A lecture by library staff called researching a topic is another great motivation for readers to appraise critically the material they find, especially information on the Internet.

Technically, The All India Council for Technical Education (AICTE) has introduced pliant rules and regulations for developing technical education in the country. The standards for library and resources centres, like the number of books to be purchased yearly, national and international journals and online databases requirements, build the library's healthy collection development. The proliferation of information technology and communication tools is transforming the present society into a knowledge-based society where the basic input in information and knowledge. The capability to access, organize, manage and disseminate knowledge will be the key factor in this society. The role of Library professionals is changed radically with shifts in education paradigms. The impact of moving from text-based learning to resource-based learning will involve heavier use of library resources and a demand for more varied media resources, including print and non-print. These changes create plenty of new challenges for libraries and information centres, like Information explosion, Information and Communication Technology, Growth and usage of web resources, Use of digital resources, User expectations, Virtual learning environment, Virtual educational institutions, Development of digital, virtual, and hybrid libraries, Online bookshops and information services (Ramana, 2006). The library should conduct information literacy programs in their parent organisation to overcome these challenges. Sadlapur and Patil (2015) noticed that information literacy programs are organised to promote library services effectively, to familiarize different types of library resources, to make aware of different types of databases like e-journals, e-books & research databases, to teach how to make use of databases effectively, to teach skills to library OPAC and digital library, improve on users search strategies and techniques, to develop cordial relationship with users, aware the users on copyright issues of information.

The NKC has identified different life cycle phases based on a person’s life span, from birth to post-work age. They need different kinds of information in different phases of life. Young persons are acquiring knowledge through secondary and higher education. Here, the teachers and library professionals impart information literacy competency to the learners through information literacy programmes. Information literacy is a lifelong process that starts in youth and may continue until post-work age. Information literacy also has a component of lifelong learning. The formal and informal ways of learning are circled in a person’s life, where the person acquires new sets of knowledge of their interests and updates their existing knowledge on their profession or vocation. Information-literate persons acquire knowledge; then use

knowledge resources to generate wealth and welfare. People share wisdom and experiences with the younger generations in post-work life. Information literacy also plays its role in absorbing knowledge from experienced persons and using it to generate wealth and welfare for society. This is also another cycle of knowledge creation, dissemination and utilization. The knowledge life cycle, based on a person's entire life period





Library associations exist in most of India's states and union territories apart from national ones. State-level library associations are active in public library development in their respective states. Some library associations, e.g. Bengal Library Association, conduct refresher courses for the in-service public librarians, mostly in managing and accessing information in the ICT environment Some library associations at the national level are now proactive in spreading the information literacy competency for the librarians and library users. In December 2005, Indian Library Association (ILA) organized the 51st All India Conference focusing on "libraries, information literacy and lifelong learning", where many librarians felt the importance of information literacy in lifelong learning and optimizing the usage of information in the libraries. At this conference, ILA recommended forming a National Information Literacy Mission and the National Information Literacy Task Force to implement information literacy competency development programmes nationwide without further delay [6]. In October 2005, an international information literacy workshop was held at the Punjabi University, Patiala, India, to promote information literacy in South and South East Asia, with the support of UNESCO and other partners. In September 2003, the International Alliance for Information Literacy was formed in Prague, where India's Networking Alliance for Voluntary Actions (www.navaindia.org), a network of NGOs, became a member.

The Institute for Information Literacy (IIL), formerly known as the National In- formation Literacy Institute, is dedicated to playing a leadership role in assisting individu- als and institutions in integrating information literacy throughout the full spectrum of the education process. The impetus for this ini- tiative comes at a time when information literacy is broadly recognized outside of librarianship as a critical skill for students of all ages.

In recent years there is evidence that higher education, in particular, has begun to understand the role of information in our society and the need to prepare students to be information literate. For instance, the Middle States Association of Colleges and Schools requires that institutions seeking accreditation "… describe and document the strategies and activities used to provide an effective program of bibliographic instruction and information literacy."

A building block

Many state university systems are incorporating information literacy competencies into curriculum requirements.[3] The Teaching, Learning, and Technology Roundtable Project, previously a project of the American Association of Higher Education and now a separate non-profit organization, identifies information literacy as a building block for constructing a meaningful institutional vision for improving teaching and learning through technology.[4] The time is right to establish the Institute for Information Literacy.

Within librarianship, the demand for information literacy programs and instruction librarians has grown exponentially over the last 25 years. However, despite incorporating instruction programs as a mainstream activity in academic libraries, there are still few signs that information literacy is recognized as a core component of librarianship. Rather, information literacy and its pedagogy have largely been self- taught, nurtured by colleagues, or learned through attendance at professional conferences and programs.

The relative absence of formal opportunities for training and education in information literacy is particularly ironic when the “teaching-library” seems to be finally emerging as a model that makes sense in our changing environment.’ Now, more than ever, with an interest in higher education focused on information literacy, there is a need for educational opportunities for librarians, educational administrators, and faculty.

Librarians and educators from primary schools to universities must establish a regular and on-going dialogue about information literacy. The recent publication of the American Association of School Librarians standards for information literacy" and the ACRL Instruction Section’s *Model Statement of Objectives,* which are currently under revision," form a common ground. Add to this the public library sector, with its new attention to providing Internet instruction, and we have a broad coalition of interest committed to information literacy.

IIL first proposed at the annual LOEX Conference in May 1997.[8] The response was overwhelming. A month later, ACRL embraced the idea and established an advisory group[9] to assist in moving the institute from theory to reality. From the earliest discussions of the institute, there was a commitment to reach out and serve all types of librarianship. The Advisory Group sponsored an Invitational Planning Day at ALA’s Midwinter Meeting in 1998.

Twenty-five individuals, including librarians from academic, school and public venues, provosts and school system administrators, library school faculty, practising instruction

librarians, and library directors gathered on January 9, 1998, in New Orleans to discuss and respond to five discussion issues:

1) the problems and challenges identified by the IIL Advisory Group;
2) the concepts of information literacy;
3) the ideas for an intensive immersion program;
4) the characteristics of an IIL "graduate"; and
5) ideas for other types of programs that IIL could offer.

The feedback from this day was used to shape the programmatic initiatives that IIL would undertake.

Over the past year, the institute has taken shape. The most distinctive aspect is its commitment to include all librarianship; that is why the mission includes "the full spectrum of the education process." Its goals are broad-based, as well:

- prepare librarians to become effective teachers of information literacy programs;
- support librarians and other educators and administrators in playing leadership roles in the development and implementation of information literacy programs;
- forge new relationships throughout the educational community to work toward information literacy curriculum development; and
- offer opportunities for growth and development in the changing field of information literacy.

Looking ahead

IIL has identified four programmatic initiatives for the years 1998-2000:

Immersion Program '99- This is IIL's core program. The Immersion Program will provide four-and-a-half days of intensive training and education for instruction librarians. It will offer two tracks: new librarians and librarians new to teaching and mid-career instruction librarians who will assume a leadership role in information literacy in their institutes.

This first Immersion Program will target academic librarians but is open to anyone. Participation will be limited to 80; ten ACRL scholarships will be available. A faculty of nationally recognized librarians and scholars are developing the curriculum and will be teaching the program.[10] It is scheduled for July 23-28, 1999, at Plattsburgh State University of New York. (Application information is available via the IIL Web site: http:// www.ala.org/acrl/nili/nilihp.html.)

Long term, the IIL Immersion Program will be offered at different locations minimally once a year. Once the IIL Immersion Program National Faculty is expanded, it is expected that the Immersion Program will be available upon request from local or state professional organizations, consortia of libraries, etc. The intention is that the Immersion Program will be responsive, mobile, and cost-effective for all librarians interested in participating.

• Institutional Strategies: Best Practices and Assessment. This program is directed at assisting individual institutions in developing strategies for creating and implementing effective information literacy programs. IIL is seeking grant funds to 1) identify criteria for assessing information literacy programs, 2) identify model programs that illustrate these criteria, and 3) disseminate information about the criteria and models to the profession and higher education broadly.

• Community Partnerships. Broadening the dialogue on information literacy across the entire educational spectrum is critical. This initiative will bring together librarians from K-12, higher education, and special public libraries to discuss community- based information literacy programs. This initiative will begin to take shape with a discussion session planned for ALA Midwinter 1999-

• Web Site. IIL has a Web site. It provides basic information on the institute, a brief history, and its mission and goals. The Web site will grow and develop over time to provide electronic links to various information literacy issues, including best practices, assessments, and links to other information literacy resources. It will also be the main vehicle for announcing IIL programs: http://www.ala.org/acrl/nili/nilihp.html.

IIL is in its infancy. The general direction has been set, but as the institute develops, it will require substantive input and advice from the very individuals it hopes to serve: instruction librarians from all sectors of the educational experience, administrators from higher education, school and public libraries, and faculty. The time is right for the establishment of the Institute for Information Literacy.

- The National Information Literacy Institute has been renamed the Institute for Information Literacy to distinguish the Institute from the National Forum on Information Literacy. The National Forum has a different but equally important mission: it is a coalition of education associations outside of librarianship that focuses national attention

on the importance of information literacy to individuals, the economy, and an informed citizenry. Patricia Breivik, dean of Wayne State University Libraries, has been the moving force behind the National Forum.

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- Cerise Oberman, "Why We Need a National Information Literacy Institute," *Proceedings of the 25th Annual National LOEX Library Instruction Conference, May 8-10, 1997,* ed. Linda Shirato (forthcoming).
- The ACRL Institute for Information Literacy Advisory Group's members is Cerise Oberman, chair (Plattsburgh State University of New York); Lou Albert, vice-chancellor of Education Services (San-Jose Evergreen Community College District); Lori Arp (University of Boulder); Esther Grassian (University of California at Los Angeles), Thomas Kirk (Earlham College), Loanne Snavely, Instruction Section representative (Pennsylvania State University), Julie Todaro (Austin Community College/Rio Grande), Mitch Stepanovich, Library Instruction Round Table representative (University of Texas

at Austin), Betsy Wilson (University of Washington), Mary Ellen Davis (ACRL staff), and Shelley Phipps and Karen Williams, facilitators (University of Arizona).

- The IIL Faculty are Mary Jane Petrowski, lead faculty member (Colgate University), Eugene Engeldinger (Carthage College), Randy Hensley (University of Hawaii), Debra Gilchrist (Pierce College), Joan Kaplowitz (University of California at Los Angeles), and Sharon Mader (Christian Brothers University).

Information Literacy for the school education system

After independence, school education became the responsibility of the States. In comparison, the Government of India is responsible for educational planning and policy, coordination, maintenance of standards, research and training and so on for higher and technical education. However, the Central Government has set up three national agencies to help school education - the Central Advisory Board of Education (CABE), the National Institute of Educational Planning and Administration (NEUPA) and the National Council of Educational Research and Training (NCERT). NCERT is the apex body for matters of the school curriculum in India. In addition, the National Education Planning and University Administration (NEUPA) and the National Council for Teacher Education are responsible for teacher education and accreditation system management. India, with more than one billion populations, is the second-largest education system in the world. India has more languages than any other country. The literacy rate in India is 72.1% (Adult Literacy Rate) and 90.2% (Young Adult Literacy Rate).

It varies from State to State; as an elected government system governs each state, the Central Government monitors the progress. According to the 2011 Census, the State of Kerala achieved the highest literacy rate (93.91%). But in 2013, The Chief Minister of Tripura State announced that the State of Tripura had achieved the highest rate of literacy (94.65%). Bihar has the lowest (63.8%). As per the 2011 Government of India Census Report, the national literacy rate is 74.04%. The world's second-largest populated country needs much more effort to reach 100% literacy. The efforts of the Government of India, particularly after Independence, in universalizing education through programmes such as Sarva Shiksha Abhiyan (SSA), Mid-day meal, Rashtriya Madhyamik Shiksha Abhiyan (RMSA), ICT at School, National Literacy Mission etc., have contributed in increasing the rate of literacy. During the last decade and a half, the number of out-of-school children has fallen by almost half, and a record number of girls and

boys are now enrolled in schools in Asia and Africa (Alexander, Kwauk, & Robinson, 2016). Despite progress in children enrollment, approximately 250 million children still fail to read and comprehend a simple text or perform basic mathematical calculations, despite 150 million children being in school for four years (UNESCO, 2017). There are two historical milestones in the Indian school education system; National Policy on Education, 1988/92 and Article 21-A, "Right of children to free and compulsory education", of the Right to Education Act, 2009. The report of School Education in India 2015-16 states that there are 1.52 million schools in India, and more than 260 million students are enrolled in primary, upper primary, secondary and higher secondary schools (NUEPA, 2016). The National Knowledge Commission (NKC) has been examining issues relating to school education across the country to frame national-level recommendations for school education.

School Libraries in India

Libraries are an essential part of the school education system. The students are receptive and attentive at that age. If trained and educated properly at that age, they are the assets for future nation-building. School libraries are places where students can be trained to understand issues like author's rights, intellectual property rights, open access, copyrights, fair use, etc. This type of basic information literacy will help students become responsible citizens and respect the library system. According to the National Curriculum Framework of the National Council of Educational Research and Training (NCERT), India, 'The School Library should be conceptualized as an intellectual space where teachers, children and community members can expect to find the means to deepen their knowledge and imagination'.

The library facility in Primary schools is in a sorrowful condition. In 1998 the Indian Library Association (ILA) surveyed the schools in Delhi and found that most government primary schools had no library. In secondary schools, the libraries were substandard. Further, while highlighting the role of the school library as the heart of the school, Dr S R Ranganathan stated that the school libraries should act as laboratories for students and the librarians should function as guides to help the students learn and use the books for improvement of knowledge and scholarship (Mahajan, 2010). In 1948 at the 18th meeting of the CABE, the government of Bihar raised the question of relationships between the state governments and local bodies

concerning the administration of elementary education. The ministry of education therefore appointed this committee in 1951.

One of its significant recommendations regarding text books was that –'the state governments should prescribe, on the advice of official and non-official experts in the subject, the books to be used in primary schools, and where more than one book happens to be prescribed in a subject, the local body should have the freedom to choose any one of the prescribed books in a subject for use in schools under its control'. This is the beginning of having various types of knowledge resources in libraries in the form of textbooks. The Government of India established Kothari Commission on school libraries in 1962 to study the problems of the school library system and recommends that the school curriculum as the totality of learning experiences provided under supervised conditions. Libraries of the higher education system in India are flourishing because of the efforts and constant monitoring of the University Grants Commission (UGC). However, school libraries are still neglected and need immediate attention; the NUEPA report reveals that 82.84% of the schools have library facilities, whereas only 20.70% of secondary and higher secondary schools have librarians (NUEPA, 2016).

In India, very few schools have a course-related/course-integrated information literacy programme. Most Indian schools will have weekly/fortnightly library periods wherein students are issued general reading books. Kumbar states that every class gets two library periods in a week; the first is allotted for the issue/return period, and the second is the library activity period. Further, the author reported that this period is structured as Loud/oral reading, Individual silent reading, Cooperative or Participative reading and written assignments based on reading (Kumbar, 2009).

Initiations like this will help; · students learn to use all types of resources at an early age ·; in students' academic performance due to their ability to research and gather information from various sources and · increase general awareness and performance in non-academic activities (Kumbar, 2008). In total, it helps in the overall development of children. But the structured IL programmes would be even more effective in the holistic development of children. The Kendriya Vidyalaya Sangathan (KVS) has developed eight Standards for IL, viz.; define an information task, develop information-seeking strategies, locate and access information, use information,

synthesize information, participate in collaborative activities, evaluate the process and the product, and appreciate literature (KVS, 2012). In a research paper, Kumbar (2008) has discussed some of the successful strategies adopted in the promotion of users skills at Zydus School for Excellence, Ahmedabad, viz; Structured Library Periods, Adopt a Book Project, Five Best Friends in the Library and Application of Multiple Intelligence Theory for the effective use of library resources by K-2 students.

The Navodaya Vidyalaya, a network of residential schools for rural Indian children covering 6th – 12th class, have designed a syllabus to provide opportunities to use the information and IT to facilitate the learning process. It is further reported that the National Institute of Science Communication and Information Resources (NISCAIR), erstwhile INSDOC, has developed an audio-visual programme for junior school children about how to find information from various sources. And many schools have a library hour as a part of the curricula for project work/assignments (Barul & Naskar, 2016). In S.D.V. Government School, Neerakunnam (Kerala), a child will handle issue/return work in every classroom. Students use textbooks, reference books, newspapers and other resources. The circulation records are maintained by one student called the child librarian. With this practice, more resources are used by the children in every class, and it is also systematically maintained. The need for individual project works has led to greater use of libraries. As a result, there is a growing need for the promotion of information literacy across the curriculum, with school librarians being actively involved in promoting these skills

Questions:

1. State the historical background of information literacy.
2. Explain the objectives and importance of information literacy.
3. Dicus the dimensions of information literacy.
4. How to improve information literacy skills.
5. Narrate the standards of information literacy.

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Unit II: Information Literacy Programmes

Scope of Information Literacy Program

Information Literacy includes a range of literacy. The range of literacy may be:

(i) Traditional Literacy: to read and write;

(ii) Computer Literacy: to understand and operate computers those are interfaces between information and end-users;

(iii) Media Literacy: to understand different media storing networked information and use them;

(iv) Network Literacy: Network literacy for library users consists of two aspects: knowledge of networked information and skills to locate, select, evaluate and use the networked information; and,

(v) Traditional Information Literacy: to locate, select, evaluate and use information effectively.

(vii) Visual Literacy: to see and understand the information, and

(vii) Web Literacy: to locate, select, retrieve and use the information from the web.

Benefits of Information Literacy

The following benefits of information literacy may be observed:

(i) Expansion of knowledge through substantive operations of knowledge creation.

(ii) Synthesis of data and information into knowledge.

(iii) Appropriate and critical application of information and knowledge in problems solving.

(iv) Enhancement of critical thinking.

(v) Incorporation of validated information in the personal or corporate knowledge base.

(vi) Motivation for self-directed learning, and

(vii) Appreciation for life long learning

National Program in Information Literacy

GOVERNMENT INITIATIVES FOR PROMOTING LITERACY

National Policy on Education (NPE)

In 1951 India‟s literacy rate was only 18.3 per cent. Today it stands at 64.8 per cent. The National Policy on Education (NPE) provides a broad policy framework for eradicating illiteracy NPE and programme of Action, 1986 (updated in 1992) envisages a national system

for education for the universalisation of primary education and the spread of adult literacy. The policy stresses the widening opportunities for the masses. It emphasises the need for a much higher level of investment in the education of at least six per cent of the national income.

Right to Education Act From 1950 onwards, free and compulsory education was enshrined as one of the Constitution's Directive Principles of State Policy. The 86th amendment to the constitution in 2002 states the state shall provide free and compulsory education to all children of the age 6 to 14 years in such a manner as the state may by law determine. Nearly eight years after the amendment, the government implemented the law on 1st April 2010 [8].

Right to Information Act

The right to information act passed by the parliament in the 2005 budget session is a path breaking endeavour in giving legal rights to seek information from the government. On a query, the concerned authority has to provide information within 30 days, extendable up to 40 days. If the authority fails to provide information, there is a provision to penalise them. The aim is to create a civil society that makes fully informed choices to ensure the full development of each individual.

NATIONAL PROGRAMMES ON INFORMATION LITERACY

Sarva Shiksha Abhiyan (SSA)

SSA is the flagship programme of the national government launched in 2001 to achieve the goal of universal primary education by 2005 and universal elementary education by 2010. SSA is an effort to universalise elementary education by community ownership of the school system.SSA aims to make the schooling system a joyful experience.

District Primary Education Programme (DPEP)

DPEP was launched in 1994 to revitalise primary education and to achieve the objective of universalisation of primary education. DPEP is based on the principle of „additionality" and is structured to fill the existing gap in central and state schemes. DPEP adopts a holistic and area-specific approach with the district as the planning unit.

National Literacy Mission (NLM)

NLM, initiated in 1988, aimed to attain a sustainable threshold level of 75% literacy by 2007 by imparting functional literacy to non-literates in the age group of 15-35 years. The Total Literacy Campaign (TLC) is NLM's principal strategy for eradicating illiteracy. These

programmes are area-specific, time-bound, participative, cost-effective and outcome-oriented.TLC disseminates socially relevant messages such as enrolment and retention of children in schools, immunisation, propagation of small family norms, women‟s equality and empowerment, peace and communal harmony etc. These literacy campaigns generated a demand for primary education. Thus NLM becomes an active and potent instrument of change, ensuring social objectives and creating a learning society.

National Digital Literacy Mission ('NDLM') will empower at least one person per household with crucial digital literacy skills by 2020. This is expected to touch the lives of more than 250 million individuals over the next few years. NDLM is an effort to complement the government's vision to transform one from each household as digitally literate. The project aims at helping adults with low technological literacy develop the skills they need to interact in an increasingly digital world.

The National Digital Literacy Mission is a dynamic and integrated platform of digital literacy awareness, education and capacity programmes that will help rural communities fully participate in the global digital economy. Our focus is on making technology central to enabling change.

The various stakeholders for the Mission are the Government of India, working to extend the vision of a digital India by promoting e-governance and transforming India into a connected knowledge economy.

Corporate partners, who, through their sustained efforts with NDLM, have been harnessing collective energies to bring down the divisive digital wall.

Implementation partners empower communities with capacity-building and training programs through digital means.

Information Literacy Programmes in India

Information literacy programmes exist in narrower forms in various libraries and information centres in India, such as user education, bibliographic instruction, library instruction, library research, and so on. Many advocates of information literacy in India proposed integrating information literacy programmes with the academic curricula of the educational systems of India, starting from the school level to the higher education, vocational education, professional education and research degree level. Information Literacy Programme at School Level A study of information literacy programmes in India reveals that major initiatives have been taken at the School level.

The Navodaya Vidyalayas, a network of residential schools scheme of the Government of India for the children of rural India covering 6th class to 12th class, are a unique experiment wherein each student is to prepare a project report using the information resources of the respective libraries. The syllabus provides opportunities to use the information and IT to facilitate learning. There are 509 schools spread over 34 States and Union Territories, with a strength of 0.158 million students. In other cases, most of the Schools at the middle and higher levels have library facilities with IT components. In many classes, how to use library resources, like, atlases, encyclopaedias, dictionaries, periodicals, etc., are usually taught and demonstrated.

These resources are now available both in print format as well as electronic format. Erstwhile Indian National Scientific Documentation Centre (INSDOC) (Now National Institute of Science Communication and Information Resources) developed an audio-visual programme for junior school children about how to find information from such sources. Many Schools have library hours as a part of the curricula, mostly to educate pupils about using the library for classwork and projects. Similarly, many public, convent, and government schools have good library facilities and information infrastructure. In these schools, library classes are allotted for every primary, secondary and senior secondary level class, where information literacy competency is provided.

Public library development in the state is the responsibility of the respective state government. Ten states in India have enacted Public Libraries Act in their states. The library legislation ensures the smooth functioning of public libraries in the state. A state may have three

tiers of public libraries in the hierarchy. The apex body would be a state central library. The next tier consists of district libraries in all state districts, and the third tier consists of rural and urban public libraries spread all over the state. Public Libraries Act also ensures each village or city at least have one government-aided public library. This Act also makes provisions for finances, human resources and other resources for the development and functioning of public libraries. Some state governments provide grants for public libraries; others collect Library Cess from the taxpayers. The states that passed Public Libraries Act are shown below, along with the year:

• Tamil Nadu (then called Madras Public Libraries Act, 1948);

• Andhra Pradesh (Hyderabad Public Libraries Act, 1955; then Andhra Pradesh Public Libraries Act, 1960);

• Maharashtra (Kolhapur Public Libraries Act, 1945; then Maharashtra Public Libraries Act, 1967);

• Karnataka (Mysore Public Libraries Act, 1965; then Karnataka Public Libraries Act)

• West Bengal (West Bengal Public Libraries Act, 1979);

• Manipur (Manipur Public Libraries Act, 1988);

• Kerala (Kerala Public Libraries Act, 1989);

• Haryana (Haryana Public Libraries Act, 1989);

• Mizoram (Mizoram Public Libraries Act, 1993);

• Goa (Goa Public Libraries Act, 1994) • Uttaranchal (Uttaranchal Public Libraries Act, 2005).

International Program in Information Literacy

Some associations have produced detailed frameworks describing desired characteristics or outcomes for the information-literate person. These include the ACRL (Association of College and Research Libraries, 2000) Information Literacy Competency Standards for Higher Education developed in the United States, the Australian and New Zealand Information Literacy Framework (Bundy, 2004) and the Seven Pillars of Information Literacy model produced by the

United Kingdom's Society for College, National and University Libraries (SCONUL Task Force on Information Skills, 1999). The ACRL standards have also been translated into other languages (e.g. Homann, 2002). At the time of writing, the Information Literacy Section of the International Federation of Library Associations and Institutions (IFLA) was about to publish an international manual for IL. Some of these documents, particularly the ACRL standards, go into great detail about the desired learning outcomes for an information-literate person, and that material is not duplicated here.

Instead, the areas covered by all the key standards are highlighted as follows.IFLA has established an Information Literacy Section. The Section has, in turn, developed and mounted an Information Literacy Resources Directory called InfoLit Global. Librarians, educators and information professionals may self-register and upload information-literacy-related materials (IFLA, Information Literacy Section, n.d.).

The LIS student should:

• Be able to recognise when they need information, identify the nature of the information need, and the gap between what they know and what they need.

• Be aware of what different channels and sources are available, be able to identify the appropriate resources for a particular information need, and use these resources effectively to acquire the needed information.

• Be able to evaluate information effectively.

• Be able to manage and apply information.

• Be able to synthesize information and use it to create new knowledge and understanding.

• Be aware of the cultural, ethical, economic, legal, and social issues surrounding the use of information. Additional important skills, knowledge and attitudes are highlighted in other prominent statements, for example, the Prague Declaration (Information Literacy Meeting of Experts, 2003), or were identified as important for LIS students in a discussion that took place as

part of this project. These skills, knowledge and attitudes are summarised as follows: The LIS student should:

• Understand key definitions and models of IL, including similarities and differences between them;

• Be aware of different contexts (e.g. social life, workplace, education, private life) for information literacy, and understand the implications for IL in these different contexts;

- Be able to distinguish the relationship of IL with other literacies (e.g. media literacy, IT literacy) and understand the importance of basic literacy skills in underpinning IL;
- Understand the relationship between IL and other LIS skill and knowledge areas (e.g. Knowledge Management, Information Retrieval);
- Understand the research base for IL: understanding key models and theories (e.g. Bruce's (1997) 7 faces model) and being aware of appropriate research approaches;
- Know the functions and scope of key IL organisations and initiatives in the student's country;
- Be aware of the history and origins of IL.

1. Curriculum design and planning, including:
   • identifying learners' needs;
   • developing appropriate learning outcomes to meet those needs;
   • understanding and applying appropriate modes of assessment;
   • aligning teaching, learning and assessment in course design;
   • understanding the appropriate use of technology in designing learning environments; • evaluating IL courses and training sessions, including those delivered online. 2. Understanding learners and learning theory, including • learning models and theories, including learning styles, learning strategies and e-learning models; • needs and characteristics of particular types of learners, e.g. distance learners, e-learners, adult learners, learners with special needs; • information behaviour and IL research providing insight into the conceptions or educational needs of learners. 3. Understanding basic concepts, theories and practice of teaching, including:

According to the IFLA website, "The primary purpose of the Information Literacy Section is to foster international cooperation in the development of information literacy education in all libraries and information institutions."

This alliance was created from the recommendation of the Prague Conference of Information Literacy Experts in 2003. One of its goals is to allow for the sharing of information literacy research and knowledge between nations. The IAIL also sees "lifelong learning" as a basic human right. Its ultimate goal is to use information literacy to allow everyone to participate in the "Information Society" to fulfil this right.

conceptions of, and approaches to, teaching;

• teaching methods and tools, including the use of technology;

• collaborative teaching, including issues concerning collaboration with specific groups, e.g. collaboration between librarians and academics in teaching. 4. Understanding the context for teaching and learning, including:

• awareness of education policy and practice in specific countries/sectors;

• the place of learning in a citizen's life and the concept of lifelong learning;

• understanding key issues concerned with teaching IL in particular sectors

(e.g. schools, higher education, companies, museums, health, public libraries);

• understanding issues concerned with the teaching and learner support role of the librarian;

• understanding the role of IL with other library and information services;

• understanding how LIS professionals can communicate the benefits of IL education to their users.

The following organizations are founding members of IAIL:

- Australian and New Zealand Institute for Information Literacy (ANZIIL), based in Australia and New Zealand
- European Network on Information Literacy (EnIL), based in the European Union
- National Forum on Information Literacy (NFIL), based in the United States

- NORDINFOlit, based in Scandinavia
- SCONUL (Society of College, National and University Libraries) Advisory Committee on Information Literacy, based in the United Kingdom

UNESCO Media and Information Literacy

According to the UNESCO website, this is their "action to provide people with the skills and abilities for critical reception, assessment and use of information and media in their professional and personal lives".[34] They aim to create information-literate societies by creating and maintaining educational policies for information literacy. They work with teachers worldwide, training them in the importance of information literacy and providing resources to use in their classrooms.

UNESCO publishes studies on information literacy in many countries, looking at how information literacy is currently taught, how it differs in different demographics, and how to raise awareness. They also publish pedagogical tools and curricula for school boards and teachers to refer to and use.

State of the art will concern Belgium, France, Quebec, and Switzerland and will be extended to French-speaking African countries in the update of this 2010 report. In French-speaking African countries, we will speak about Senegal, Togo, Ivory Cost, Burkina Faso, and Congo Democratic Republic.

The concept of Information Literacy appears in different countries but — at different levels — with different ways of organizing it. In all these places, the most visible part of Information Literacy occurs in the educational field (secondary and college-university levels). There are many initiatives of life-long training in Information Literacy offered to citizens, but it is not as visible and organized as the previous one. Information Literacy is not visible at an institutional or State level (no law as there is in other parts of the world, no mention of the term in political statements).

1. Basic concepts of information literacy There is an agreement on the definition of the concept – although there is no clear, written, stated definition as the ALA definition- but the different countries commonly use no term equivalent to Information Literacy. It is difficult to translate the

expression because “literacy” is used for reading literacy and wouldn’t have the same meaning as in English. The term chosen by IFLA to translate IL is “Maitrise de l’information”, and it might be the better one. Other terms that are frequently used are “formation des usagers” (users training) or “competences informationnelles” (Information competencies).

2. General organisation These French-speaking countries have different ways of organizing Information Literacy depending on their political and educational structure. Belgium is a bilingual-multicultural country.

The situation is quite different from France in the French-speaking part of Belgium since there is no unique national policy and no institutional funding for developing IL. However, efforts in the field have been made since the late ’80s (Thirion, 2003).

From this time, some convinced librarians created a working group, named initially “Training user group”, then in 1997, the “EduDoc Group”. But the EduDOC group, a non-profit organization, unfortunately, decided to discontinue its activities in 2010.

Between 2006 and 2008, the EduDOC group, in collaboration with the Interuniversity Council, has been working on a survey on IL skills of first-year incoming undergraduate students. Created in 2003 by the Sub-committee of libraries of the CREPUQ, the Conference of Rectors and Principals of Quebec Universities (Mittermeyer, 2005), this survey1 has already been replicated and adapted in several European countries in 2005 (but the results are not yet known) and was adapted to the Belgian situation. The questionnaire was sent anonymously in September 2007 to 4388 students selected randomly in 34 higher education institutions. The response rate of over 42% was particularly high (to maximize the response rate, organizers allow participating in a raffle of a Laptop sponsored by Dell). The analysis (Thirion, 2009) of the data collected helped assess students' IL skills and determine what factors influence those skills. The main goal was to adapt the existing IL programs and promote the creation new IL programs.

The objectives of the EduDoc Group have been to reflect on and observe the IL situation in the French-speaking part of Belgium and abroad and to promote IL for librarians, teachers and decisions-makers. The group developed its activities in multiple directions: meetings and conferences, web site, papers and an Email discussion group about IL on the internet http://www.lists.ulg.ac.be/mailman/listinfo/edudoc Each of the 7 French-speaking universities

has its policy. There still is a positive trend in universities that created some IL courses or training sessions (Pochet, 2004). This was reinforced by the Bologna process, which gave a positive sign in including Information Literacy in the new definition of ECTS.

Various new IL teaching initiatives are being carried out. Another positive sign comes from outside the universities: an introductory course in "information retrieval" (15h) is now required for all future school teachers (primary schools and the first three years of secondary school).” Unfortunately, at this moment, this political initiative remains isolated. b.

France is a centralized country where the State plays an important role by financing and controlling activities. Therefore, it is unsurprising that the State rules Information Literacy in secondary and higher Education.

Information Literacy in France, as in many other countries, became a key issue at the end of the 90s. It is a law in 1996 that helped to embed IL courses in the curricula, while the reform of the studies at the European level –known as the “Bologna Agreement” introducing three levels of diplomas in 1999–emphasized the embedding.

There is important financial and institutional support from the State, especially for publishing pedagogical resources. Many of these resources are gathered on the French-speaking website FORMIST.

Formist is a service of the French National LIS School, Enssib, which plays a role in keeping a network among teaching librarians through its annual Conference and website. There are libraries in secondary schools, and the librarians there are called “teachers librarians”. They take specific exams similar to those of disciplinary teachers. The trend is to identify the convergences and divergences between the different literacies: media literacy, information literacy and digital literacy. A team of researchers, ERTé Culture informationally et curriculum documentation, works together to fill the gap between secondary schools and colleges or universities concerning IL education3. They pointed out the necessity to build a unified curriculum from school to university. c. Quebec has its specificities, but being close to the United States and part of Canada strongly impacts Information Literacy there. Information literacy started earlier than in Europe. The annual Conference WILU /AAFD started in 1971. Two important points: — the bilingual situation which leads Quebec to translate in French many

English documents (ACRL standards, for example) — as in many other countries, universities are quite independent in defining their policies. This is why some of them, such as the Université de Montréal, wrote a statement concerning IL at the University. http://www.direction.umontreal.ca/secgen/pdf/reglem/francais/sec_30/ens30_

a. In French-speaking Switzerland, it is difficult to identify a specific policy concerning Information Literacy at a regional scale. As universities and schools are autonomous, it would be better to speak of the local initiatives spreading out.

b. In French-speaking African countries, the major issue remains ICT and the lack of information systems or OPACS. But now the Internet made progress, though facilities are not spread enough. Some countries like Ivory Coast, Benin, Congo democratic Republic (RDC), Senegal, Burkina Faso, and Burundi have started training users and trying to make students Information literate. The network RESSAO (Réseau pour l'excellence de l'enseignement supérieur en Afrique de l'ouest), born in 2005, bring together 18 universities from 6 French speaking Western African countries.

In their recent meeting in 2010, the academic libraries defined the development of Information literacy among the six key objectives in the strategic plan. In Kinshasa, DRC, the CEDESURK (Centre de Documentation pour l'Enseignement Supérieur et la Recherche de Kinshasa - http://www.cedesurk.refer.org/) offers several training programs to librarians, teachers and researchers of higher education institutions. These programs are supported by the AUF (Agence Universitaire de la Francophonie) and the CUD (Belgian French-speaking Academic Cooperation).

In 2006, the Defist project (see "B. IL products for users") was adapted for a new distance learning IL program (Kasajima, 2008). This initiative is part of an extensive program for the interconnection of major universities in RDC. It will be the first source of developing IL skills in RDC, alongside access to full text, catalogues and databases.

Communication and networks for LIS educators in the domain

It should be noted that there is no European or international organization, institution or association for LIS educators whose main concern is IL within the LIS curriculum. However, many organizations, networks and associations at a global, regional and national level have promoted the issue of IL and made an invaluable contribution to thinking about IL and developing LIS curricula with an IL component. Many international projects, conferences and discussion lists also support communication and networking. Thus, LIS educators in Europe have been active in IL initiatives internationally (Virkus, 2003). Perhaps, the best-known intergovernmental organization that has started the promotion of IL in the context of its Information for All Programme (IFAP) is the United Nations Educational, Scientific and Cultural Organization (UNESCO). During the 8th meeting of the Bureau of the Intergovernmental Council for the Information for All Programme at UNESCO Headquarters in Paris, a Thematic Debate on Information Literacy took place on 5 April 2005. The debate aimed to identify the contribution that IFAP could make to allow all people to become information literate. With the support of UNESCO, several major IL initiatives have been arranged; for example, the Information Literacy Meeting of Experts in Prague in September 2003, UNESCO was also a co-sponsor of an international leadership colloquium on IL, which was held in Alexandria, Egypt, November 6–9, 2005. UNESCO's main strategy in IL consists of awareness-raising about the importance of IL at all levels of the education process – basic education, primary and secondary education, technical and vocational training and lifelong education – and establishing guidelines for integrating IL issues in curricula. A particular focus will be on training teachers to sensitize them to the importance of IL in the education process to enable them to incorporate IL into their teaching and to provide them with appropriate pedagogical methods and curricula. European LIS educators have been invited to Prague and Paris meetings as major experts. The International Federation of Library Associations and Institutions (IFLA) focused on teaching IL by establishing a Roundtable on User Education in 1993. At their meeting during the IFLA Boston conference in August 2002, the Round Table changed its name to the Information Literacy Section.

The primary purpose of the IL Section is to foster international cooperation in developing IL education in all types of libraries. The Section focuses on all aspects of IL, including user

education, learning styles, the use of computers and media in teaching and learning, networked resources, partnerships with teaching faculty in the development of instructional programmes, distance education, and the training of librarians in teaching information and technical skills. The Section's mission is to disseminate information on IL programmes and trends and work closely with other IFLA bodies and other organizations in developing programmes, workshops and projects related to IL education. Again, European LIS educators participate actively in this section. There are also some international associations with IL interest groups (for example, the International Association of School Librarianship (IASL) Information Literacy Special Interest Group). Still, European LIS educators are not actively involved in those groups.

Upon a recommendation from the Prague Meeting of Information Literacy Experts, several organizations (e.g. Australian and New Zealand Institute for Information Literacy (ANZIIL), US National Forum on Information Literacy, NORDINFOlit, SCONUL Working Group on Information Literacy, etc.) are committing to creating an International Alliance for Information Literacy. The evolving purpose of the Alliance is to facilitate the sharing of information and expertise on IL across regions and nations of the world. The Alliance will consist of organizations that act as nodes worldwide (National Forum on Information Literacy, 2005).

Professional organizations and associations in some countries or representing specific regions of the world have promoted the importance of IL. For example, in the USA, Australia and New Zealand, professional associations have made an invaluable contribution to thinking about IL, contributed towards IL practice, and developed standards and recommendations that have been influential nationally and internationally. In Europe, the European Union has taken various initiatives supporting networking and communication in the IL area, though the lack of coherent and long-term policy is clear. For example, several IL projects involving European LIS educators have been funded by the EC – EDUCATE, DEDICATE, LOCOMOTIVE, DELCIS, etc. (Virkus, 2003). There are also various IL initiatives in Europe where LIS educators participate.

For example, the European Network for Information Literacy (ENIL) - a network of researchers focused on creating a common research agenda and exchanging best practices on IL; the European Network for School Libraries and Information Literacy (ENSIL); Library and

Learning Support Working Group (LLSWG) of European Association of Distance Teaching Universities (EADTU) – a network for exchanging best practice and facilitating IL in European ODL institutions, the Nordic Forum for Information Literacy (NORDINFOlit) - a cooperative initiative of Nordic countries in the field of IL (Virkus, 2003). At the national level, professional institutions and organizations in several countries have included IL in their agenda. For example, the Society of College, National and University Libraries (SCONUL) and the Chartered Institute of Library and Information Professionals (CILIP) have been the main promoters in the UK. Several organizations and interest groups in Sweden work on and discuss the subject, for example, Svensk Biblioteksförening with a special group for pedagogical issues at the library. In Denmark, some special interest groups focus on IL. In the Netherlands, for example, LWSVO (National Workgroup of School Librarians in Secondary Education) assists school librarians in implementing new developments in the school and school library. In Spain, a working group on IL issues was set up in Cataluña under the name ALFINCAT. It includes a wide membership from other regions to exchange ideas, approaches and good practices and the advancement and promotion of the IL agenda (Virkus, 2003). These are just a few examples of national IL activities involving LIS educators. The main activities of national institutions and organizations have been arranging conferences and seminars, sharing experiences and facilitating thinking about IL among professionals. Professional associations of LIS educators, such as the European Association for Library and Information Education and Research (EUCLID), have recently started to pay more attention to IL issues. IL and learning are regarded as one main interest area within the LIS curriculum in the "LIS Education in Europe: Joint Curriculum Development and Bologna Perspectives" project. However, it should also be noted that even though the Bologna process has influenced several structural changes in European LIS education and also supported many earlier developments, its influence on the development of IL has not been significant.

Breivik (2000, p. xi-xii) identified key issues that must be addressed for IL efforts to be more effective and extensive. There was no evidence of mapping the research needed in the IL and LIS curriculum. However, the general areas reflected in the ACRL Agenda and those identified by IL researchers are also relevant to the LIS education domain.

For example, to mention only a few:

• Investigating the effectiveness of different methods of instruction for addressing various learning styles;

• Understanding the impact of the Internet, as a teaching tool, on learning styles and the implications for IL;

• Investigating whether the structure and delivery of instruction differ when organized according to goals or concepts such as lifelong learning, subject-based teaching, course-integrated instruction, course-related instruction, or credit-bearing library courses;

• Exploring how an institution can ensure that librarians participating in IL efforts have the knowledge and skills to make the programme successful.

Thus, research into IL, and research in the educational domain in general, greatly impacts how we integrate/embed IL into the LIS curriculum and facilitate both our LIS students' learning in information literacy and these students' learning of how to facilitate others' information literacy.

Products of users

1. Tutorials

a. **Defist** (Développement d'une Formation à l'Information Scientifique et Technique = Development of scientific and technical information training programs) was launched in 2003 in Belgium (Pochet, 2005). It is a research program whose aim was to create a Web-based adaptive distance learning information literacy system. http://www.bib.fsagx.ac.be/edudoc/defist.htm This project is being used as a template to develop a new IL tool in the Democratic Republic of Congo (see below). There are also a lot of other tutorials created by several universities: http://www.bib.ulb.ac.be/fr/aide/faq/index.html (Brussels Free University) http://www.bib.fsagx.ac.be/edudoc/Metho.DOC/ (Ulg - Gembloux Agro-Bio Tech) following the FAQ model

b. In France, many libraries work on self-training tutorials inside their universities. We won't mention all of them but rather talk about Cerise -Conseils aux Etudiants pour une Recherche

d'information Specialisée Efficace- which offers a basic step-by-step method. http://urfist.enc.sorbonne.fr/anciensite/cerise/index.htm A database collects all the information concerning courses and tutorials in French universities: SinFoDoc http://adbu.fr/sinfodoc/presentation/index.php

c. In Quebec, Infosphere http://www.bib.umontreal.ca/infosphere/ is a tutorial providing a methodology for seeking step-by-step information in Human and Social Sciences or Sciences. It has been adopted in different universities: in Quebec and France (Strasbourg university) and Belgium (4 universities forming the Académie Louvain).

d. In Switzerland, CALIS (Computer-Assisted Learning for Information Searching) is a tutorial on information retrieval and using scientific information in an academic environment, developed between 2001 and 2003. Since 2005, CALIS has been adapted to meet the needs of several fields: economic and social sciences, business studies, psychology etc. http://www.unige.ch/biblio/ses/calis/index.html It has been adapted for other countries in French Speaking Africa. The version is called CALIS Sud 4

2. Credit courses Almost all universities offer courses, library tours or workshops on a facultative basis. But in different countries, the objective is to embed Information literacy in the curriculum and to have it compulsory, and credit is given. More and more places fulfil the

Objective, but there are still big differences: Only facultative/optional courses or workshops on an individual basis — both credit-given courses in the curricula AND the optional type of courses — IL workshops with or without assessment integrated within larger methodological courses In Belgium, the main universities (Liege, Louvain, Bruxelles) are offering credited courses (Pochet, 2004).

In France, a 2005 survey showed that since the Bologna agreement and mostly since 2003, the trends were to have more and more courses in the curricula. 6 In 2006, general statistics noticed that more than 120000 students out of 170000 were trained within the curricula7. The national plan, "Réussite en Licence », intended to help the success in the first years at University, was an opportunity to develop IL courses into the curricula. In Quebec, the main universities and university libraries are more and more involved in the subject of

information literacy. We cited the General Policy at the University of Montreal, but in other universities, Information literacy activities are increasingly included in the curricula.

The Library of the Université Laval in Québec made a very interesting document for the academy, relating the ACRL standards to the discipline. This document explains the information literacy requirements to the teachers step by step.8 In Switzerland, courses are offered both in and outside the curriculum.

The universities of Lausanne and Geneva are very active in courses. No shared evaluation or assessment tools in the different communities. In France, there is an ICT test at the university called Cii (Certificat Informatique et internet / Computer and internet certificate) with an information-seeking part http://c2i.education.fr/. Several universities used this opportunity to integrate IL objectives and develop IL courses

In French-speaking African countries, four universities from the REESAO (two in Senegal, one in Togo and one in Burkina) have integrated information literacy into curricula.

In "Information Literacy as a Liberal Art", Jeremy J. Shapiro and Shelley K. Hughes (1996) advocated a more holistic approach to information literacy education, one that encouraged not merely the addition of information technology courses as an adjunct to existing curricula but rather a radically new conceptualization of "our entire educational curriculum in terms of information".

Drawing upon Enlightenment ideals like those articulated by Enlightenment philosopher Condorcet, Shapiro and Hughes argued that information literacy education is "essential to the future of democracy, if citizens are to be intelligent shapers of the information society rather than its pawns, and to humanistic culture if the information is to be part of a meaningful existence rather than a routine of production and consumption".

To this end, Shapiro and Hughes outlined a "prototype curriculum" that encompassed the concepts of computer literacy, library skills, and "a broader, critical conception of a more humanistic sort", suggesting seven important components of a holistic approach to information literacy:

- *Tool literacy*, or the ability to understand and use the practical and conceptual tools of current information technology relevant to education and the areas of work and professional life the individual expects to inhabit.
- *Resource literacy*, or the ability to understand information resources' form, format, location and access methods, especially daily expanding networked information resources.
- *Social-structural literacy*, or understanding how information is socially situated and produced.
- *Research literacy*, or the ability to understand and use the IT-based tools relevant to the work of today's researcher and scholar.
- *Publishing literacy*, or the ability to format and publish research and ideas electronically, in textual and multimedia forms ... to introduce them into the electronic public realm and the electronic community of scholars.
- *Emerging technology literacy*, or the ability to continuously adapt to, understand, evaluate and use the continually emerging innovations in information technology to not be a prisoner of prior tools and resources and to make intelligent decisions about adopting new ones.
- *Critical literacy*, or the ability to critically evaluate the intellectual, human and social strengths and weaknesses, potentials and limits, benefits and costs of information technologies.

Information Literacy Initiatives at the Global level

Information Literacy has become a global issue which received greater attention in the 1990s & 2000s. This led to many countries framing IL standards/guidelines/framework. The ALA, AASL, UNESCO, IFLA and several organizations worldwide developed IL programmes. A few such initiatives are mentioned in the following paragraphs.

The American Library Association (ALA) formed a Presidential Committee on Information Literacy in 1989, which took the initiative and devised IL standards and indicators. These standards and guidelines provide essential competencies required for information seekers. The American Association of School Librarians (AASL) released National School Library Standards for Learners, School Librarians, and School Libraries. It provides school librarians with a structure to develop a curriculum tailored to their local priorities and accommodate learner growth through personalized experiences (American Library Association, 2018). The SCONUL

Working Group on Information Literacy published "Information Skills in higher education: a SCONUL position paper" in 1999, introducing the Seven Pillars of Information Skills model. This model was revised in 2011 and then reviewed in the year 2015. Librarians and teachers around the world have adopted this model as a means of helping them to deliver information skills to their learners. The Association of Colleges and Research Libraries (ACRL) formulated the IL framework and competency standards. In 2011, ACRL formed the Task Force to revise existing information literacy standards. In 2016, the ACRL board adopted the 'Framework for Information Literacy in Higher Education' based on a cluster of related core concepts with flexible options for implementation rather than on a set of standards or learning outcomes or any prescriptive enumeration of skills. The Council of Australian University Librarians (CAUL) approved the revision and adoption of ACRL standards and named the revised set of benchmarks Information Literacy Standards. The second edition was renamed the Australian and New Zealand Information Literacy Framework (ANZIL), providing four guiding principles and more comprehensive details for each of the six core standards. Many educational institutions have adopted this framework extensively in the region (Bundy, 2004).

At Victorian School, Australia, Nicholls (2015) developed a multi-stage literacy programme that consisted of five cycles; Diagnostic Assessment Cycle, Strategies Cycle, Mid-Cycle Assessment, Strategies Cycle and End of programme assessment supported by the data tracking system. He designed the 'Literacy Continuum' to collate and track each student's literacy assessment data to assess each student's improvement. In 2003 IFLA and UNESCO jointly organized a workshop for Southeast Asian countries to improve Information Literacy education in schools (Singh et al., 2005). In 2010 a group of researchers from Nanyang Technological University, Singapore, proposed a 6+3 model to help develop Information Literacy standards in Singapore schools (Mokhtar et al., 2009). A New Curriculum for Information Literacy (ANCIL) framework was developed following the findings of the Arcadia project at Cambridge University. It empowers undergraduates to handle new information situations (Coonan & Secker, 2011). School librarians recognize the importance of having a systematic framework for teaching media and information skills, and they contribute to enhancing students' skills through collaborative work with teachers (IFLA, 2015).

Student Practices

Lower Division Courses

Students who are developing their information literacy skills will:

- Formulate viable exploratory research questions, conceptualizing research as a critical inquiry and discovery process. **[Research as Inquiry; Searching as Strategic Exploration]**
- Recognize search tools (such as library databases, online search engines, etc.) appropriate for specific purposes and conduct strategic information searches, revising research questions and search strategies as needed. **[Research as Inquiry; Searching as Strategic Exploration]**
- Distinguish among common information sources (including primary and secondary sources) and explain key differences in creation and dissemination processes (such as peer review) across digital and print contexts. **[Authority Is Constructed and Contextual; Information Creation as Process]**
- Evaluate the credibility and relevance of information sources, applying specific evaluative criteria appropriate for the research context or situation. **[Authority Is Constructed and Contextual; Information Creation as Process]**
- Identify themes and points of view within the "conversation" surrounding a particular issue or topic. **[Scholarship as Conversation]**
- Apply appropriate citation conventions, demonstrating knowledge of basic intellectual property concepts and ethics. **[Information Has Value]**

Upper Division Courses

Students who are developing their information literacy skills will:

- Define specific lines of inquiry within a disciplinary context and utilize appropriate discipline-specific search tools to conduct advanced searches for scholarship, statistics/data, archival materials, or other relevant sources. **[Research as Inquiry; Searching as Strategic Exploration]**

- Identify authoritative sources in a particular discipline and speciality area (such as key texts, scholars, etc.). [**Authority Is Constructed and Contextual; Scholarship as Conversation]**
- Evaluate and analyze the credibility and relevance of scholarly literature and other information sources through a disciplinary lens, with particular attention to evidence, assumptions, and implications. **[Authority Is Constructed and Contextual]**
- Demonstrate an awareness of privileged and marginalized information sources (such as peer-reviewed sources, social media sources, etc.), recognizing the strengths and limitations of various points of view. **[Authority Is Constructed and Contextual; Information Has Value]**
- Synthesize significant themes and identify potential gaps in knowledge within the disciplinary "conversation" surrounding a particular issue or topic. **[Research as Inquiry; Scholarship as Conversation]**
- Apply discipline-specific citation conventions, demonstrating a more nuanced understanding of intellectual property concepts and ethics. **[Information Has Value]**

Graduate Courses

At the graduate level, students should continue to develop the practices defined for upper-division courses, in addition to the following:

- Distinguish among traditional venues (such as subscription-based journals and databases) and alternative venues (such as open-access publications and social media) to disseminate scholarship and make informed choices about where to publish. **[Information Creation as Process; Scholarship as Conversation]**
- Evaluate the influence and impact of particular scholarly contributions in context, using appropriate disciplinary metrics, such as impact factor, alt metrics, etc. **[Authority Is Constructed and Contextual; Information Has Value]**
- Identify a particular disciplinary perspective's scope and limitations and recognize the potential value of additional disciplinary perspectives (i.e., interdisciplinarity). **[Research as Inquiry; Scholarship as Conversation; Searching as Strategic Exploration]**

- Apply relevant principles of copyright and fair use to create and disseminate scholarship, demonstrating an understanding of authors' rights. **[Information Creation as Process; Information Has Value]**
- Organize and manage the information-seeking process for large-scale research projects using appropriate citation management tools and strategies. **[Information Creation as Process; Searching as Strategic Exploration]**

CURRENT LIBRARY SYSTEMS

International students do not lack basic computer skills. However, they face a steep learning curve in understanding how today's library and information systems work. Most have never encountered libraries as big as the ones they now have to master. Certainly, they have experience with Google, the world's largest database (sigh), but Google is a poor choice for the resources they need in higher education. Academic databases are something else entirely. Here are the challenges: First, there is the struggle most students face in determining the differences between journals and articles and chapters and "scholarly" vs "popular." The academic information landscape is increasingly baffling with all the quasi-scholarly stuff increasing on the web. Second, in cultures that have valued memorization of the knowledge base, just about any search result from a database seems relevant as long as it touches upon the topic being searched. When language struggles make it difficult to see the nuances in found resources, reference lists in research projects tend to cover multiple aspects of a topic rather than being narrowly focused on a research problem. Third, without instruction, international students face the same challenges with databases that other students experience.

Optimizing search tools requires knowledge of advanced searches, limiters, and alternate search strategies. When everything is new and strange, databases can be overwhelming, yet Google doesn't provide the kinds of resources that professors want to see. Fourth, formulating search terminology is challenging. International students tend to search too broadly or separate the concepts of their research problems into different searches rather than searching for the concepts in combination.

Fifth, without much background in problem-based inquiry research, knowing what to do with search results is problematic. Simply summarizing what you have found will not get you good grades.

International students need to learn how to organize found resources around a research problem and the scholarly conversations surrounding their issue. This is not to mention the difficulties international students often have with creating outlines according to Western customs, understanding literary language, and figuring out how to integrate found information within a written project. Their struggles with English pale compared to the other barriers that stand in the way of their success.

ENLISTING THE INHERENT GIFTS OF INTERNATIONAL STUDENTS If we want to work with international students to enhance their information literacy, we must avoid starting with their weaknesses. We have to enlist their strengths. Let's consider a few of these. First, they are quick studies. You can't travel thousands of miles to a country where the language and customs are mysterious and then enter a rigorous course of study without being able to think on your feet and appropriate new knowledge at an accelerated rate. International students pick up their skills quickly.

We can work with that. Second, they usually have digital skills that function well in new situations. They have navigated complex application, and registration systems, not to mention the computing skills needed to navigate the regulations that got them into the country and that will enable them to stay here. I find that, in general, international students navigate their way around library systems relatively quickly, even if they struggle with formulating the right search terms and appropriately evaluating their resources. Third, they are exceedingly hardworking. With the commitment required to be our students, they are determined to succeed. Many of them are quite used to spending long hours on their studies. That's how they got here in the first place.

While an intense work ethic plus the ever-present fear of failure can put their mental health at risk, that work ethic exists. Hardworking, motivated people are likelier to do well with information literacy instruction.

Recognizing International Students

We are all actively recruiting international students, and our services are improving over the bad old "sink-or-swim" days. But information literacy instruction with these students requires that we reconsider the methods we are using. I have suggested that an ideal approach is to enter our students' narratives with the message, "I want you to succeed." Information literacy is a process. You cannot develop it in a student within a short period. Yet that is often the kind of time frame we are working with. To be able to walk with these students as a part of their story optimizes what we can help them do within the limitations we have been given. They have worked so hard to reach this stage, and it is a privilege to help them further their journey.

Web-based Information Literacy

In many cases, the Internet and technological applications are considered primary means of the educational procedure, as they broaden and maximize the options and possibilities of information dissemination. Web-based instruction is accepted worldwide as an effective educational method, offering many advantages and enriching the educational competencies of learners. The basic and descriptive characteristic of WBI is that it is delivered through electronic mediums; it can be easily updated, transformed, upgraded and instantly shared.

WBI is defined as a set of strategies focusing on constructivist theories of learning, promoting collaboration and using all the assets WWW can offer. From the instructor's point of view, WBI is an additional implementation tool to traditional instructional methods, if not replacing them, as it allows course creation and the use of various educational tools. IL librarians, becoming instructors themselves, have adopted and endorsed technological applications to upgrade their services and serve their patrons to the maximum extent. WBI brings an innovative perspective to library services, as it enhances the distribution of information by eliminating time and place constraints and its considerable pedagogical potential. WBI has become an ideal solution for IL. Its dynamic character promotes interaction between the learner and the systems and, in some cases, with the IL instructor. As Tobin and Kesselman state, WBI is not just some internet pages put together, making a set of static information. On the contrary, IL online tutorials reinforce the active learning process.

WBI design requires advanced instructional methodology and design. A most attractive feature of WBI is the employment of multiple media types for presenting educational material and other sources of information. Brown and Voltz have identified six elements which require the implementation of instructional methodology and design. These are activity, scenario, feedback, delivery, context, and impact [10]. Since lack of “face-to-face” communication is an inherent characteristic of WBI, or it exists to a very small extent, extra attention must be paid to details in tools and features that would have been used and managed in traditional teaching procedures. In the design process of a WBI platform, it would be a mistake not to follow a careful design strategy according to existing best practices and examples. For example, a poorly designed or outdated interface can become a factor that may restrict a user's learning ability, as it diminishes his interest.

The Library

IL and higher education are two interconnected sections which should function in accordance. The library should focus on every aspect of the academic procedure, being a centre of information access, a working place for every scientific activity inside the academic institution and a place of knowledge. Several surveys have dignified the need for IL courses for higher education students. The Library of ATEI of Thessaloniki (http://www.lib.teithe.gr/) was founded in 1974. Since the beginning, its purpose has been to serve the goals of the Institution: the theoretical and practical education of the students for the implementation of scientific, technological and other qualifications and skills following participation in research programmes.

The library's collection and services meet the academic community's needs and keep up with the current trends in library science to provide its users with current and effective services, combining basic and traditional librarian skills with new technological features. Higher education should combine a modern profile based on knowledge management, information technologies and lifelong learning in today's demanding information world. This change in the academic world challenges academic libraries regarding their educational role. As Powis observed [13], librarians must become educators, developing skills in educational theories, practice, and design [14]. Following the constantly developing character of the Library along with the technological growth, the librarians participate in training seminars, courses and

conferences to enrich their skills and qualifications and meet the demanding challenges of the information world.

Throughout the year, several changes have taken place. User studies followed these changes to monitor user needs. They indicated that the Library gained the respect and the growing interest of its serving community for its continuous efforts to disseminate knowledge and assist in the educational process.

Information Literacy in class

The conceptual model for delivering IL courses to the academic community has been a matter of interest, observance and survey for librarians and educators. Extensive dialogue has occurred regarding the different design models of the IL programmes and the achievement of the educational goals.

The Information Literacy Department of the Library offers IL in-class courses. There are offered on two different levels. At the beginning of each semester, the first level is addressed mainly to first-year undergraduate students (but not exclusively) of all academic departments. The second level of IL in-class courses aims to cover the research information needs of undergraduates in their final year. Thus they are students who are already competent users and are interested in concluding their final undergraduate thesis. Although the central core of the courses is in place, particular specifics of each course are decided between the librarians and the academics to respond effectively to the specific educational needs of the student curriculum. The duration of the IL courses is approximately two hours.

The educational content is adjusted according to the subject field of every individual School out of the five (5) schools and every individual Department out of the 20 Departments of the ATEI (e.g. School of Agricultural Technology, School of Management and Economics, School of Food Technology and Nutrition, School of Health and Medical Care, School of Technological Applications). The subject fields of the curricula include Automation, Library Science, Agriculture - Farming, Nutrition, Administration and Economy, Mechanics,

Information Technology, Food Science, Health and Welfare. The courses taught include a presentation of the Library Services and sources - both print and electronic -, guidance on the formulation of the research strategy, evaluation criteria of the sources, guidance on the compilation of a scientific paper and the ethical use of information emphasizing on how to prepare a bibliography and use of appropriate style manuals.

The Information Literacy Department has also developed an online IL course named "Orion", which is presented in the IL courses, complementing it as a most valuable tool aiming to fulfil the educational objectives of the courses. The general scope of the IL is not only to offer the students the ability to use all print and electronic sources of the Library efficiently but mainly to make them independent and self–reliant, enabling them to identify their information needs, organise appropriate search strategies and make effective and efficient use of their search results. Librarians design a conceptual map of a subject and work with the students to deconstruct its elements and conclude the best possible search strategy. Apart from the specific IL courses, the Library is presented to first-year students during the campus's annual welcoming venue, which every Department holds at the beginning of each academic year.

Implementing Information Literacy through the web

Web-based programmes allow participants to be self-directed and follow their own pace, thus maximising the assimilation of information. For example, Orion aims to educate students in effectively using information and overcoming the barriers of time and space. Those studying the educational material of Orion will obtain knowledge and abilities that will assist them in becoming autonomous in their information searches, evaluating the results and using them appropriately to complete essays and reports successfully. The programme follows the subject categories as these have been stated and established by the Association of College and Research Libraries (A.C.R.L.) (http://www.ala.org/acrl/) and the Australian and New Zealand Institute for Information Literacy (ANZILL) (http://www.anziil.org/).

It consists of five distinct subject areas, which provide students with all the necessary information concerning the cycle of information use: ∞ Defining the information needs ∞ Searching and Acquiring information ∞ Evaluating information ∞ Writing ∞ Proper use of information. The programme follows a well-structured approach to IL training. All units start by

stating the purpose and the expected learning outcome. The educational material is delivered in various ways, depending on the subject area; theory, guidelines, examples and personal assessment via practical exercises and quizzes are usually included. Each unit can be studied separately depending according to student requirements.

Library Instruction to Promote Information Literacy

Few students will enter college as capable researchers, and fewer will still be truly adept at the research process. Most students entering college will not be able to effectively use library resources to find information, let alone use the resources specific to their chosen discipline.

Library instruction helps improve the quality of student research, teaches students the skills they need to use higher-quality resources, and results in students spending less time searching for information and analyzing and synthesizing the information they find.

Library instruction can take on many forms:

- interactive lab sessions
- customized handouts and resource lists
- research guides added to the Canvas course
- online tutorials

Arcadia's librarians customize instruction sessions to an individual class's academic needs and schedule. Instruction can be provided:

- in the classroom
- in a computer lab
- virtually using distance learning technology

The skills that librarians can teach students are also numerous.

- introduce basic research skills to new students
- show upper-level students advanced search strategies
- review discipline-specific resources and tools

- effectively evaluate information
- discuss the importance of scholarly and peer-reviewed journals
- help students learn how to cite information and avoid plagiarism

The rationale for an ESL Information Literacy Component

Given the vital role research plays in university life, even at the undergraduate level, students must know how and when to use various research tools appropriately. The ever-increasing demands placed on all students and faculty by advances in information technology and utilization of educational technology cannot exclude international students if they are to be fully participating members of the academic community, remain competitive, and succeed in their academic and professional goals. [-3-]

The underlying rationale for this course has been to supplement an existing curriculum of EAP goals and objectives with a new course with an additional set of goals and objectives. Modelled on a current course required for all undergraduates in the E. W. Scripps School of Journalism, OPIE's TGERI course has been re-fashioned and substantially redesigned to consider our international students' needs. The international students in the program differ substantially from the journalism students in the areas of language skills, pre-university research preparation and experience, cultural knowledge implicit in both information and information-gathering requirements, the expectations of an American university, and, in many cases, rigorous practice in doing detailed research documentation with requirements and instructor feedback. On the other hand, they share with many American students, both undergraduate and graduate, the need to keep up on some areas: changes in information technology, the need to focus on appropriateness in selecting research resources, developing skills for evaluating the resources they ultimately choose, learning more about and examining plagiarism and other research-related notions.

The TGERI elective aims to provide international students with basic and, in some cases, advanced-level information-gathering and evaluation skills while at the same time improving their English language ability. Thus, in addition to the language goals in the existing curriculum,

particularly in reading, listening/speaking, and classroom interaction skills, specific goals and objectives have been designated for TGERI. More specifically, the new goals are:

1. To increase the student's awareness of the academic expectations and performance requirements of an American university as they relate to information gathering for research and other academic purposes;
2. To develop, *through intensive and regular practice,* information-gathering skills covering a range of electronic and print resources, with particular emphasis on those available through Ohio University, including but not limited to databases accessible via DialNet, SearchNet, OhioLink, and materials on the World Wide Web;
3. To develop each student's ability to improve independently as an effective and efficient information gatherer who can continue to develop and sustain relevant academic information-gathering skills as they relate to both conventional and electronic resources *after the class has ended*; [-4-]
4. To give the student both a theoretical rationale and the practical tools necessary for *evaluating* print and non-print information resources in terms of appropriateness, accuracy, authoritativeness, objectivity, timeliness, and comprehensiveness;
5. Where appropriate, to assist the student in maximizing the value of the academic content courses being taken concurrently with the OPIE elective class on Techniques for Gathering and Evaluating Research Information.

Students engage in and practice activities designed to enable them to meet these objectives. Specifically, they are asked:

- To identify, select, and narrow a research topic appropriately (*N.B. Students do not write a paper for this class, though activities may benefit research undertaken in other classes.*)
- To identify and select appropriate information resources- electronic, print, and other media;

- To evaluate all information resources in terms of sets of criteria;
- To document information, including electronic resources, accurately, consistently, and in conformity with an agreed-upon style;
- To annotate information resources adequately and fairly;
- To design effective and efficient searches utilizing appropriate search terms, related categories, and Boolean logic;
- To demonstrate facility and confidence in executing information search strategies using electronic, print, and other media resources; to be comfortable using different database interfaces;
- To demonstrate an applied understanding of research terminology (e.g., *truncation, Boolean logic, LAN, interface*);
- To familiarize themselves with the Ohio University library homepage and features;
- To demonstrate a familiarity with and understanding of the Ohio University and OhioLINK information resource systems; to practice using and ordering from these information management systems;
- To demonstrate a familiarity with and understanding of selected academic sites and resources on the World Wide Web, particularly evaluative directories, reference tools, and article retrieval sites.

Questions:

1. Write a brief note on information literacy.
2. State the information literacy initiatives at the global level.
3. What do you understand about web-based information literacy.
4. Discuss the current library systems in India.

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Unit III: Methodology of Information Literacy

Introduction

IL is defined in Module 20 of this paper. Here attention is paid to IL products. Informational products can be tangible and intangible, with basic attributes the user can identify and recognise. Each product identifiable by a brand name has some specific features. A product is always prepared to satisfy the needs of a targeted group. Various types of products have been prepared or compiled to satisfy the users' never-ending needs. International Technology Education Association (ITEA), in its report "Standard for Technological Literacy", defined the term product as a tangible artefact that utilises either human or mechanical work or biological or chemical processes. IL products are tangible and intangible, and this definition stresses tangible artefacts more. Merriam-Webster Online Dictionary defines 'product' as 'something that is made or grown to be sold or used; something that is the result of a process; someone or something that is produced or influenced by a particular environment or experience.'

This definition is very wide and incorporates various dimensions of products. In the present century, planning a product or service is a managerial skill involving administrative and financial knowledge. Comparatively, launching or producing a product is easier, but it isn't easy to create brand value and sell the product in a competitive market. LIS professionals have to be more specific in this regard. If planning to launch a product, service, or initiative, LIS

professionals must have proper planning. Planning involves knowledge, skill, experience, customer knowledge, information-seeking behaviour of the customer, knowledge of existing products, the need for resources, financial requirements, etc. In this module, an attempt has been made to give an overall scenario of IL products. Example, Library Brochure, Bibliographic/ literacy instruction Bibliographies Books, Cartoons, comics and posters, Handbooks /Manuals, Library Brochure or Pamphlets, Reports and online products are Blogs/Weblogs, Database Electronic Journals, Online Models, and Online Reports Online Toolkits Online Tutorials Websites.

Library Brochure

The library Brochure is a form of bibliographic database that describes information resources available in a specific library, in a library network or, increasingly, on the Internet, and helps users to identify, select and locate either specific available resources (for example, works by a known author) or resources that contain information on a specified subject. The bibliographic file that is at the heart of the library Brochure consists of surrogate records (or entries, to use the term associated with traditional, print-based Brochures), like the brief record given in the last chapter to describe this book:

TI	Computers for librarians: an introduction to the electronic library
ED	3rd edition
AU	Ferguson, Stuart; Hebels, Rodney
PU	Wagga Wagga, NSW: Centre for Information Studies, 2003
SE	Topics in Australasian Library & Information Studies, no. 22
NU	1-876938-54-4
SU	Libraries - Automation; Information storage and retrieval systems

This example contains two basic components:

- Bibliographic description, which identifies the information resource or work, using attributes or elements of description such as author and title (in the example, the first six fields are familiar elements of bibliographic description),
- Subject description, which represents the Brochurer's attempt to describe the subject content of works, similar to the subject indexing terms or descriptors assigned to periodical articles etc., as discussed in the last chapter – in the example, this is the seventh element, which contains two Library of Congress Subject Headings.

The library Brochure contains a third component:

- Item-specific information relating to individual copies of an information resource or work, including call numbers and other location devices.

A library might, for example, purchase two copies of the book by Ferguson and Hebels and would require some way of distinguishing between the two copies: for instance, it would normally assign a unique number to each copy for circulation purposes. There might be differences in loan conditions indicated in the Brochure. For example, the book may be so popular with students that an academic library puts one copy in its short-loan collection at the counter and uses some location device to indicate its availability. A public library might put a copy in its teenage collection and assign a slightly different call number: for example, precede the classification number with a 'T' or 'YA'. There might also be differences in copy status: for example, one copy may have been mislaid (for instance, by someone putting it among the books on viticulture) and might be described as 'missing'. These item-specific data elements would not normally be stored in a bibliographic file but in separate holdings.

A Brochureuing system discussed in the next chapter might also include authority files, such as an author authority file. How records like the one above are displayed may seem to imply that the bibliographic data are stored together on the database in a neat package, but the name 'Rodney Hebels', to take an example, may appear only once in the database, regardless of how many works by that author appear in it. The name may be stored in an authority file and linked in some way to all records that represent works of his authorship. In this way, space is saved because data do not have to be unnecessarily repeated. Still, more important, from the user's perspective, consistency is introduced so that if a user searches under the name 'Hebels, Rodney', the Brochure will display all works associated with the name in the authority file. Without such authority control, users might miss those records which did not contain the

authoritative version of the name (for example, where the publisher and brochure use variant forms such as ‘Hebels, R.’ or ‘Hebels, Rod’). In Brochureuing terms, the use of authority files collocates works by a specific author, bringing them together for the user's benefit.

Library Brochures have taken a variety of physical forms. There are, however, five main forms of Brochures:

- online Brochures
- CD-ROM Brochures
- card Brochures
- book-form Brochures
- microfiche Brochures.

Library Brochures, how-to guides, and indexes library brochures can be a great resource for locating statistical compendia, such as the United Nations *Demographic Yearbook* (1948b) or the World Health Organization’s *World Health Statistics Report* (1968), as well as sourcebooks and how-to guides, such as *Business Statistics on the Web: Find Them Fast – At Little or No Cost* (Berinstein, 2003), *Sources of Non-Official UK Statistics* (Mort, 2006), or the *Handbook of National Population Censuses* (Goyer and Draaijer, 1992). While the latter types of publication have become less common over the last decade, they can still provide valuable context beyond what you might find online. They can be useful when working with older sources or for familiarizing yourself with a specific topic. For example, The Economist’s *Guide to Economic Indicators: Making Sense of Economics* (2010) provides specific explanations of common statistical measures for the non-specialist, such as gross domestic product (GDP), the balance of payments (BOP), and consumer confidence.

On the other hand, statistical directories and indexes, such as Euromonitor’s *World Directory of Non-Official Statistical Sources* (1996), usually provide less contextual information but are generally kept more up-to-date. ProQuest maintains several print statistical index series that index and abstract a wide range of statistical publications: *American Statistics Index* (1973) for U.S. federal sources; *Statistical Reference Index* (1980) for U.S. state and private sector sources; and *Index to International Statistics* (1983) for international intergovernmental organizations. All three indexes can also be searched using the ProQuest Statistical Insight

database, which provides publication abstracts and table-level indexing (available by subscription only).

On the other hand, A library Brochure lists all the items within a library. In pre-computer times, library books were indexed in card Brochures which were cabinets of drawers of index cards: author cards, title cards, and subject cards. Today, this information is available in digital format – the online public access Brochure (OPAC) – that allows for searching not only by the author, title, or subject but by identification number or keyword, which searches all the indexing fields. OPACs typically include items other than books, such as DVDs, microfilm, audio or talking books, and periodical titles (magazines, journals).

Examples of freely accessible online library Brochures include the Library of Congress Online Brochure (*http://Brochure.loc.gov/*) and the British Library OPAC (*http://www.bl.uk/).* Each item in an online Brochure contains the identification or call number of the item, where the item is located, and whether the item is available. Some public libraries offer an online service that allows patrons to reserve or hold items for the patron to pick up.

Archives and special collections are indexed and accessed differently and have finding aids to help researchers. Many archives and special collections contain many collections. Finding aids or guides usually include a description of the person or organization that produced the collection and an inventory of the boxes in the collection.

Archives, special collections, and reference libraries do not allow their collections to circulate or leave the building. The items must be used on-site in supervised reading rooms. Copies of the materials can usually be made for a copy fee. Many libraries and archives are digitising materials to increase access and reduce the handling of rare or historical materials.

In short, a library Brochure:

a) is a list of books and other reading materials available in a particular library;

b) contains entries prepared for all the documents according to rules prescribed in a Brochure code and organised in a systematic order;

c)gives bibliographical information about the documents, such as author, title, edition, place of publication, publisher, and date of publication in each entry to describe and identify the document; and

d) gives the document's location number, such as the call number of *the document, to locate the document on the library's shelves.

Purposes of a Library Brochure

Libraries generally acquire reading and reference materials in various physical forms, which users will utilise for study, reference, research and other purposes. These materials are constantly under consultation or in circulation. Therefore, at any given time, some of these materials may not be available on the shelves in the library. These reading and reference materials may also be in different physical forms, such as printed documents, microfilms or machine-readable forms.

They are located and shelved in different places, such as sections, rooms, and floors in the library, depending upon the most appropriate form of storage. Because of these reasons, it is necessary that a library prepares and provides a public record of all the materials, irrespective of their physical forms acquired. By it to give the readers an idea of the entire collection possessed by it.

So the main objective of a library Brochure is to aid readers in using the library's collection by providing author, subject, title and other approaches to the collection. The primary purpose of a library Brochure is to serve as a guide to the collection of materials. It reveals to the users the document or non-document materials in the library. It aids them in finding out whether the materials of their interest are available in the library. In other words, a library Brochure serves as a key to the library collection, location, or retrieval tool.

Objectives of a library brochure

Charles Ami Cutter described the objectives of a library Brochure in 1876 when he published the first edition of his book Rules for a Dictionary Brochure. His views on the subject are often quoted and are relevant even today.

According to him, a Brochure should:

1) enable a person to find a book of which the author, the title, or the subject is known

2) show what the library has by a given author on a given subject in a given kind of literature

3) assist in the choice of a book as to its edition (bibliographically) and its character (literary or topical). All the objectives, as mentioned earlier, are valid even today. As a library today acquires various types of reading and reference materials, replacing the word `book' with.

`document' representing paper-print material and microforms and machine-readable forms may be necessary.

The first objective of a library Brochure is to inform the availability/non-availability of a particular reading material in the library. The readers may approach the Brochure through an author's name or title. The author or title entry should provide the reader with all the pertinent information. A cross-reference entry should be provided if the entry is under some other name or word. The title entries in the Brochure cater to the title approach of the readers. The name of a subject is another access point. In many cases, the reader does not approach or search the Brochure through the name of an author or title of a document. His interest is in a particular subject.

In such cases, the subject entry in the Brochure furnishes him with the requisite information. The concepts of a subject may be described in varied terms. Only standardised terminology is used in preparing subject entries in a library Brochure.

The second objective is to show what a library has. The Brochure lists all the works of a particular author available in the library collection and all the documents available on a given subject or a given kind of literature.

The third objective is known as descriptive Brochureuing. According to the rules of descriptive Brochureuing, the characteristics of the documents are fully described so that one document can be identified and isolated from several similar documents. This type of description is .provided in the Brochure entries only in case of need. If the rules of descriptive Brochureuing are applied indiscriminately, it will lead to a large expenditure. In brief, the library Brochure should convey a library user's approach.

Five laws of Library Brochure

The Five Laws. of Library Science are basic guiding principles for designing and operating a library or system. Each one of the activities of a library may be deduced from these Five Laws. For preparing and producing a library Brochure, some useful guidelines are implied in these Five Laws.

The First Law, `Books are for use,' indicates the necessity of organising library collections for maximum use by providing some physical facilities and introducing readers' services. One such facility is the provision of a library Brochure, which throws open to the users the entire library collections. The library Brochure's physical form should be flexible and can be

kept up to date by adding entries for new documents added to the library from time to time. Similarly, information about the document in the entry should be adequate to identify a document. An annotation and various notes are given to help the readers to choose among documents possessed by the library. Users would find it difficult to use the collection without this essential and indispensable tool. Therefore, a library Brochure is a must.

The Second and Third Laws, `Every reader book'; `Every book his reader,' imply how a library Brochure should provide access to a library's collections, to meet the requirements of users such as children, specialist users, and physically disabled persons. Special kinds of analytical entries of documents are to be prepared to reveal the basic contents of documents. For instance, an excellent chapter on information storage and retrieval, forming part of the Handbook in Special Librarianship, is likely to be missed by a library science student if there are no analytical entries for the document.

The Fourth Law, `Save the time of the reader', emphasises time greatly. A Brochure should be simple in its design and construction and save a reader's time.

Every approach to a document is author, title, subject, series, etc., must be provided in a Brochure. Cross-reference entries (i.e., see and see also entries) should be provided for change of names of persons, countries, subjects and institutions. Similarly, guidance in using library brochures should be provided by organising orientation courses for newcomers in the., library. Speed is the essence of service.

The Fifth Law, `A library is a growing organism,' urges a library to view the Brochure in its widest perspective, keeping in view changes and growth in the nature and variety of publications, other forms of documents, needs of users, and such other environmental factors. The advent of computer and communication technologies has introduced far-reaching changes in the physical forms of library Brochures and their internal structure. Terminals of computers are located in distant parts of the library. Only one main entry is adequate to access the documents; access points replace added entries. Library networks provide access to resources from other libraries. Change is inevitable, and a library should always remain alive to change.

Operations for Library Brochure

A library Brochure consists of various entries prepared for the documents acquired for the library. There are two types of entries in the library Brochure. These consist of the main entry and added entries. Main entries give detailed information about the documents in various

sections or areas of the main entry. Added entries are prepared under various access points such as author, title, subject and usually certain brief information about the document. Thus, Brochureuing is the process of making entries for a Brochure.

The following operations are to be carried out for making entries:

1) Choice and rendering of headings of main entries, added entries and sections of main and added entries.

2) Recording of information in the sections of entries.

3) Determination of writing style, punctuation marks, capitalisation, etc.

4) Preparation of entries.

5) Writing call numbers on all the entries.

6) Filing of Brochure cards.

7) Preparation of guide cards.

8) Maintenance and updating of entries in a Brochure. All these processes and procedures are included in Brochureuing. In simple terms, Brochureuing is the art of preparing records so that a document is quickly identified and located by the reader. Only after identification and location of a document will the reader be able to examine its suitability for their purpose. Certainly, the Brochure provides information about the title, sub-title, contents and document series. These details help the reader determine its suitability for a particular need they have in mind.

Guidelines to Brochures

The information furnished in the Brochure entries should be accurate. Generally, the title page is the chief source for Brochureuing information. The information taken from the title page should be correctly transcribed. Sometimes, the information contained in the overflow of the title page, such as the preface, foreword, table of contents, introduction and the body of the text, etc., is also utilised for Brochureing purposes. Nowadays, this information is given on the back of the title page. The information in the library Brochure entries should be sufficient to provide access points from the author, title, subject, names of other collaborators, the series, etc., for every document.

This is necessary to prepare lists of reading materials for library users. Brochures should always endeavour to keep the library Brochures up-to-date. To achieve this objective, the processing aspects of filing the Brochure entries must be accomplished expeditiously.

The arrangement and pattern of entries in the Brochures should be such that a reader can comprehend them easily and use the Brochure without much difficulty. Salient features of the Brochures and the methods of finding information from them should be prominently displayed utilizing the guide.

Classification

The basic purpose of these two operations is to Purposes and Functions and aid the ***readers*** (users) of the library in locating and selecting appropriate library materials (documents as well as others) required for their study and research, in case such materials- are present in the library. To a large extent, these two processes are complementary and supplementary. Classification decides the book's subject; books are arranged according to class numbers on the library's shelves. As books are physical entities, they can be placed only in one location on the library's shelves. This scheme is useful to readers when books deal with only one subject (e.g., An Introduction. to Mathematics). But when a book/document deals with two or more main subjects or subdivisions of a main subject, we cannot keep the book (physical entity) at two places/locations on the library shelves. Ideally, this book should be kept in two places, one at Brochureuing and another at classification, to reveal the book's subject. But this is not possible. This book can be kept in only one place, i.e. Library Brochureuing. The second subject, library classification, is brought to the reader's notice by preparing an analytical entry under the class number for classification. Such analytical entries are prepared for all books dealing with two or more subjects or for multidisciplinary subjects or subjects representing phase relations. Thus, Brochureuing supplements - classification. Similar is the case for books of anthologies and readings to which various authors contribute. In these situations, the author's analytical entries are prepared to inform readers of the authors' different contributions. Thus, we find that Brochureuing and classification are supplementary and complementary.

Both these activities jointly bring to the readers' notice the full contents of the documents possessed by the Library. Consult the sections on Analytical Entries from Block 3 of BLIS-4P and Block 4 Subject Indexing of this Course for further explanation of the interrelationship between Brochureuing and classification. A library Brochure can also be used as a reference tool for answering many questions from users of documents. The library Brochure is often used as the starting tool for answering enquiries related to information on documents. For example, readers `queries on books written by a particular author, books on a subject or full name and year of birth

of an author, real name of a pseudonym or a full name of an Institution, etc., can be answered with the help of a library Brochure. A library Brochure usually contains other valuable information on documents besides bibliographical data for accessing and locating documents. The Notes Section, Collation (which includes illustrations and related data), etc., provide useful starting points for a search for documents on subjects.

Database Brochure

A **database Brochure** of a database instance consists of metadata in which definitions of database objects such as base tables, views (virtual tables), synonyms, value ranges, indexes, users, and user groups are stored

"Finally, I'm finding that by taking this class and doing these readings

I'm becoming more aware of different data management services in my field."

—Graduate student's evaluation of a

Data Information Literacy course

A database contains citations of articles in magazines, journals, and newspapers. They may also contain citations to podcasts, blogs, videos, and other media types. Some databases contain abstracts or summaries of the articles, while others contain complete, full-text articles.

Usage

when you want to find articles on your topic in magazines, journals or newspapers

Types of Database Brochures

1. Library catalogue – an inventory of what a particular library owns. The Library Catalog is a catalogue of books, videos, and other materials owned by the Delaware County Community College Library.

2. Article databases – a database used for finding citations to periodical articles (journals, magazines, newspapers). Many databases provide abstracts or summaries for each article.

Some databases provide the full text of periodical articles.

3. Reference sources– the full text of a reference book

4. Streaming Video – a collection of videos available online

Selecting the best research database

Go to the Find Books, Articles & More link on the library's home page.

1. Select an appropriate subject area related to your research topic.
2. Skim the list of databases, reading about each one to learn:
    1. Subjects covered
    2. Types of publications covered: journal articles, books, etc.
    3. Dates covered

Types of information sources in database brochure

Books

Books cover virtually any topic, fact or fiction. For research purposes, you will probably look for books that synthesize all the information on one topic to support a particular argument or thesis.

Libraries organize and store their book collections on shelves called "stacks.

Usage :

when looking for lots of information on a topic

- to put your topic in context with other important issues
- to find historical information
- to find summaries of research to support an argument

Encyclopedias are collections of short, factual entries often written by different contributors who are knowledgeable about the topic.

There are two types of encyclopedias:

- General: General encyclopedias provide concise overviews of a wide variety of topics
- Subject: Subject encyclopedias contain in-depth entries focusing on one field of study.

Usage:

- when looking for background information on a topic
- when trying to find key ideas, important dates or concepts

Academic journal

A journal is a collection of articles usually written by scholars in an academic or professional field. An editorial board reviews articles to decide whether they should be accepted. Articles in journals can cover very specific topics or narrow fields of research.

Usage :

when doing scholarly research

- to find out what has been studied on your topic
- to find bibliographies that point to other relevant research.

Magazine

A magazine is a collection of articles and images about diverse topics of popular interest and current events. Usually, these articles are written by journalists or scholars and are geared toward the average adult. Magazines may cover very "serious" material, but you should use journals to find consistent scholarly information.

Usage:

- To find information or opinions about popular culture
- to find up-to-date information about current events
- to find general articles for people who are not necessarily specialists about the topic.

Through Web

The Web allows you to access most types of information on the Internet through a browser. One of the main features of the Web is the ability to link to other related information

quickly. The Web contains information beyond plain text, including sounds, images, and video. The important thing to do when using the information on the Internet is to know how to evaluate it.

Usage :

- to find current information
- to find information about companies
- to find information from all levels of government - federal to local
- to find both expert and popular opinions
- to find information about hobbies and personal interests.

- Today's library has many online resources from computer labs, wireless connections, and even from home.
- The Delaware County Community College Library Services web page is the gateway to these resources.
- Connecting from off-campus, you can log on using your delegate login.

E.g : www.ufh.ac.za

www.google.co.za
www.education.gov.za

5. Statistics – includes statistics, financial information, census data

The Data Information Literacy (DIL) project is developed to answer two overarching questions. First, what data management and curation skills do future scientists need to fulfil their professional responsibilities and take advantage of collaborative research opportunities in e-science and technology-driven research environments? Second, how can academic librarians apply their expertise in information retrieval, organization, dissemination, and preservation to teach these competencies to students? By answering these questions, our goals were to build a foundation in the library community for teaching DIL competencies, to teach students DIL competencies appropriate to their discipline, and to develop a robust process for librarians to develop DIL curricula and programming. We accomplished these goals by designing,

constructing, implementing, and assessing programs to teach a selection of the DIL competencies to graduate students to bolster productivity in their current work and foster success in their careers. In many ways, we accomplished what we set out to do. Students and faculty who participated in our programs are better able to identify and articulate their data needs (for example, in constructing a National Science Foundation [NSF] data management plan [DMP]) and are now better equipped to address these needs. However, there is much more work to be done. In addition to increasing our collective capacity to develop and offer effective DIL programs, we need to raise awareness of larger issues and enable participants in our programs to contribute to their disciplines' efforts to address data management and curation issues at a community level. We hope the experiences and examples will facilitate this next important step, and informative guide, included in this volume so that academic librarians may continue this work at their institutions.

The nature and practice of research and scholarship are undergoing dramatic change with the advent of ready access to high-bandwidth networks, the capacity to store massive amounts of data, and a robust and growing suite of advanced informational and computational data analysis and visualization tools. Technology-driven research, known as e-science, or more broadly, e-research, has transformed science and engineering fields.

E-research applications are also growing within the humanities and social science disciplines, where e-research is poised to have similar effects on the nature and practice of research. The complexity and scale of e-research require an evolution of traditional models of scholarly communication, library services, and librarians' roles. In response, librarians are initiating discussions and projects to situate themselves in those areas of e-research most needing library science expertise (Jones, Lougee, Rambo, & Celeste, 2008).

In light of the federal expectation that grant proposals have a data management plan (DMP; NSF, 2011), libraries are starting conversations in their universities to negotiate a role in managing research outputs. Data management skills also provide the opportunity to evolve instruction in libraries. Academic libraries offer information literacy courses and programs as part of the institution's educational mission. Extending information literacy to include programs on data management and curation provides a logical entry point into increasing the role of libraries in supporting e-research. A successful education program, however, must be based on a

firm understanding of current practices and standards as well as the needs of the target audience. There is a lack of research on the needs of both the researchers and the students grappling with these issues in the classroom and the laboratory. The authors attempted to address this knowledge gap by gathering data from interviews with faculty researchers and from the authors' own Geoinformatics course. The authors proposed a model set of outcomes for data information literacy (DIL) with this information.

Web-based Access Instructions

Web-based programmes allow participants to be self-directed and follow their own pace, thus maximising the assimilation of information. For example, Orion aims to educate students in effectively using information and overcoming the barriers of time and space. Those studying the educational material of Orion will obtain knowledge and abilities that will assist them in becoming autonomous in their information searches, evaluating the results and using them appropriately to complete essays and reports successfully. The programme follows the subject categories as these have been stated and established by the Association of College and Research Libraries (A.C.R.L.) (http://www.ala.org/acrl/) and the Australian and New Zealand Institute for Information Literacy (ANZILL) (http://www.anziil.org/).

It consists of five distinct subject areas, which provide students with all the necessary information concerning the cycle of information use: ∞ Defining the information needs ∞ Searching and Acquiring information ∞ Evaluating information ∞ Writing ∞ Proper use of information. The programme follows a well-structured approach to IL training. All units start by stating the purpose and the expected learning outcome. The educational material is delivered in various ways, depending on the subject area. Usually, theory, guidelines, examples and personal assessment via practical exercises and quizzes are included. Each unit can be studied separately depending according to student requirements.

E-Research and Implications for Libraries

E-research has tremendously impacted several fields, increasing researchers' capabilities to ask new questions and reducing time and geography barriers to forming new collaborations. In astronomy, for example, the National Virtual Observatory (NVO) makes it possible for anyone from professional astronomers to the general public to find, retrieve, and analyze vast quantities

of data collected from telescopes all over the world (Gray, Szalay, Thakar, Stoughton, & Vandenberg, 2002; National Virtual Observatory, 2010). For scholars of literature, the HathiTrust Digital Library provides not only a tremendous collection of scanned and digitized texts but also its Research Center provides tools and computational access to scholars seeking to apply data mining, visualization, and other techniques toward the discovery of new patterns and insights (HathiTrust Research Center, n.d.). It should be no surprise that such projects simultaneously produce and feed upon large amounts of data. The capture, dissemination, stewardship, and preservation of digital data are critical issues in the development and sustainability of e-research. Funding organizations and professional societies identified a need for educational initiatives to support a workforce capable of e-research initiatives. The National Science Foundation (NSF) first described the connection between e-research and education. The 2003 Atkins Report highlighted the need for coordinated, large-scale investments in several areas, including developing skilled personnel and facilities to provide operational support and services (Atkins et al., 2003). In 2005 the National Science Board produced a report that articulated existing and needed roles and responsibilities required for stewarding data collections, followed by a series of recommendations for technical, financial, and policy strategies to guide the continued development and use of data collections (National Science Board, 2005). The American Council of Learned Societies issued a report in 2006 calling for equal attention and investments in developing infrastructure and services for e-research in the humanities fields (Welshons, 2006). More recently, the National Academy of Sciences issued a report advocating the stewardship of research data in ways that ensure research integrity and data accessibility. The recommendations issued in the report included creating systems for the documentation and peer review of data, data management training for all researchers, and the development of standards and policies regarding the dissemination and management of data (National Research Council, 2009). During the rich, collaborative, and challenging paradigm of e-research promises to produce important, even priceless, cultural and scientific data, librarians are determining their role in curating, preserving, and disseminating these assets. In examining how e-research may affect libraries, Hey and Hey argued that e-research "is intended to empower scientists to do their research in faster, better and different ways" (Hey & Hey, 2006, para. 10). They particularly emphasized that information and social technologies made e-research a more communal and participatory exercise, one that will see scientists, information technology (IT) staff, and

librarians working more closely together. A challenge looming with the rise of e-research is the "data deluge"—the need to store, describe, organize, track, preserve, and interoperate data generated by a multitude of researchers to make the data accessible and usable by others for the long term. The sheer quantity of data being generated and our current lack of tools, infrastructure, standardized processes, shared workflows, and personnel skilled in managing and curating these data pose a real threat to the continued development of e-research. Gold (2007) outlined the issues and opportunities for librarians in e-science. Starting from the familiar ground of GIS (geographic information systems), bioinformatics, and social science data, Gold argued that librarians working in e-science would develop relationships — both upstream and downstream of data generation—and the effort may be "both revitalizing and transformative for librarianship" (Sec. 2.2, para. 6). Similarly, the Agenda for Developing E-Science in Research Libraries outlined five main outcomes that focused on capacity building and service development in libraries for supporting e-science (Lougee et al., 2007). Walters (2009) further asserted that libraries taking "entrepreneurial steps" toward becoming data curation centres are on the right track, reasoning that "a profound role for the university research library in research data curation is possible. If the role is not developed, then a significant opportunity and responsibility to care for unique research information are lost" (p. 85). In other words, the academic library community seems reasonably sure that supporting e-research is not so novel that it falls outside the mission and founding principles under which libraries operate.

Prior Instructional Efforts in Data Information Literacy

Several libraries have developed programs or prototypes to address those needs. The Massachusetts Institute of Technology Libraries created a robust "Manage Your Data" subject guide/tutorial, supplemented by seminars such as Managing Research Data 101 (Graham, McNeill, & Stout, 2011). Both resources include data planning checklists that include the following topics:

- Documentation and metadata
- Security and backups
- Directory structures and naming conventions
- Data sharing and citation
- Data integration

- Good file formats for long-term access
- Best practices for data retention and archiving

Needs in Data Information Literacy for students and faculty

Like e-research, DIL is not new but compiles expertise and portions of existing research methods, information and other literacies, and computing curricula to offer more holistic, communal, and participatory perspectives and techniques for e-researchers. Just as research encourages researchers from various disciplines to collaborate to advance scientific knowledge, disciplinary and library faculty must work together to determine the skill sets a data-literate student should demonstrate and develop best practices for imparting those skills to the students. Both faculty members and students have perspectives on the necessary data management skill sets in their fields. Grounded in these perspectives are their real-world perceptions and practices and firsthand knowledge of how one conducts research in their respective discipline. Any attempt to define a DIL program must be aligned with current disciplinary practices and cultures to be relevant to and accepted by its intended audience(s). The authors compiled the perspectives of both faculty and students from two different research projects, one based on interviews with faculty members and the other on surveys of students and an analysis of their coursework. In the next two sections, the authors report on the DIL priorities articulated by faculty and students as discovered through our assessments.

Metadata

An understanding of metadata and how to apply it were frequently mentioned as areas of need, although the term metadata was not used often. More often, researchers said their students needed to know how to annotate and describe data. In most cases, references to “annotations” included both a need to provide information about a data file and individual data components (such as a cell in a spreadsheet). The main reasons for providing metadata include assuring that data can be understood by others (both within the lab and by external audiences), enabling its continued usability over time, and fostering the use of the data beyond its original purpose. Researchers also expressed the need to apply and conform to metadata standards. One researcher stated that students must be taught “how to approach the idea of metadata, " develop an awareness of standardized disciplinary ontologies, and apply them to their work.

Researchers for Data Brochure in Information Literacy

Researchers expected their graduate students to share responsibility for documenting the lab or project's data and the student's interactions with it. Documenting data focuses on what needs to be recorded and provided while generating, processing, analyzing, and publishing the data to validate and verify it later. This includes such tasks as generating and maintaining data dictionaries, glossaries, or definitions of variables; maintaining lab notebooks or their equivalent; and capturing the provenance of the data. Researchers expressed that students' documentation needs to stand the test of time. Researchers in this study acknowledged the problem of data documentation, not only for their students but for themselves as well. Difficulties documenting data contributed to a larger concern: the lack of standardization and consistency in organising the data.

Faculty repeatedly mentioned that every student employs different methods of documenting data. The lack of standardized and shared data management protocols and practices across a research group often led to a "tower of Babel" situation. It isn't easy to understand what was done, by whom, and for what reason. This further led to difficulties correlating and relating one data file with another or the data collection. The inevitable turnover of students exacerbated this problem. Although most of the researchers in this study required their students to document their work with the data, actual documentation practices followed by the students varied from one to the next.

Moreover, they often did not provide complete or detailed documentation to enable others to understand their work. Several researchers suggested creating a standard operating procedure for data formatting and management. One faculty member noted that he created standard operating procedures for most equipment and procedures in the lab and proposed that a similar standard operating procedure be developed for handling and managing his data. When asked to describe an ideal situation for organizing data, several faculty members noted the need for students to develop and use a standardized set of best practices.

Basic Database Skills

Several researchers expressed the expectation that students be able to understand and develop relational databases and use database tools effectively. Students' lack of basic understanding of database development and usage frequently frustrated the interviewees. However, the expectations of student skills differed among the researchers. A civil engineering

professor acknowledged that students needed some basic understanding of relational databases, data normalisation, database tools, and documentation techniques.

Comparison of Data Information Literacy With ACRL IL Standards To help articulate and ground our core DIL objectives, we found it useful to examine these topics through the prism of the ACRL (Association of College and Research Libraries) information literacy competency standards (2000), which have been widely adopted by many institutions and accreditation agencies and guide many library instruction initiatives. To that end, the next section lists the ACRL standards and then briefly examines each standard for its relevance to these DIL objectives. One readily identifiable gap in applying the ACRL information literacy standards to a DIL program is the difference in focus. The ACRL standards focus on educating information consumers—people seeking information to satisfy an information need. Although faculty and students consume research data, our analysis of faculty and students indicates a strong need to address their roles as data producers. Therefore, the underlying objectives for any DIL program need to accommodate both the data producer's viewpoint and that of the data consumer.

The ACRL standards state that information-literate individuals can:

1. Determine the extent of information needed.
2. Access needed information efficiently and effectively.
3. Evaluate the information and its sources critically and incorporate selected information into one's knowledge base and value system.
4. Use information effectively to accomplish a specific purpose.
5. Understand the economic, legal, and social issues surrounding the use of information and access and use information ethically and legally.

Competencies for Data Information Literacy

With information gleaned from the faculty interviews, the Geoinformatics course, and the ACRL Information Literacy Competency Standards, the authors propose the following educational objectives for a DIL program. Disciplinary implementation of these outcomes would naturally incorporate technologies or techniques specific to that discipline. The following are the proposed core competencies, organized by major theme. Introduction to databases and data formats. Understands the concept of relational databases and how to query those databases and becomes familiar with standard data formats and types for the discipline. Understands which formats and data types are appropriate for different research questions. Discovery and acquisition

of data. Locates and utilizes disciplinary data repositories. Identifies appropriate data sources and can import and convert data when necessary so that downstream processing tools can use it. Data management and organization. Understands the life cycle of data, develops DMPs and records the relationship of subsets or processed data to the original data sets. Creates standard operating procedures for data management and documentation. Data conversion and interoperability. Proficient in migrating data from one format to another. Understands the risks and potential loss or corruption of information caused by changing data formats. Understands the benefits of making data available in standard formats to facilitate downstream use. Quality assurance. Recognizes and resolves any apparent artefacts, incompletion, or corruption of data sets. Utilizes metadata to anticipate potential problems with data sets. Metadata. Understands the rationale for metadata and proficiently annotates and describes data so it can be understood and used by work group members and external users. Develops the ability to read and interpret metadata from external disciplinary sources. Understands the structure and purpose of ontologies in facilitating better sharing of data. Data curation and reuse. Recognizes that data may have value beyond the original purpose (i.e., to validate research or for use by others). Understands that curating data is a complex, often costly endeavour that is nonetheless vital to community-driven e-research. Recognizes that data must be prepared for its eventual curation at its creation and life cycle. Articulates the planning and actions needed to enable data curation. Cultures of practice. Recognizes the practices, values, and norms of the chosen field, discipline, or sub-discipline relating to managing, sharing, curating, and preserving data. Recognizes relevant data standards of a field (metadata, quality, formatting, and so forth) and understands how these standards are applied. Data preservation. Recognizes the benefits and costs of data preservation. Understands the technology, resource, and organizational components of preserving data. Utilizes best practices in preservation appropriate to the value and reproducibility of data. Data analysis. Becomes familiar with the basic analytical tools of the discipline. Uses appropriate workflow management tools to automate repetitive analysis of data. Data visualization. Proficiently uses basic visualization tools of the discipline and avoids misleading or ambiguous representations. Understands the advantages of different visualisation types—for example, maps, graphs, animations, or videos—for different purposes.

Ethics, including citation of data. Understands intellectual property, privacy, confidentiality issues, and the discipline's ethos related to sharing data. Appropriately acknowledges data from external sources.

Information Bulletin

Information Bulletin means the standing item on the Council's agenda where, among other things, contract decisions taken under delegated authority are reported for information.

An email containing vague or general queries and other queries in the **Information Bulletin** shall not be entertained.

The **Information Bulletin** produced as part of the Agenda includes items of interest and information that do not require the Council's decision.

The bulletin lists recent acquisitions in the following subject areas: adult education, demography, developing nations, educational development, library services, literacy, mother tongue instruction, radio and television, reading materials, rural areas, teacher education, and women's education. Most citations are from 1974; few dates back beyond 1973. Special attention has been paid to documents dealing with literacy and basic education for women. Included with the bulletin are 24 catalogue cards for documents of literacy and literacy programs and abstract cards for the following seven books: Thesaurus Construction: A Practical Manual (Jean Aitchison and Alan Gilchrist); A Literacy Journey (Camillo Bonanni); Recurrent Education: A Strategy for Life-Long Learning (Organization for Economic Co-operation and Development); A Primer for Visual Literacy (Doris A. Dondis); Explorations in Non-Traditional Study (Samuel B. Gould); School Is Dead: An Essay on Alternatives in Education (Everett Reimer); and Light Me a Candle (Rita J. Wiesinger). The bulletin indexes the catalogue cards by subject term, author, title, and meeting and corporate body and also includes cumulative indexes for 1974 in the same categories

Purpose of the bulletin The Grade supports student learning by assessing outcomes related to literacy and numeracy in language arts and mathematics in Alberta's Grade 2 provincial programs of study.

Designing of Information Literacy program

Analysis Phase

In the analysis phase, the instructional problem is clarified, the instructional goals and objectives are established, and the learning environment and the learner's existing knowledge and skills are identified. Below are some of the questions that are addressed during the analysis phase:

* Who is the audience, and what are their characteristics?
* Identify the new behavioural outcome?
* What types of learning constraints exist?
* What are the delivery options?
* What are the online pedagogical considerations?
* What is the timeline for project completion?

In this phase of designing an information literacy session, the librarian consults with the faculty member regarding the specific writing/research assignment requirements, the instructional needs and desired outcomes, how much class time the IL lesson can consume etc. The librarian should also analyze the course syllabus to understand how the assignment fits into the overall class SLOs.

Design Phase

The design phase deals with learning objectives, assessment instruments, exercises, content, subject matter analysis, lesson planning and media selection. The design phase should be systematic and specific. Systematic means a logical, orderly method of identifying, developing and evaluating planned strategies for attaining the project's goals. Specific means each element of the instructional design plan needs to be executed with attention to detail.

These are the steps used for the design phase:

* Documentation of the project's instructional, visual and technical design strategy

* Apply instructional strategies according to the intended behavioural outcomes by the domain (cognitive, affective, psychomotor).
* Create storyboards
* Design the user interface and user experience
* Prototype creation
* Apply visual design (graphic design)

In this phase of designing an information literacy session, the librarian identifies if the instruction will be synchronous or asynchronous; they identify appropriate delivery tools; they identify appropriate active learning exercises for the learning outcomes, and they create a lesson outline.

Development Phase

In the development phase, the librarian creates and tests the materials specified in the design phase.

Implementation Phase

During the implementation phase, the librarian delivers the instruction.

Evaluation Phase

The evaluation phase may consist of formative assessments - activities, questions, or other exercises during the IL session whose purpose is to ensure the students grasp the material. It may also include a variety of summative assessments - formal, graded assessments to test student knowledge.

Defining your lesson contents

- In the Analysis phase of designing an information literacy session, answer these questions:
- What research skills does this assignment require?
- Where will students be in the research process during the session?
- What two or three learning outcomes am I going to focus on?

- How can I incorporate storytelling into my lesson?
- What is the deep structure I want students to learn in the session?
- What active learning exercise would provide examples of the deep structure?

Motivational design

Motivational design theories are related to instructional design in that they consider a facet of the learning system: learners' motivation and its impact on the instructional experience. As such, these theories can overlay instructional design principles to ensure learner engagement and perception of instructional value. Motivation, as a concept, is thought to influence both an individual's decisions and participation

It is particularly important in learning and design because influencing an individual's decision to participate in an instructional interaction is essential for learning. Motivation can be divided into two categories: intrinsic or internal motivation, which refers to the personal delight, joy, and interest individuals experience that influence their decisions or levels of participation; and extrinsic, or external, motivation, which refers to the notion of completing a task or performing a behaviour because it leads to a separate, external outcome, such as a reward or avoidance of punishment. With their external reinforcement as a key component, behaviourist learning theories explicitly rely on learners' extrinsic motivation while hoping to engage intrinsic motivation. At their root, though, many other learning theories aim to engage learners' intrinsic motivations to acquire new knowledge.

Implementation of Information Literacy Programs

The major steps that need to be taken into consideration in the implementation of information literacy programs have been stated as follows:

Defining Mission– The first and foremost step is to define the mission of the information literacy programs. The mission statement makes provision of clear ideas and information to the individuals regarding how they need to organize tasks and activities. A mission statement for the information literacy program includes the definition of information literacy. It should be consistent with the Information Literacy Competence Standards for Higher Education. The other aspects that are taken into account are, aligning with the library's mission statement to correspond with the larger mission statement of the institution, adhering to the format of campus strategic documents, incorporating the institutional stakeholders, clearly reflecting their

contributions and the extended benefits, appears inappropriate institutional documents and promotes lifelong learning and professional development.

Goals and Objectives – The goals and objectives of the information literacy programs must be consistent with the mission. It establishes measurable outcomes for the evaluation of the program, reflects a sound pedagogical practice, accommodates inputs from the institutional stakeholders, clearly presents the integration of information literacy across the curriculum for student's academic goals and lifelong learning, focuses upon the development of skills and abilities of the students throughout education and take into account all learners, irrespective of the delivery systems or location.

Planning – Planning is the function that bridges the gap between where one is in the present and where one has to be in future. In planning the information literacy program, the main aspects that need to be considered are mission, goals and objectives, articulation with the curriculum, administration and institutional support, collaboration, pedagogy, staffing, outreach and assessment, and addressing future opportunities and challenges. This function is connected with library and institutional information technology planning and budgeting cycles, incorporates findings from environmental scans, accommodates the level of program, departments and institutions, prioritises support of human, technological and financial resources and includes a training program and development.

Administrative and Institutional Support – The administrative function of the institution assigns information literacy leadership and responsibilities. It incorporates information literacy in the institution's mission, strategic plans, policies and procedures. It makes provision of financial resources to establish ongoing support for teaching facilities and resources, appropriate staffing levels and professional development opportunities. It recognizes and encourages collaboration, communicates support for the program and rewards achievement and participation in the information literacy programs.

Articulation with the Curriculum – The articulation with the curriculum of the information literacy program includes identifying the scope of the competencies, integration of competencies and information that takes place throughout the students' academic programs, and

emphasis is put on student learning and courses. Programs are specified that are charged with implementation.

Collaboration – The individuals in leadership positions, such as heads, directors, and instructors, need to collaborate and integrate with other members of the educational institutions. When collaboration takes place, it emphasizes augmenting student learning and skills development for lifelong learning. The communication processes between individuals properly take place. The process of collaboration promotes the alignment of information literacy with disciplinary content. It works within the framework of the course content and other learning experiences to achieve information literacy outcomes. Collaboration must occur at various stages in implementing various tasks and activities. The important tasks include planning, delivery, student learning and evaluation and refinement of the program.

Pedagogy – In the pedagogy, the important areas that need to be taken into consideration are, it supports diverse approaches to teaching, is suitable to the types of instructions, takes into account diverse learning styles, incorporates relevant information technology and other media resources, advances learning through collaborative and experiential learning activities, promotes critical thinking, reflection and recursive learning, augment the existing knowledge of the students in the preparation of assignments and contextualizes information literacy within the course-work, which is appropriate to the academic program and course level.

Staffing – The staff members that significantly contribute to implementing information literacy programs include librarians, library assistants, administrators, program coordinators, disciplinary faculty, graphic designers, teaching and learning specialists and other program staff members. Endeavours need to be enriched to work collaboratively with others. They should be knowledgeable regarding the teaching-learning methods, curriculum development and assessment of student learning. Emphasis needs to be put on lifelong learning and ensuring that they are appropriate in number.

Outreach Activities – Outreach activities lead to providing a clear description of the programs and their value to targeted audiences. Creates markets and publicity materials for distribution. It identifies relevant groups amount, stakeholders and support groups. It uses various communication methods, including formal and informal networks and media channels.

Provides collaboration with campus professional development, workshops and programs relating to information literacy. Sharing information, plans, and methods is important in promoting advancements in literacies, and all the members need to participate in outreach activities to progress information literacy programs. Through outreach activities, the members of educational institutions can also provide information to the public regarding programs and courses of study.

Assessment - The assessment methods for performance in the programs and student outcomes are considered in the case of information literacy programs. Program evaluation develops a program for planning and evaluation, measures the programs' objectives, integrates the curriculum and instruction methods, institutional evaluations and regional and professional accreditation activities and uses appropriate assessment methods for identifying the limitations and bringing about improvements. This is apparent that there are differences in the student's academic outcomes. It is necessary to acknowledge the differences in the learning and teaching styles. Employing various outcome measures, i.e. portfolio assessment, oral defence, quizzes, essays, direct observation, anecdotal, peer and self-review, and experience, is vital. In addition, they need to focus on student performance, knowledge acquisition and attitude appraisal, access the students' performance and student peer and self-evaluation.

Understanding the root of motivation and identifying how to engage an individual's intrinsic or extrinsic motivational desires is an important component of instruction. As such, educators and instructors in any setting need to consider structuring learning scenarios, so learners are engaged in the knowledge acquisition process, see the relevance of their learning, feel confident that their experience is meaningful and can be applied, and experience satisfaction from the scenario. This can be accomplished by consciously employing instructional design principles that include motivational design theories. While motivational design theories can be incorporated in any instructional setting or conjunction with any subject matter, engaging learners' motivation may be particularly important when addressing inter - or cross-disciplinary concepts. In such scenarios, considering motivational design may help answer the questions, "When will I ever use this?" or "Why do I need to learn this?" One such cross-disciplinary area is information literacy, which can be seen as an independent discipline in library and information science and an integrated concept across all subject matters where learners demonstrate information-seeking behaviours. Increasing information to ensure they use educational and

economic purposes more effectively. Information literacy enables society to know when they need information, where to locate it, and how to use it effectively and efficiently.

Literature on the topic ranges from those studies which conceptualise information literacy in the workplace, including Bruce (1997), Cheuk (1998a, 1998b, 2000), Kirk (2004), and Lloyd (2004), to those which have a stronger focus on the training aspects of information literacy such as Donnelly and Craddock (2002), Oman (2001), O'Sullivan (2002), Secker (2002), and Winterman, Skelton and Abell (2003). Lloyd (2004) found that most literature has defined information literacy as a skill acquisition process, usually within the educational sector. Training in traditional, grounded library issues, such as the selection of resources and effective search strategies, was more comfortable than operating within the less clearly defined parameters, such as effective use of information and identifying an information need (Bawden and Robinson 2002). That few papers focus on the conceptual aspect of information literacy is perhaps because it requires a deeper and more considered understanding of information literacy and the complexities of its context within the knowledge organisation. How most practitioners perceive the role of information literacy in the workplace is possibly a product of the different relationships that librarians have with students, compared to the relationship with work colleagues in a hierarchical organisation, wherein the librarian is quite often operating at a level subordinate to that of her 'pupils'.(Secker 2002). For example, it would be quite problematic for a librarian to advise a senior professional in either research or administration about attaining skills in evaluating factual information, using it to solve problems and creating new knowledge. In information organisations such as research institutions, these skills or characteristics of information literacy would be the responsibility of and inherent in the learner's colleagues, professional team or community of practice (Secker 2002), as well as their professional development. Terrell (2004) also found that librarians would generally feel more comfortable with teaching people how to find information than how to evaluate and use it. It is, therefore, not surprising that many papers concentrate on teaching skills acquisition (Lloyd 2004) and not on examining the role or use of information and knowledge within an organisation or group of workers.

Thus, information literacy programmes like user education programmes, workshops on information skills, etc., can help them practice what they have learned to search best and retrieve information.

- Initiating search strategy
- Locating the resources
- Accessing and comprehending the information
- Interpreting the information
- Communicating the information
- Evaluating the product and process

Questions:

1. Objectives and purpose of library branches.

2. State guidelines for the library brochures.

3. How to classify the library brochures.

4. What points should be considered while designing the information literacy programme?

5. How to implement an information literacy programme.

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Unit IV: Application of Information Literacy in Library and Information Centre

Introduction

Information Literacy in a library is for academic purposes, such as research papers and group presentations. They're used by the Library and Information Science (LIS) professionals on the job. Finding, evaluating, using and sharing information is an essential skill. As far as college-level research is concerned, it is to engage with a chain of debate and scholarship that extends well beyond any individual scholar or researcher's efforts. A conversation develops over time as new knowledge builds on or upends older established knowledge. When we conduct or synthesize the research or writings of others in a college-level research paper, we participate in that conversation. Key to holding this vast enterprise together is the notion of citation. Citation is how scholars acknowledge or point to the work of earlier scholars. Ideally, citation provides a standard means for tracking down the research of others by providing sufficient information about the source so it can be easily found. Citations typically include article titles, journal titles, authors, dates, and publication information. Citations will look different depending on citation style, the discipline of study, and the format and nature of the information itself. The purpose is the same: to make the source of any information you reference easily findable by others. This is our responsibility as participants in research. One day others may use your work in their research, and those future authors will be obligated to cite you.

Librarians created the Information Literacy Teaching Materials collection to help instructors find resources to use with classes to achieve core learning outcomes related to information literacy. The project began with a survey of teaching faculty to learn what students struggle with most, which informed the selection of resources. The collection includes a vetted selection of handouts, videos, in-class activities, and more to help you integrate information literacy and library research guidance into your classes.

Information Literacy for Users

The primary objective of any library, irrespective of its type or size, is to meet the information requirements of its users. All library activities, from a selection of resources to their organization, storage and dissemination, are carried out keeping in view the users' requirements. User satisfaction becomes the ultimate goal of any library. Libraries, therefore, need to assess their services to ensure that the best use is being made of the available resources. They need to determine if the services provided are appropriate to the users' needs, reaching the target group and users' opinions about the services. For this, libraries regularly carry out user studies. In this lesson, you will study the methods and techniques of library user studies. You will also be exposed to types of user orientation and user education programmes. Such training programmes not only create awareness but also make users independent in finding and using information

USER GROUP	INFORMATION NEEDS AND PURPOSE
Students	Study, project work, general interest
Teachers	Teaching and research
Researchers	R&D information in specific disciplines
Professionals	Technical information to pursue careers
Planners, Policy Makers	Information to frame policies and take decisions
Managers, business people	Product information, market trends and regulatory information
Communicators, intermediaries	Information to create awareness in masses about new processes, products, etc.
Technicians, supervisors, and para professionals in industry, business	Technical and problem solving information
General public	Vocation related information, general interest information

The aim is to determine the essential features of information literacy, its role in university library user education, and how programs can be best implemented. This paper reflects the opinions of the researchers and the authors of the reviewed literature who have insights into the issues related to information literacy and library user education. These opinions present useful guidelines for both librarians and teacher practitioners.

Of all the user groups, researchers are the most extensive users of library resources and services. They need the information to keep up to date, find new research areas, avoid duplication of research, and solve problems. Many user surveys have been conducted to ascertain the information needs of all library users, including the common person.

Based on these surveys, we can identify four types of information user needs, namely,

i) Current Information Need,

ii) Exhaustive Information Need,

iii) Everyday Information Need, and

iv) Catching up on Information needed.

Information needs usually vary from person to person. Besides this, a user may have varied needs at different times.

When users regularly need the latest developments in their areas of interest, the need is known as the current information need. The need is called exhaustive information when the user wants complete and detailed information on a particular topic. Researchers usually require this type of information need.

Everyday information needs specific information required by users in their day-to-day activities. The need is generally for factual information normally available in standard reference books. Catching-up information need arises when a user, not conversant with a particular subject field, requires an account of the overall development of that subject in a short and compact form.

User’s studies

Libraries periodically conduct user studies to ascertain the needs and opinions of the users. The user studies also help the libraries: assess the information needs of the users,

- know unfulfilled information needs,
- find out the use of library resources and services,
- know users’ opinions about the library collection, staff, and services, and
- ascertain the need for new services

User’s methods

Libraries use various methods to carry out user studies. These methods are direct and indirect. Direct methods are based on establishing contact with the users and active involvement of the users under study. In contrast, indirect methods are based on the library’s analysis of its records and other sources without the involvement of the users under study.

Direct methods of user studies involve the participation of the users under study. Most general methods and techniques of social surveys, such as questionnaires, interviews, diaries, observations, etc., are direct.

Indirect methods

Many libraries depend on analysing their records and statistics, like, circulation records, reservation records, reference query files, etc., .to assess the information requirements of their users. These methods are known as indirect methods. Library records provide useful information. For example, records of reference questions and literature searches can give an insight into the type of queries received, the type of documents used and the time taken to answer a question, etc. Similarly, circulation records can be analyzed to determine the library's activity and users' reading habits. Indirect methods provide useful information. However, indirect methods are not appropriate for finding the user's views. For example, indirect methods cannot provide

information about users' views about library services and their attitudes, opinion, preferences or behaviour. It, thus, becomes necessary to observe or question them directly.

This study focuses on developing effective user education programs to enhance the use of electronic information resources (EIR) in an electronic era. For a field approaching a critical period of reappraisal and rethinking of methods, user education is well served by secondary material. A definitive history of training.

From these methods, we will learn the use of information literacy. A questionnaire is a structured schedule of questions intended to be answered in writing. Questionnaires are a useful way to seek users' opinions over widely scattered areas. The most common form of questionnaire is the postal questionnaire, although the questionnaire may also be given by hand, e-mail or online.

Designing a questionnaire involves skilfully translating the study's objectives into a set of questions. The questionnaire should be designed carefully. If the questionnaire is poor, the study results could be useless. A good questionnaire is brief, attractive, asks detailed questions, interesting and easy to complete. The following should be kept in mind while designing a questionnaire.

Types of Questions

Questions may be for seeking facts or opinions and can be closed or open-ended.

a) Questions on Facts or Opinion Questions on facts are intended to obtain facts and are concerned with the respondent's characteristics and description of a behaviour or events.

For example, questions about respondents' age, gender, qualifications, occupation, use of a particular service, etc., are fact-finding questions. Questions on opinion seek to find out not what a person knows or has done but what he thinks about certain services, events, or situations.

For example, one might ask questions like –

Are you satisfied with the library services? Or

what, if anything, do you think can be done to improve library services?

b) Closed Questions Questions can be constructed to determine the response categories in advance. Such questions are called closed questions. Type of Closed Questions The simplest form of a closed question is one for which only two possible responses are provided, from which

the respondent must choose one, often 'Yes' or 'No'. There may also be questions to which several alternative responses are provided, but again the respondent must choose only one.

- Which of the following age groups do you belong to?

Under 21	
21-45	
46-65	
Over 65	

- In some questions, respondents may be instructed to select all the responses which may be applicable.

Another form of closed question consists of responses on a scale on which the respondent marks the strength of his opinion. Such scales are verbal scales and have a middle option. Odd categories must be provided so that there is always a middle point. The numerical scale is an alternative to a verbal scale, in which the lowest and highest numbers represent extreme views. To make the scale more familiar to respondents, an image such as a ladder or smiley chart showing faces may be provided, a simple way of representing satisfaction. Such scales are known as image scales.

Ranking Questions In some questions, you may wish to know the relative importance that the respondent attaches to a list of categories. The respondent may be asked to rank a whole list of categories, choose the most and least desirable items from a list, or select the most desirable item from a pair of comparisons.

Q. Below are listed attributes of librarians. Please rank them in the order of importance (from 1 to 5) as you see it, putting the most important one first.

Sound knowledge of the subject

- Skill in on-line searching
- Good manners with public

- Pleasant appearance
- Good general knowledge
- Advantages of Closed Questions They are simple to administer.
- It is easy to pre-code responses to facilitate analysis

In this diary method, individuals under study are asked to maintain a detailed record of particular information activity. Activities like searching for information, reading, discussing with colleagues, library use, etc., can be recorded for a given period. To facilitate the work of recording and the final analysis of data, 'data diary forms' are supplied to the individual

User's training

User studies conducted during the 1950s provided insight into the users' information requirements and also revealed that the users do not fully utilize existing library resources and services. Library professionals stressed the need to train the users to use the library resources to their benefit. This was emphasized more because it was observed that users were not fully aware of the library resources and services. In the years that followed, the need for library instructions in academic libraries was widely accepted, and means for implementation were being followed. It would be difficult to find any library not engaged in some activity or programme concerned with user training. The libraries provide a wide range of training programmes. These training programmes aim to help the user to find and search information independently. Depending upon the type of instructions, the programme may be user orientation, bibliographic instruction, or user education programme. Let us study what each training programme offers.

User orientation

Libraries, particularly academic libraries, organize 'user orientation' or 'user initiation' programmes for new students at the beginning of the academic session. The basic aim of the user orientation programmes is to introduce the library and its services to the new user. Such programmes acquaint the user with the library and its facilities, such as general rules and regulations, collection of the library and its location, library catalogue and how to use it, lending and borrowing facilities, and library reference and information services. These programmes are

in the form of a lecture by the librarian followed by a tour of the library, a brochure containing all the information, or an audio/visual kit that introduces the library to the new comer.

Bibliographic instructions

Training programmes on bibliographic instructions teach the participants basic literature search techniques to find the required information. The training course normally covers the structure of the literature on a subject. It can be different types of available documents and their information characteristics. The training includes planning a search that will give the best results in the shortest possible time, availability of computerized databases and search techniques through them, and practical exercises on a literature search on specific topics. Such training programmes are normally offered in universities and research organisations.

User education

User education is a broader concept. It is an educational activity concerned with creating awareness among the students about the value of information, motivating them to use library resources to supplement class room teaching. Here the user training programmes are designed based on the course curriculum of the target users. At times class teachers are also involved in preparing practical exercises. Such activities develop skills in the users to find and search information independently for study, research and recreational purposes.

User's learning

The libraries conduct user studies to know the users' information requirements and determine the use of library resources and services. There are two methods of user studies, direct and indirect methods.

User studies have helped to identify four types of information needs of the users, viz., current information needs, specific information need, everyday information need and catching-up information need.

Indirect user studies methods are based on analysing the library's records, such as circulation, reference service records, etc., without the involvement of the users under study.

Direct methods involve the active participation of the users under study. Direct methods use questionnaires, interviews, Diary or Observation to conduct the user studies. Each of the direct methods has its advantages and limitations. The questionnaire method should be used when the population is large, distantly located, and resources are limited. Designing a questionnaire is an art. The questionnaire should be brief, attractive, ask detailed questions, interesting and easy to complete.

User studies revealed that existing library resources and services are not fully utilized by the users and stressed the need for training the users. User training programmes provided by the libraries aim to help the users to use existing resources and services fully and make them independent in searching and using information.

Information literacy empowers people from all walks of life to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals. Information literates are the people who have learnt to learn competently in performing a specific task, action or function successfully. Acquiring information literacy skills is an information literacy competency. In brief, Competencies are a combination of skills, knowledge and behaviours important for organizational success, personal performance and career development. Knowing that Information Literacy comprises the use of ICT to retrieve and disseminate information, the competencies to find and use information in information and the process of recognizing information needs, finding, evaluating, and using the information to acquire knowledge. Library professionals need good teaching and communication skills to teach information literacy to their user community in an academic environment.

There is a need for library professionals to update their skills and competencies to:

- Help the students and the faculty members locate, access and evaluate information effectively and efficiently.
- Take better decisions in day-to-day work.
- Contribute towards the growth & development of the institution.
- Update their knowledge and skills & optimum use of technologies.
- Get recognized for providing value-added library services.
- Understand and do their research work.

- Survive in the competitive world.

They need to collaborate and team up with academic staff to integrate information literacy programs into the regular curriculum to make the teaching-learning process more effective and useful. The College / University authorities should also understand the need for information literacy programs and support the initiators.

Libraries and library professionals are effective resources for information access. They can provide key access points to electronic and print information only if possessing Information Communication Technology and Information Literacy skills and competencies as required. Library professionals should also take the initiative in conducting IL programs in their college/university environment and update their skills by attending various organisations' various organisations' conferences, seminars, workshops & on-job /off-job training programs.

Is there a need for information literacy in the workplace? The answer must be 'yes' since an information-literate workforce that can locate, evaluate and effectively use information is the key to the success of many organisations (Lloyd 2003; Oman 2001; O'Sullivan 2002). In companies and organisations where information and new knowledge are seen as providing a competitive edge in business or in service provision, information management or the processes involved in handling information are essential to productivity and performance for both the company and its customers (Jones 1998; St. Clair 2001; TFPL Ltd 1999). Outside the library profession, the term 'information literacy' is almost unknown and certainly not well understood (Cheuk 2002; Jones 1998). The term 'knowledge management' is often used and has similar characteristics to information literacy (Cheuk 2002; Henczel 2004; O'Sullivan 2002). Balcombe (1999) defines knowledge management as capturing, sharing, using and creating knowledge to add value to the organisation. O'Sullivan (2002) has identified terms such as time management, information management, networking, teamwork, data mining, analysis, online searching skills and computer skills (for creating, storing and presenting information), and managing resources and budgets as desired skills for organisations. These terms, which feature in job descriptions, selection criteria, performance appraisals and professional development programs, can also be found in knowledge management or information literacy definitions. With the exponential increase in information, its management and use have become an important workplace issue, yet most organisations or professions do not adequately address knowledge management or information literacy (Abell 2000; Candy 1998; O'Sullivan 2002; Winterman, Skelton and Abell

2003). However, a report by TFPL Ltd (1991) found that chief executives valued knowledge management second only to globalisation as essential for their organisations. Lloyd (2003) states that in the …knowledge economy, the ability of the individual to become information literate and to engage effectively in the operations skills of information literacy are attributed to which organisations should invest in recruitment and training. A report by KPMG Consulting (2000) found that companies risked wasting their investment in the technology used to manage information if they did not tackle the 'human' aspect, which has been identified as an essential focus in knowledge management (Abell 2000). Employees continued to have problems with information overload, information anxiety, disinformation or misinformation, insufficient time, inadequate technological skills to share knowledge, difficulty locating information, and frequently 'reinventing the wheel'. While information is highly valued within most organisations (Candy 1998), many workforce members cannot deal effectively with it in their everyday work (De Ruiter 2002; O'Sullivan 2002; Rader 2002; Winterman, Skelton and Abell 2003). Information literacy includes concepts such as the attributes of information (including relevance, currency, timeliness, consistency), evaluation of information sources (for credibility, currency, reliability), economic characteristics of information (expandable, shareable, diffusive), information value and cost-effectiveness, the ability to define information requirements effectively, information overload and filtering.

When researching information literacy in the workplace, it is important to differentiate between the literature on that topic and what has been written on or by other sectors traditionally involved with information literacy, principally academic libraries (Candy 1998; Clyde 2002; Marcum 2002; Rader 2002). While this literature can add greatly to the body of knowledge, particularly on related topics such as teaching skills and program development, there are fundamental differences in students' and employees' information needs and information-seeking behaviour.

There is also a difference in these user groups' relationships with library staff. Therefore, while many of the concepts, experiences and research underpinning information literacy in the academic sector are transferable to the workplace, special librarians must adapt and modify these for their purposes. The information problems found in the workplace are often 'messy and open ended' Complex tasks in information seeking are characteristic of the workplace.

Employees are not asked for school essays or assignments on specific issues. Often they have to define their tasks or create their interpretations and constructs, to solve an information problem. Complex tasks are non-routine, unanalysable and involve different approaches to information seeking and use compared to routine tasks Information seeking and use become a process of the construction of knowledge. Whereas learning for students is often by rote or summary notes, it seldom consists of the deep-level learning, analysis, interpretation, understanding or application that is often required in the workplace (Cheuk 1998a; Kuhlthau and Tama 2001). Kuhlthau and Tama (2001), while investigating the 'information search process' (Kuhlthau 1989) in the workplace, found that compared to students, lawyers responded differently to uncertainty, which is an early and predictable stage in information seeking. While students interpreted this as 'something…going wrong', lawyers expressed interest and enthusiasm for the challenge. Experience in their profession resulted in them finding and interpreting information differently from a student being introduced to a new array of subject topics, often within a short time frame.

Lawyers also need a wide range of sources of specific information and exploratory or browsing information when they seek one thing and find another relevant to their task. The lawyers aimed to build knowledge rather than merely find 'the right answer'. The search process and information used by lawyers in the workplace significantly differed from that of students.

The role of the special library is changing. The last decade has not been easy for the sector as many have closed, downsized or amalgamated. In the information society, there should be a role for an information specialist. Yet, special librarians have not always seen the opportunities nor adapted to the changing environment. They face the prospect of being marginalised within their organisation if they do not take up the challenges of the information age. Librarians must evolve their attitudes and their services if they are to remain relevant to their users. They need to be proactive, take available opportunities, and engage with other sectors in their workplace, such as human resources and information technology, to broaden their roles in their organisations and strengthen their position as information specialists.

Furthermore, the processes and actions of information-seeking have changed. While this is not exclusive to the workplace, sources of information outside the library's domain can now easily be found and accessed (Detlor 1999). Corporate users often prefer digital information and regularly share it with colleagues via the internet, e-mail or open-access forums, thus bypassing

the traditional publishing systems and processes of organisations and professions (Strouse 2004). Many significant documents, both print and digital, are never added to a library collection but are circulated collegially within the workplace. Special librarians can (must) become involved in collecting, organising, indexing and presenting such information and training others to undertake these tasks. Strouse (2004) states that while 'some of the traditional roles for information professionals are quietly fading away, there is an abundance of new and exciting functions to replace the old ones'. Introducing information literacy training into the workplace may not traditionally be a role undertaken by the special librarian. Still, it enhances the roles and relevance of the librarian and fills an obvious need. Therefore information literacy does represent, as Oman (2001) describes, a 'wonderful opportunity, as it broadens the scope of the information professional's traditional mandate of just being a "provider" of information'. In its simplest version, that of training or instruction, information literacy is not a new role in the library profession. However, it may have been better known by other terms such as the user or reader education, library instruction, user training or library orientation. In its broadest sense, the embrace of information literacy expands the role of the special library to include all aspects of information use. Henczel describes the three primary roles of a special library in a knowledge organisation: providing information products and services tailored to the organisation's needs, educating people in the use of those products and services, and facilitating the sharing of information and knowledge. There needs to be a shift from the conventional techniques and process preoccupation to a more people-orientated focus and a shift from the concept of the library being a support service to being a core part of the organisation. Introducing aspects of an information literacy program is one way to help the special library evolve in its organization.

Benefits of Information Literacy Programs

- Key to empowerment, development and happiness.
- Enhancement of critical thinking
- Synthesis of data and information into knowledge
- Motivation for self-directed learning
- Use of information ethically & legally, understanding the economic, legal & social issues around the use & access of information.
- Changes and advances in the practice of teaching and learning.

- ❖ Higher education identifies the need for more active learning.
- ❖ Appreciation for lifelong learning.

Information Literacy for Research and Development

Introduction

Research and information literacy is something students work on throughout their school career. It's a collection of skills that, when combined, means that a learner can find, understand, evaluate and use information. Interest in information literacy grew out of a need to create learners for the 21st century. Here you'll find information about two ways to begin to develop information literacy in your child

Developing a Research Topic

After completing this module, you will be able to:

1. identify some goals to keep in mind as you choose a topic
2. choose an approach to develop further, broaden or narrow your topic
3. look for some resources to get you started.

Pre-research

It covers the beginning stages of research, often called "pre-research." While you might be tempted to begin searching before completing these steps, the pre-research process will save you valuable time and effort. The first step in the pre-research process is to choose an interesting topic and create a research question. Next, using your research question, you can perform some background research to learn more about your topic. The background research will enable you to refine your topic and write a strong, focused thesis statement. You will ultimately use your thesis statement to choose keywords and create search statements.

These steps are in preparation for using search tools, creating targeted searches, and retrieving the best information for your paper, project, or speech.

Evaluating information sources

These days, there are many, many sources of information. Children are bombarded by messages from several media and online sources, books, friends, and people at school. An important step in developing information literacy is learning to evaluate the source of information, especially for online information. It's helpful to help your child consider some of the following:

- Who is the author of the information?
- What do we know about the author or organization? Is that person an expert? Do others respect that organization?
- Why was this information written? Is the author trying to persuade you to buy something?
- Does the information present fact or opinions?
- Is the information recent? When was it published?

Parents and teachers can help children develop research and information literacy by sharing their love of learning. Encourage their curiosity about the world and desire to find out more. At the same time, it helps them become wise consumers of the information they find. These are skills that will last a lifetime.

The assignment itself often outlines not only the requirements of the paper but also the framework or organization that you may use. Highlighting important keywords or verbs in the prompt and discussing the expectations with your professor or peers to ensure you understand your objectives would be best. Some points for you to consider:

- Who is the intended audience of the assignment?
- Will that audience affect your stance on the topic or how you construct your argument?
- What are the keywords and phrases in the assignment?

- Are there multiple parts to this assignment? How might I organize the paper to address all of these points?

Rewriting the prompt in your own words or creating an outline based on the necessary components will also help break down the expectations and ensure you address all requirements.

Research methodology is a course for all fields of study that enables students to master the processes involved, apply them while writing their projects or theses, and replicate them in their future careers. Before describing the research process, it is worthwhile to examine the research concept. It is believed that the word research is derived from the French word recherché, which is from the old French word receiver, which means ―to investigate thoroughly‖. From another dimension, research is seen as the combination of two words, ‗re' and ‗search'. ―Re‖ is a prefix meaning ―again‖, whereas ‗search' means ―to look for something‖. So the research will mean ―looking for something again‖. This implies that something already exists, and we need to re-discover that thing again, maybe as a result of a challenge or problem presently associated with that thing. To carry out research is to search again, investigate more, take another more careful look, find out more as applicable to a situation, and thoroughly examine something again. This will involve systematically collecting and analysing information to increase our understanding of the phenomenon/thing under study. In that direction, Osuala's (2005) description of research as ―the process of arriving at dependable solutions to problems through the planned and systematic collection, analysis and interpretation of data‖ is appropriate. He adds that research is oriented towards discovering the relationships among the phenomena of the world in which we live. Such research is expected to possess various characteristics, which Aina (2002) outlined as follows: a piece of research begins with a problem in mind, which the research sets to solve;

- ❖ research is expected to lead to the development of generalisations, principles and
- ❖ theories that can be applied to similar situations; research is based on personal experience or empirical data that involves gathering data; it is essential to have a research plan, as procedures must be carefully designed;
- ❖ research requires the researcher(s) to have expertise in the area of research;
- ❖ a researcher must be objective, logical, honest, courageous and patient;

- ❖ completed research must be accurately reported and disseminated through various scholarly communication channels, and a research study is expected to contribute something new to the knowledge

Thus, research will find solutions to the problem associated with man in different perspectives and areas of life, thereby contributing to the growth of knowledge. Then, what are the processes involved in research? Various processes are involved in carrying out research. They include identification of the problem and selection of appropriate topic, review of related literature, study design, data collection and analysis, interpretation of findings, and publication of research report. However, these steps vary from one researcher/author to another, from one branch of knowledge to another, and from one academic institution to another. The diagrams below show various ideas of the research process from various scholarly authorities:

Developing Research steps

The research method varies depending on the branch of knowledge, but the approach seems the same for all areas of human endeavour. In other words, although the basic logic of scientific methodology is the same in all fields, its specific techniques and approaches will vary depending on the subject matter. Therefore, the model in this chapter section is generic and can be applied to several disciplines. It is based upon a practical and step-by-step approach to a research inquiry, and each step provides a variety of methods, models and procedures.

Step I: Formulating a Research Problem

Formulating a research problem is the first and most important step in the research process. A research problem identifies your destination: it should tell you, your research supervisor and your readers what you intend to research. The more specific and clear you are, the better. Everything that follows in the research process, study design, measurement procedures, sampling strategy, frame of analysis and the writing style of your thesis or research report is greatly influenced by how you formulate your research problem. Evaluating the research problem in light of the financial resources, the time available, and your research supervisor‘s expertise and knowledge in the field of study is extremely important. It is equally important to identify any gaps in your knowledge of relevant disciplines, such as statistics, that are required for analysis. Also, ask yourself whether you have sufficient knowledge about computers and software if you plan to use them. After identifying the research problem, the literature in that study area needs to be exhaustively reviewed. Literature here means all available research findings related to the identified problem and topic of investigation. Such research findings may be published in scholarly journals, conference proceedings, workshop/seminar papers, the Internet, and other publications. Efforts should be made not to review works over a decade old as at the time of the investigation. The literature review will enable the researcher to identify gaps their investigation is expected to fill.

Step II: Conceptualising a Research Design Another important research feature is scientific methods.

Research involves the systematic, controlled, valid and rigorous establishment of associations and causation that permit the accurate prediction of outcomes under a given set of conditions. It also involves identifying gaps in knowledge, verifying what is already known and identifying past errors and limitations. The validity of what you find largely rests on how it was found. The main function of a research design is to explain how you will find answers to your research questions or generate data for a hypothesis. The research design sets out the logic of inquiry. Such research design should include the following:

- the study design per se and the logistical arrangements that a researcher proposes to undertake, the measurement procedures, the sampling strategy,
- the frame of analysis and
- the time-frame.

For any investigation, selecting an appropriate research design is crucial in enabling the researcher to arrive at valid findings, comparisons and conclusions. A faulty design results in misleading findings and is therefore tantamount to wasting human and financial resources. In scientific circles, the strength of an empirical investigation is primarily evaluated in light of the research design adopted. When selecting a research design, it is important to ensure it is valid, workable and manageable. There is an enormous variety of study designs, and the researcher needs to be acquainted with some of the most common ones. Select or develop the design that is most suited to the study. A researcher must have strong reasons for selecting a particular design; be able to justify the selection; and be aware of its strengths, weaknesses and limitations. In addition, there will be a need to explain the logistical details needed to implement the suggested design.

Step III: Constructing Instrument(s) for Data Collection Anything that becomes a means of collecting information for a study is called a ―research tool‖ or instrument.‖ For example, observation forms, interview schedules, questionnaires, and interview guides are all classified as research tools. The construction of a research tool is the first ‖practical‖ step in carrying out a study. The researcher will need to decide how to collect data for the proposed study and then construct a suitable research instrument for data collection. If a researcher plans to collect data specifically for a study (primary data), they must either construct a research instrument or select an already constructed one. If the plan is to use secondary data (information already collected for other purposes), develop a form to extract the required data. Some studies may involve using more than one instrument for data collection. In such a situation, it is called triangulation and may involve the combination of a questionnaire, interview, and observation checklist. Field testing of a research tool is an integral part of instrument construction. As a rule, the field test should not be carried out on the sample of your study but on a similar population.

Step IV: Selecting a Sample The estimates' accuracy largely depends on how a sample is selected. The basic objective of any sampling design is to minimise, within the limitation of cost, the gap between the values obtained from the sample and those prevalent in the population. The underlying premise in sampling is that if a relatively small number of units are scientifically selected, it can provide a sufficiently high degree of probability, a fairly true reflection of the sampling population being studied. Two principles guide sampling: the avoidance of bias in the selection of a sample; and the attainment of maximum precision for a given outlay of resources.

There are three categories of sampling design: random/probability sampling designs, nonrandom/probability sampling designs, and assorted sampling designs. There are several sampling strategies within the first two categories.

A researcher must be acquainted with these sampling designs to select the most appropriate for the study. The strengths and weaknesses of each and the situations in which they can or cannot be applied to select the most appropriate design should be known. The type of sampling strategy also determines the ability to generalise from the sample to the total population and the type of statistical tests that can perform on the data. Step V: Writing a Research Proposal The next research proposal, which provides adequate information about the topic of investigation, may be to supervisors and others interested in the work. This overall plan tells a reader about the research problem, and planning how to investigate is called a research proposal. Broadly, a research proposal‘s main function is to detail the operational plan for obtaining answers to research questions and or hypotheses. In doing so, it ensures and reassures the readers of the validity of the methodology to obtain answers accurately and objectively. Universities, polytechnics and other organisations may have different requirements regarding the style and content of a research proposal. Still, most institutions would require most of what is set out here. i.e. the basics. Requirements may also vary within an institution, from discipline to discipline or from supervisor to supervisor. A research proposal must tell a researcher, their research supervisor and a reviewer the following information about the study: what a researcher is proposing to do, how they plan to proceed, and why selecting the proposed strategy.

Therefore, the research proposal should contain the following information about the study:

• a statement of the objectives of the study;
• a list of hypotheses, if you are testing any;
• the study design you are proposing to use;
• the setting for your study;
• the research instrument(s) you are planning to use;
• information on sample size and sampling design;
• information on data processing procedures;
• an outline of the proposed chapters for the report;
• the study‘s problems and limitations;

• the budget for the study; and • the proposed time-frame.

Step VI: Collecting Data Having formulated a research problem, developed a study design, constructed a research instrument and selected a sample, the researcher is to collect data from which to draw inferences and conclusions for the study. Many methods could be used to gather the required information. As a part of the research design, the researcher decided upon the procedure they wanted to adopt for data collection. At this stage, the researcher collected the data. For example, depending on the plans, they might commence interviews, mail out a questionnaire, conduct nominal/focused group discussions, or make observations. Collecting data through any one of the methods may involve some ethical issues. Step VII: Processing Data The way to analyse the collected data largely depends upon two things: – the type of information—descriptive, quantitative, qualitative or attitudinal; and – the way you want to write the research report.

There are two broad categories of the report: quantitative and qualitative. The distinction is more academic than real, as in most studies, one needs to combine quantitative and qualitative skills. Nevertheless, there are some solely qualitative and some solely quantitative studies. Examine and understand different ways of analysing quantitative data and displaying analyzed data. In addition to the qualitative and quantitative distinction, it is equally important for data analysis that one considers whether the data is to be analysed manually or by a computer. If the study is purely descriptive, the report based on field notes can be analysed manually through content analysis. For quantitative analysis, it is also necessary to decide upon the type of tool required (i.e., frequency distribution, cross-tabulations, or other statistical procedures, such as correlation statistics, regression analysis, factor analysis, and analysis of variance) and how it should be presented. Also, identify the variables to be subjected to these statistical procedures. Step VIII: Writing a Research Report Writing the report is one of the most difficult research process steps. This report informs the world of what a researcher has done, what has been discovered and what conclusions have been drawn from the findings. If a researcher is clear about the whole process, they will also be clear about how the report should be written. The report should be written in an academic style and be divided into different chapters or sections based on the main themes of the study and in line with the approved structure in the researcher‘s tertiary institution.

Research Process in Information literacy skills

The research process is a step-by-step process of developing a research report or academic paper. As a researcher progresses from one step to the next, it is commonly necessary to back up, revise, add additional information resources or even change the research topic completely. This will depend on what the researcher noticed during the preliminary stages of the research. Some reasons may account for adjusting research plans. For example, a topic may be too broad and needs to be narrowed, sufficient information resources may not be available, what the researcher learns may not support the thesis, or the size of the project does not fit the requirements of the institutions, as the case may be. The research process involves identifying, locating, assessing, analysing, developing and expressing ideas. These skills will be needed outside the academic world when one is expected to write a report or proposal for a boss or director. According to Ojedokun (2014), information literacy is closely related to the research process. While the research process follows the following steps: defining the information need, formulating the research topic and identifying the concepts, developing a search strategy (involving concept mapping and formulation of search statement, selection of document types, selection of search tools and refining of search statement), executing the search, and using the results (involving locating and retrieving documents, evaluating information and citing sources), information literacy emphasises the set of abilities requiring individuals to recognise when information is needed and have the ability to: locate, access, critically evaluate, communicate and use the information effectively. Information literacy encourages critical thinking and reflection, which is considered the library research hallmark. Based on what information literacy entails, information literate students are expected to: embark on inquiry and so determine a need for knowledge/understanding, find/generate needed information/data using appropriate methodology;

- critically evaluate information/data and the process to find/generate this information/data; organize information collected/generated;
- synthesise, analyse and apply new knowledge; and
- communicate knowledge and the processes used to generate it, with an awareness of ethical, social and cultural issues. Therefore, the students are equipped with the various skills and competencies to: engage with new ideas and ways of thinking and critically analyse issues; seek to extend knowledge through ongoing research, enquiry and reflection;

- find and evaluate information, using various sources and technologies, and acknowledge the work and ideas of others while using information resources for research and other academic writings.

Thus, the various steps involved in the research process show that knowledge and application of information literacy skills are required. In other words, possessing information literacy skills facilitates the research endeavours of individuals, including students. As a student, be it undergraduate or postgraduate, take a look at the following questions:

i. Can I identify my academic information needs for writing term papers, assignments or projects?
ii. Do I know the various user-based information services of my institution‘s library which students are entitled to, such as reference services, current awareness services, selective dissemination of information, user guides, online services, literature search, etc.?
iii. Can I manipulate computer systems and use their various applications like Microsoft office packages?
iv. Can I navigate the online environment and use its resources such as the web, e-mail, social networking sites, and other applications?
v. Can I use information access tools such as print catalogues, online catalogues, indexes, abstracts, library portals, bibliographies, webliographies, uniform resource locators, search engines, library gateways, web directories, etc.?
vi. Can I formulate search queries and initiate search strategies for reliable information?
vii. Can I access and locate relevant information resources from my institution‘s library, archives, online databases, repositories, and the Internet that will satisfy my academic information needs?
viii. Can I evaluate web-based information resources for credibility and reliability without bias before utilisation? i. Do I possess critical thinking skills?
ix. Can I synthesise information from various sources and systems?
x. Do I know about ethical issues surrounding using information resources to avoid plagiarism?
xi. Am I familiar with what plagiarism is all about and activities that constitute both intentional and unintentional plagiarism?

xii. Can I cite and reference information resources used for writing term papers, assignments, seminars and projects?

These researches are essential for engaging successfully in the research process. Thus, the research can comfortably carry out review, research and development.

Research directions Information literacy research is still in its infancy. Not only is the number of studies completed relatively small, but the agenda is also ill-defined, and suitable theoretical frameworks are just beginning to be explored. Nonetheless, studies completed to date reveal important insights into the nature of information literacy. They also draw upon a range of 'user' or 'people-oriented' theoretical frameworks, making possible outcomes highly relevant to professional practice. Some of these studies use existing disciplinary bases, such as information seeking and use research or educational research. Overall, directions are being established, making information literacy research a significant source of knowledge for educators, librarians and other information professionals. Work in progress may be loosely categorised as research-in-practice, applied, or pure research.

Research-in-practice Research-in-practice is usually undertaken by people directly involved in information literacy programs or collaboration with them.

The researcher usually subjects some aspect of their situation to rigorous scrutiny and seeks new knowledge and ways of doing things. Such research is likely to be driven by critical theory in that it is intended to be empowering, emancipatory and participatory.

Action research, one approach driven by critical theory, has been used for developing information literacy programs in higher education (Radomski, UAW) and schools (Moore, ILAW). It has also been used as a framework for evaluating information literacy instruction in the University of Queensland Physical Sciences and Engineering Library (Hill, 1999). Other examples of research in practice are the development of the profile of an information-literate law firm (Gasteen and O'Sullivan, ILAW) and the development of PC-Diary (Parboosingh, ILAW).

Applied research - problem-solving Applied research investigates problems that are pertinent to practice. User-needs analyses, such as those conducted in South Africa (Sayed, ILAW) and Singapore (Hepworth, ILAW), identify user profiles that may drive the development of information literacy programs. In Australia, Genoni and Partridge (ILAW) analysed the information management skills of research students to develop courses to assist them with this

aspect of their studies. Perennial problem educators face in assessment for information literacy education. How does one appropriately assess learning in this domain? This has been the focus of work by Catts (ILAW) at the University of Central Queensland.

Pure research - seeking new directions. Pure research seeks insights into the nature of phenomena. Some studies have been conducted recently that fall into this category. They usually employ a well-articulated theoretical framework and provide the research and practitioner community with new ways of thinking about important aspects of information literacy.

Examples of such studies include: 1) Bonnie Cheuks (ILAW) use of sensemaking to explore the nature of information literacy in the workplace; 2) Louise Umbergs (ILAW) use of phenomenography to determine varying ways of experiencing information seeking and use process; 3) Helmut Klaus' (ILAW) use of phenomenography to identify different ways of experiencing thesauri when searching databases; 4) Christine Bruces (1997a) phenomenography exploration of peoples varying experience of information literacy; and 5) Ross Todds (1999a) cognitive analysis of adolescent girls' use of heroin information.

The question of theory has begun to tease information literacy researchers. Consequently, various attempts have been made to spell out useful theoretical directions. Todd (UAW) explores a cognitivist approach, Mutch (UAW) explores the critical theory, Bruce (1997a,b) articulates the relational approach, and Cheuk (1998) claims to be working within a constructivist paradigm. In his address at the Fourth Australian Information Literacy Conference, Ross Todd (1999b) reinforced the need for stronger theoretical frameworks. Research agendas What research agendas are being set by the directions presently being followed? While each researcher establishes different research directions and agendas, broad questions and foci may be summarised as follows:

- The nature of knowledge, information and information literacy in different cultures;
- Information literacy experiences of individuals and groups;
- What motivates people to walk the information literacy path?;
- Barriers to the implementation of information literacy programs; and
- Strategies for helping individuals and communities to become information literate.

This research was based on the action research methodology that produces evidence to support the theory, build an analytical understanding, and create new knowledge. A comprehensive, critical and systematic approach is needed, and the participant researchers are highly challenging. This research area belongs to action-research methodology and is specifically an experimental study with an explanatory purpose: a study or experiment was proposed on a set of students consisting of a detailed written specification of the stages and processes involved in document abstracting; experimental data were collected in the classroom and analyzed to complete the study. This knowledge led us to prioritize learning goals for these literacy skills and information. The instrument in this research is based on students' abilities in abstracting, using the following steps:

- Identification of the structure of the text, the main topic and the author's intention.
- Choosing the most significant phrases.
- Generalizing the sentence preferred.
- Creating content schema.
- Using graphics and images appropriately.
- Compiling and abstracting

We have compiled a list of skills in abstracting processes, and the following were the skills selected:

- Comprehension: the speaker's main subject matter and intent and the recognition of introductory sentences and keywords have been detected.
- Analysis: identified text structure, keyword selection and key phrases.
- Synthesis: identified in the stage of generalization and abstract writing.
- Information organization and structuring: the diagrams, phrase selection, and visual organization are detected.
- Expression: the way the abstract is written is analyzed.

Development of research method

Community development depends on resources accessible to it and optimally used by it. Among several resources, like economic capital, starting from 1990, both in the theoretical literature and empirical research, social capital is recognized as an important resource in community development. Social capital is important in the functioning of society as a whole. So,

for example, based on the idea that ‘social capital is the glue that holds societies together and without which there can be no economic growth or human well-being’, the UK performs the social capital assessment in the country, measuring different kinds of connections between people (for example, by such indicators as numbers and ties of actors in personal relationship networks; the frequency of contacts with others; feeling lonely; receiving social support from other people etc.) (Siegler, 2015). Based on the ideas of different social capital theories, Huvila I. et al. assert that ‘social capital is in the structures of relationships between people' (Huvila et al., 2010). To define shortly what social capital is, Siegler Veronique writes that ‘social capital represents social connections and all the benefits they generate’ (Siegler, 2015). To map the benefits and outcomes of social capital for the individual, local community, and society, it is divided into three dimensions: 1) structural dimension, 2) relational dimension, and 3) content dimension. The structural dimension is defined by network structures and the nature of network ties, providing information flows that can benefit an individual. The relational dimension includes trust, identity and roles of actors (individuals) connected in social networks. Trust is an important element in sharing and exchanging information with somebody else. The content dimension includes shared meanings and collective knowledge. One of the main benefits of social capital is information exchange and the possibility of getting the necessary knowledge closely related to information literacy.

Skills of how to create new information and share it depends on individual information literacy level. If we are information literate enough about the possibilities to create social networks in the digital environment, we can participate more successfully in generating and using social capital. This paper aims to describe people's information literacy as essential competency required for the generation of social capital and the use of social capital in sharing and obtaining information, which is considered an important resource in the community’s development.

Therefore the main tasks are the following:

1) how to measure levels of information literacy;

2) to understand what is the level of information literacy in the local community (for economically active adult population);

3) what knowledge and skills are necessary to be improved

The focus group discussion data were analysed using six categories of content analysis:

1. Information required;
2. Information sources;
3. Information channels;
4. Problems encountered during the process of retrieving information;
5. Lack of knowledge and skills;
6. Information literacy education needs

Developing Information Literacy Skills

It provides guidance and practice in finding and using good and appropriate sources for a research project. Anyone who does academic research at any level can benefit from ways to improve their information literacy skills.

This text has been structured around the six critical elements of the ACRL Framework for Information Literacy in Higher Education, contextualizing them by fitting them into the research and writing process. The book focuses on providing students with the critical thinking and problem-solving skills needed to (1) identify the conversation that exists around a topic, (2) clarify their perspective on that topic, and (3) efficiently and effectively read and evaluate what others have said that can inform their perspective and research. The critical thinking and problem-solving skills practised here are good preparation for what students will encounter in their academic and professional lives.

The author evaluated the final written products of hundreds of students trained through one-shot workshops and first-year introductory courses. She has applied that knowledge to create the tasks in this book so that students have the skills to successfully find, evaluate, and use sources and then produce a paper that incorporates proper research responsibly and effectively.

The Researcher Development Framework (RDF) was launched in 2010 by **Vitae**, a non-profit programme of the Career Development Organisation. The RDF describes in detail the practical skills and attributes of successful researchers. It provides the basis for the support offered to researchers by many of the Schools and Departments at QMUL, including the Library.

Information literacy describes a set of abilities that enables an individual to acquire, evaluate, and use all information. Research literacy is accessing, interpreting, and critically

evaluating primary research literature. Both involve developing a range of critical thinking skills, including:

1) the discovery and evaluation of information,

2) understanding how information is produced and valued, and

3) the ethical use of information in creating new knowledge. Many of the concepts discussed in the pages in this section are also reflected in the Education and Professional Development section in the Social Sciences Library.

International level

Information Literacy Policy Development to DateIn 2003, Hannelore Rader noted, concerning information policy development in Canada, that "although some progress has been made during the past five years, much more is needed compared with efforts in the USA and Australia" (39). Her statement remains true today, and Canada might even be further behind, given the significant information literacy policy developments in several European countries. The following discussion of policy development efforts in Canada is organized around the four major arenas where, based on developments in other countries, one would expect such activity to occur: the federal government, provincial governments, library associations, and other related interest groups.

Government of CanadaThere is no centralized departments serving as a hub for information literacy-related initiatives in the Government of Canada's current structure. Relevant policies and documents have emerged from a range of federal government departments, including Human Resources and Skills Development Canada (and its previous iterations), Industry Canada, as well as arms-length advice-giving bodies like the Information Highway Advisory Council and independent but largely government-funded bodies like Canada's Advanced Research and Innovation Network (CANARIE). The result is a difficult maze of policies that sometimes hint at information literacy but no centralized departmental location and hence no focused discussion of the issue. An overview of some of the more salient documents is provided here to give insight into the priorities and directions adopted by departments within the Government of Canada. The Government of Canada was an early international leader in information technology policy development, ensuring that the infrastructure was in place to allow maximum citizen access to the Internet. Connecting Canadians was a high-profile federal

policy initiative, emerging in the mid-1990s from Industry Canada, based on advice from the Information Highway Advisory Council. The comprehensive Connecting Canadians programs had multiple goals related to information technology, including expanding Canadians' access to the Internet, increasing Canadian content online, making government services accessible online, and fostering e-commerce.

One component of Connecting Canadians, familiar to many librarians, was the Community Access Program (CAP)which, from 1995-2012, aimed to provide computers and Internet access for Canadians nationwide. Community centres, schools and libraries were equipped with the technology required to bridge the digital divide among Canadians, creating more than 10,000 CAP sites across Canada. In addition to infrastructure, Connecting Canadians also placed responsibility for providing training in the use of the technology with CAP sites. However, no additional funds were provided for achieving this objective. It appears, as might be expected given a mandate to provide primarily technology training, as well as the scarcity of resources, that the CAP program, despite its many benefits, did not translate into increased information literacy competencies. Julien and Breau's study confirmed this, finding that while many public libraries saw a role in boosting information literacy levels among Canadians, resource limitations prevented them from doing so. Connecting Canadians and its component programs significantly impacted Canadian libraries' connectivity but did not have a measurable impact on information literacy levels.

Information literacy policy development in Canada is undoubtedly complicated because the Canadian Constitution assigns responsibility for education to provincial and territorial governments. The lack of a federal role in education results in wide variations in the attention paid to information literacy among the province and territories; however, while this certainly poses challenges, the issue is too important to be regarded as an insurmountable problem. No province currently has a comprehensive information literacy policy or framework, but several relevant initiatives are underway in some jurisdictions. These are worth reviewing before discussing mechanisms by which coordination of provincial/territorial information literacy activities might be achieved.

Priority areas for research

- Conceptualising information literacy as a field of research and study
- Exploring the relationship between information behaviour and information literacy
- Developing and evaluating research methodologies appropriate to investigating information literacy and information behaviour
- Investigating the nature and impact of pedagogy for information literacy (teaching, learning, assessment and curriculum design)

Questions:

1. State the information literacy user groups and their purpose.

2. What is the need for information literacy in research and development?

3. Describe the research process in information literacy skills

4. Discuss the various types of research.

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Unit V: Trends in Information Literacy

Introduction

Digital information is a symbolic representation of data, and literacy refers to the ability to read for knowledge, write coherently, and think critically about the written word. Digital literacy is the ability to understand media, search and be critical of the information retrieved online. It is also the ability to communicate through various digital tools and applications. It is not simply using media or downloading information using technology. Digital Literacy is individuals' awareness, attitude and ability to appropriately use digital tools and facilities to identify, access, manage, integrate, analyze digital resources and create media.

The information literacy lens underlines that IL is necessary for finding, analyzing and evaluating data and searching for literature and publishing. These qualities are fundamental to

the whole process of research. This lens may be used by the researchers themselves, who can identify the following:

- How information literacy can contribute to their professional development;
- how the skills and attributes they have developed through research can contribute to their development in information literacy;
- which areas of IL they need to develop to be more effective. It also provides evidence of the transferability of their information literacy skills in their CV, job applications, and interviews. This lens also may be used to:
- Demonstrate how information literacy can contribute toward the overall professional development of researchers;
- enable researchers to recognize how useful and transferable the learning they have acquired through information literacy-related activities;
- explore how the Vitae Researcher Development Framework.
- differentiating between fact and opinion;
- examining underlying assumptions, including our own;
- looking for explanations, causes, and solutions;
- being aware of fallacious arguments, ambiguity, and manipulative reasoning; • focusing on the whole picture while examining the specifics;
- looking for reputable sources.

The formulation of literacies as social practices led to the appearance of the following requirements:

• Literacies must be foundational capabilities on which particular skills depend. Consequently, literacy and its lack will have a lifelong and life-wide impact.

• Extended literacy practices should be developed continuously. Thus they are acquired through continued development and refinement in different contexts.

• Digital practices that emerge in complex situations involve interaction between personal capabilities or dispositions and the environment supporting action. Transferring digital capabilities from one environment to another is more problematic than acknowledged.

Consequently, the transfer from social life to research environments that may happen with the use of social media is problematic.

Literacies must influence individual identity, specifically in the way a stance toward knowledge in digital forms is adopted.

• Literacies are continually evolving in response to technical, epistemological, and cultural changes

- promote international reflection and debate on the ethical, legal and societal challenges of the information society
- promote and widen access to information in the public domain through the organization, digitisation and preservation of information;
- Support training, continuing education and lifelong learning in the fields of communication, information and informatics
- Support the production of local content and foster the availability of indigenous knowledge through basic literacy
- promote the use of international standards and best practices in communication, information and informatics in UNESCO's fields of competence; and ◦ promote information and knowledge networking at local, national, regional and international levels

Web-based Information Literacy System

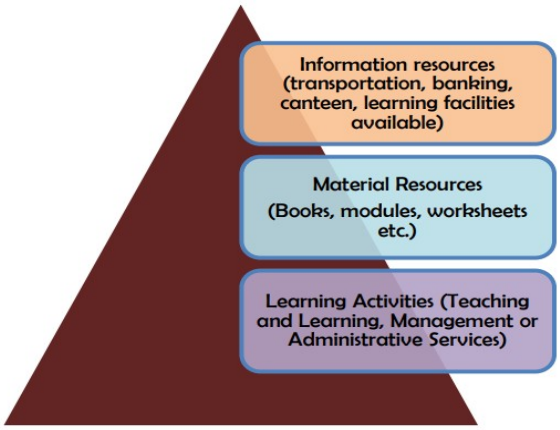
Web-based information displays many benefits of multimedia technology. Using today's fast broadband connections, it is possible to stream sophisticated content to a computer anywhere in the world

The emergence of new terms such as eBooks, e-learning, cyber schools, google scholar, online learning systems, and teacher room applications in educational information technology strongly signals the changing demands of learning systems and educational strategies.

Therefore the educational paradigm 4.0 demands a fundamental and even comprehensive revolution in the learning system and the implementation of education in general; therefore, the main pillars of education 4.0 are computers, the internet, and content.

Thus changing educational resources in the form of internet-based digital is a strategic step to bring school life (culture school) beyond the time limit and the available space.

School system



Therefore, increasing the ability of information literacy in education is an inevitable obligation because the era of the industrial revolution 4.0 will reduce our understanding and lead us to a choice of life to change or even become extinct, innovate or lag being blown away by increasingly unstoppable technology progress. So that digital learning (digital education) is believed to be better able to provide learning experiences and knowledge even more skills, creative, participatory, and comprehensive skills so that the teacher's function is no longer a source of knowledge. Because that role has been replaced by digital machines that have the sharpness of memory and extraordinary intelligence beyond human intelligence in general in accessing information and new scientific, more accurate, perspectives on education, have experienced a very significant shift, initially learning activities focused only on the process of absorption of knowledge (transfer of knowledge and skills) by following the instructions of the teacher/lecturer, focusing on evaluations in the form of tests and cognitive assessments that are very rigid and limited. In this 4.0 era, education is more oriented to self-directed, self-determining, which develops self-respecting behaviour by learning independently utilizing unlimited learning resources in content, space, place and time [20]. Internet networks that are so easy and cheap are more likely to obtain knowledge, even varied and needs-based skills. This is the tendency of learning and education in the current era of the industrial revolution 4.0, where information technology is the main foundation of human struggles and connectivity with digital

networks so that human life spreads broadly even without limits (borderless). On the other hand, the paradigm of life-long education (Longlife education) also requires the existence of future education reconstruction efforts (lifelong learning) to foster a strong spirit and culture of literacy (writing and reading) in social life.

Web-based information from the agriculture farmer side, In India, some reform initiatives have been taken in agricultural extension during the last decade. SAUs and ICAR institutions have published agricultural extension literature through pamphlets, technical bulletins, Kisan diaries, popular articles, etc. Kisan Mela (Farmer's fair), training programs, subject expert lectures/talks, radio & TV talks etc., have also been organized for agricultural extension in India. In 2010, Indian Agricultural Extension activities were reviewed with special reference to the farmers' information needs (Glendenning, Babu, &Asenso-Okyere, 2010). The study found that in the conventional approach of the agriculture extension system, researchers perform research and the results are turned over to extension staff for dissemination to farmers, which has produced numerous success stories. Still, it has serious limitations for sustained agricultural growth and poverty reduction. It has failed to reach many farmers/actors who need the information to improve their productivity and production, achieve food security, and create wealth. The study also mentioned that "the success of an extension approach will depend on how it enhances the "Information Flow" along the agriculture value chain". In the present age of ICT, information has become a vital source for the world economy/science/ technology/education/research and development. ICT in India is penetrated to

the village level; most of the villages are now connected through telecom/mobile phones, and millions of them are connected through the Internet as well. Community Radio has also been started in agricultural extension by the SAUs for Indian farmers. In India, various initiatives have been taken in ICT applications in agriculture extension by the Government of India and various State Governments. A comprehensive study (Indian Council of Agricultural Research, 2014) on the development and analysis of ICT initiatives in agriculture to meet the information need of Indian farmers covered 26 ICT initiatives in agriculture. The study found wide information gaps between agricultural research and farmers in India. The study also found that Mobile is the most popular ICT gadget, followed by TV and Radio. Further, the study suggested a need to provide farmer queries in multimedia mode, i.e. audio mode (in the local language) along with text,

images and video. Agropedia has been developed at the Indian Institute of Technology, Kanpur, under an ICAR Project as a semantic web portal for agricultural extension content and interaction. It includes very limited and selected content. Under NATP (National Agricultural Technology Project) and NAIP (National Agricultural Innovative Project), ICT infrastructure in all ICAR Institutions/Agricultural Universities of NAERS (including KVK) has been developed. Though Government agencies/NAERS transfer agriculture information and technology in Rural India through KVK, AEW and ICT but latest agricultural research information and technology are not transferred timely among Indian farmers. Presently ASE, AEW and farmers access agricultural extension literature (mostly ancient) through print media (except a few). Information Literacy campaigns can play a significant role in agriculture extension. Most of the ASEs and AEWs need Information Literacy training.

We can understand the needs of agriculture through web-based information. The Indian farmer generally needs the following types of information. High-yielding varieties of crops and availability of their seeds;

- Location-specific improved/high-yielding varieties;
- Improved techniques and methods of farming;
- Pest control and weed control measures;
- Knowledge of using pesticides, insecticides, fertilizers and their reliability
- Farm machinery, Pre-harvest & Post-harvest technology and agro-processing Technologies; Advice on soil testing, maintaining soil quality and crop rotation;• Irrigation related information;
- Sustainable agriculture farming methods;
- Veterinary, dairying and milk-related information;
- Fisheries-related information;
- Horticulture/vegetable-related information;
- Information about agricultural institutions/organizations in the country and their services
- to the farmers; Advice on export potential and quality of Indian crops in the world market; Information about subject expert (agricultural and veterinary science), i.e. name, address,

- the telephone number for contact as or when the need arises; Information and availability of all the literature (Gray and popular journals etc.) published by the NAERS institutes, other organizations and NGOs for farmers; Latest technology, up-to-date information and current development in their filed of farming; Guidance and information for the solution of practical problems which arise due to diseases,
- insects and lack of water; Marketing information which includes prices of inputs and outputs, e.g., seeds, fertilizers,
- bio-fertilizers, pesticides, current marker (Mandi) rates of crops etc.; Various schemes launched by State and Central Governments for framers and rural
- development, i.e. seed availability, crop insurance etc.; Weather information on a local, regional and national basis etc.

Indian agricultural universities produce agriculture extension literature, SAU and ICAR Institutes for farmers and extension workers in different forms (i.e. bulletins, popular articles, talks, training material), different formats (i.e. print/digital/audio/video) and in different languages (i.e. English, Hindi and various regional languages).

For example, Some important agriculture extension magazines/ periodicals/ bulletins published in India by various organizations are ICAR extension periodicals: Indian Farming (English-Monthly), Indian Horticulture (English-Quarterly), Kheti (i.e. Farming) (Hindi-Monthly), Phal-Phool (i.e. Fruit-Flower) (Hindi-Quarterly), Krishi Chayanika (Hindi-Quarterly); SAU extension periodicals: Indian Farmers Digest (English-Monthly), Purvanchal Khet (Hindi-Monthly) etc. Extension periodicals of Directorate of Extension, Ministry of Agriculture, India: Unnat Krishi (Hindi bimonthly), Krishi Vistar Samiksha (Hindi-Bimonthly)

Apart from these publications, important information related to Agricultural Research and Technology for agriculture extension/Indian Farmers has been published on the website of most of the NAERS institutions and other institutions. Many extension departments have also produced audio-video literature in NAERS. KVK, ATIC, Extension Department of NAERS institutions are important sources of information for Indian farmers.

Following are some useful websites for Indian farmers.

Farmer portal http://farmer.gov.in/

Agropediahttp://agropedia.iitk.ac.in/

Department of Agriculture & Cooperation Network - DACNET http://dacnet.nic.in Extension Reform Monitoring System http://extensionreforms.dacnet.nic.in/

National Institute of Agricultural Extension Management http://www.manage.gov.in/• ICAR http://www.icar.org.in/

State Institute of Agriculture Extension and Training http://siaet.nic.in/

Soochana Se Samadhan - ICT in Agriculture

http://203.129.234.81/index.php/media?func=viewcategory&catid=38

e-Krishi.org: http://ww2.e-krishi.org/?folio=7POJ4E717

Gyandoot Project (Cyber café cum Cyber Offices) http://www.dhar.nic.in/gyandoot.htm

e-Sagu (i.e. e-cultivation) http://www.esagu.in/

e-Choupal https://www.echoupal.com/

Rice Knowledge Management Portal http://rkmp.co.in/•

Agmarketnethttp://agmarknet.nic.in/

Agricultural Meteorological Division http://imdagrimet.gov.in/

mKisan Portal http://mkisan.gov.in/

Department of Agriculture and Cooperation http://agricoop.nic.in/

National Portal of India http://india.gov.in/

'DD Kisan' Channel for farmers growth

http://www.ddindia.gov.in/DDKisan/Pages/Default.aspx

Kisan: A Portal of Government of India for Farmer http://mkisan.gov.in/

Department of Agriculture & Cooperation http://agricoop.nic.in/

Web-based Information Literacy Campaign Model:

Moodle (Modular Object-Oriented Dynamic Learning Environment), an open-source software, is used to develop the model of information literacy for agriculture extension in India. Moodle works on Virtual Learning Environment (VLE), making providing online support for any learning course/material easy.

Therefore, It will be key in transferring agricultural research and technology to rural India. Trained ASE/AEW through an information literacy campaign can transfer the latest agriculture information and technology among Indian farmers in better ways. The proposed information literacy campaign model will also benefit other developing and underdeveloped countries because agriculture plays an important role in all these countries. Moreover, the information literacy campaign program will develop relationships with the agriculture extension system as new partners of libraries and information centres. Agriculture extension literature is produced by agricultural universities and ICAR Institutions for farmers/extension workers/ASEs in different forms (i.e. bulletins, popular articles, talks, training material), different formats (i.e. print/digital/audio/video) and in different languages (i.e. English, Hindi and various regional languages). The present information literacy model aims to target the ASE, AEW and other agricultural extension staff directly through online information literacy of various information sources and services available online and offline in NAERS. The Information literacy campaign will empower ASE and AEW to seek, evaluate, use and create information effectively to achieve their goals of agricultural extension for farmers. This campaign will be beneficiated to Indian farmers indirectly. ASE and AEW will use the latest information sources to transfer agricultural information among Indian farmers. Most of the information sources are not utilized by ASE and AEW in the lack of information literacy

Practical steps for a web-based Information Literacy campaign using Moodle:

Moodle is designed to help instructors create an online course with opportunities for rich interaction and collaboration. It contains various design aspects that allow instructors and learners to interact, collaborate, and experience online learning in multiple ways. Moodle also

needs various supporting software for installation. Moodle can be installed easily through the following steps

Followings steps:

- Moodle 2.8.5 XAMPP (Apache + MySQL + PHP) is downloaded from https://download.moodle.org/windows/ for Windows-XP.
- In the Windows installation folder, start Moodle.
- Go to Brower and run install. PHP script in localhost.
- Set up the localhost & Moodle database and install Moodle 2.8.5.
- Set up admin user and password.
- It will install the complete Moodle system

Regarding web-based literacy, we know that the web-based information literacy campaign model discussed in this paper can be easily used through the Internet by ASEs/AEWs and other users in NAERS as well as by Indian farmers. Information literacy training will develop trained ASEs/AEWs, which can be applied to create and communicate agricultural knowledge/agriculture extension among Indian farmers. This practical model can be elaborated in regional and other languages and implemented in other developing and underdeveloped countries because agriculture is important in many parts of the world.

Survey of current use of Web 2.0 technologies among Subject/Academic Liaison Librarians

In January 2008, approximately two months before our slot within the Special Projects unit teaching schedule, a questionnaire (see Appendix 2) was sent via email to several electronic discussion lists identified as the most likely to be used by Academic/Subject Librarians. Table 1 below shows the number of people who subscribed to the list in January 2008. Unfortunately, upon enquiry to the list administrators, it was impossible to determine the number of people on the list who are Academic Liaison/Subject Librarians.

Student feedback from web-based information

- The lecture and practical programme will be combined into one session and run on one specific day during the curriculum. The lecture class size will be reduced so the session will run as a seminar. This may improve attendance and motivation.
- Practical sessions will each focus on a different research area within Media to align with student requirements. Students can sign up for a session specifically promoted within their research area.
- There could be changes to the dissertation seminar series schedule to increase attendance. It would be better if the Information Literacy and Web 2.0 session ran at the beginning of the series when the general attendance is much better. The more specialist practice-based sessions, such as photography, digital and video master classes, are run at the end.
- To facilitate these improvements, consideration needs to be given to increased space within the University curriculum for information literacy sessions whilst allowing sufficient time for existing content and student exploration of the resources.
- Monitoring the student's weblog and, if necessary, interaction with the course team on their research progress. The address of each student weblog will be recorded to enable this.
- A survey should be undertaken into the extent and manner of academic use of Facebook among students at the University of Bedfordshire to ascertain student attitudes to lecturer/tutor involvement. This may facilitate its usage in a manner likely to engage students with information literacy.
- Feedback should be built into the sessions. Students will not return forms afterwards.
- Possible uses of Instant Messaging in student/staff contact should be explored.
- A survey should be undertaken to explore the extent and use of weblogs and wikis in teaching and learning across the University of Bedfordshire to increase student engagement with these tools in the referencing and reflective processes.
- A workbook should be available as a wiki with a link published on the Media Learning Resources web guide.
- A weblog should be incorporated into the Media web guide to facilitate promotion and feedback on resources and training.

Electronic journals

The Chronicle of Higher Education. The online version of this widely read weekly publication provides selected articles for free and the entire publication to subscribers. *The Chronicle* is critical for those who wish to keep up with rapid, fast-paced developments in higher education worldwide. Articles and columns on education and technology are especially important for ideas and status checks on integrating information literacy into curricula. Last update: 1998. *Access:* http://chronicle. Com/.

Educom Review. The subtitle of this EDUCAUSE Association publication is "Learning, Communications and Information Technology." Articles published here can help librarians keep up with new technology and its relationship to learning and bridge the gap between the library and computing centre staff. Last update: no date. *Access:* http:// www.educause.edu/pub/er/erm.html.

SyllabusMagazine. The Web site for this free teaching, learning, and technology magazine provides links to "Syllabus Top 40," "Syllabus Case Studies," and "The Syllabus Archives," as well as highlights from the current issue and information about the annual Syllabus Conference. Re- cent gems published in this magazine include Roy Tennant's "Web Sites by Design" and Lillian Wehmeyer's "Teaching Online Search Techniques Your Students Can Use." Last update: 1998. *Access:* http://www.syllabus.com/.

Articles

"Integrating Information Literacy Into the Curriculum: How is your library measuring up?"This article, written by Cerise Oberman, Bonnie Gratch Lindauer, and Betsy Wilson, appeared in the May 1998 issue of *C&RL News.* It reports on a March 1998 American Association of Higher Education (AAHE) presentation that described information literacy pro- grams in various stages of development. The presenters urged institutions to as- sess their state of information literacy by taking the unique "Information Literacy IQ (Institutional Quotient) Test" (http:// www.ala.org/acrl/nili/iqtest.html), designed by Oberman and Wilson. Appended to the report is an annotated list of sites identified as "Best practices and models." Last update: No date. *Access:* http://www.ala. org/acrl/nili/integrtg.html.

"Information Literacy as a Liberal Art" Written by Jeremy J. Shapiro and Shelley K. Hughes, this classic, thought-provoking article, which appeared in the March/April 1996 Educom Review, illustrates the "reach" of the phrase "information literacy." The authors

describe seven kinds of information literacy from a strictly technological perspective. The article also illustrates the need to broaden views of information literacy beyond "technology-related literacy." Last update: No date. *Access:* http:// www.educause.edu/pub/er/review/ reviewarticles/31231.html.

Organisations from web-based information literacy

ALA, ACRL Instruction Section (IS).

This site focuses on instruction issues and projects related to academic libraries and includes information on section activities, publications, conferences, committees, awards, and links to instruction-related sites. The IS Teaching Methods Committee provides an excellent list of "Evaluation criteria for good Web-based library instruction" (http://www.bk.psu.edu/academic/library/istm/criteria.html) as examples that meet these criteria. The IS ACRL/CNI "Internet Education Project" (http://www.cwru.edu/ affil/cni/base/acrlcni.html) reviews and selects exemplary Internet education materials. Last update: September 1, 1998. *Access:* http:// www.lib.utexas.edu/is/.

ALA Library Instruction Round Table (LIRT). This site is geared toward those in any library setting interested in instruction. It includes information on activities, publications, conferences, committees, links to instruction-related sites, and annotated information about Web-based tutorials. This site is notable for its annotated bibliographies of LIRT-selected top twenty instruction articles for the last three years. Last update: July 31, 1998. *Access:* http://diogenes.baylor.edu/ Library/LIRT/.

• **LOEX Clearinghouse for Library Instruction.**Located at Eastern Michigan University Library and directed by Librarian Julia K. Nims, this nonprofit clearinghouse lends instructional materials in various formats to institutional members. The site provides links to information literacy sites, online tours and tutorials, and other instruction-related sites. It also includes information on the important and highly popular annual LOEX conference on library instruction. Last update: July 31, 1998. *Access:* http://www.emich.edu/~lshirato/ loex.html.

ALA, ACRL Institute for Information Literacy(IIL, formerly NILI). Formed in 1997 under Cerise Oberman's direction, the IIL aims to train instruction librarians, provide

programming for library administrators on information literacy issues, and support ACRL and the National Forum on Information Literacy in various higher education initiatives.
This site provides information on IIL programs and links to related sites on information literacy. A page on the important upcoming IIL Immersion Program is of special interest, a comprehensive four-and-a-half-day institute for instruction librarians to be held at SUNY Plattsburgh in July 1999. Last update: November 19, 1998. Access: http://www.ala.org/acrl/nili/nilihp.html.

OPAC Information Literacy System

OPAC is an acronym for **Online Public Access Catalog.** The online public access catalogue depicts the online library database of resources like books, journals, newspapers, e-books, etc. The students can get access to any books as well as e-content from anywhere & at any time with the OPAC.

They only need to search for keywords such as the book's name**, title, author's name, volume number, and more.**

Thus, OPAC can contribute to student's success in the long run by helping them carry on their e-learning journey seamlessly.

On the other hand, A library contains thousands of books and other materials. Trying to find a specific item can be time-consuming and confusing. Luckily, a system in the library makes searching for materials efficient and easy. That system is called **OPAC.**

It was introduced in 1975 but has changed dramatically with technology development. Starting as a replacement for the **card catalogue,** an OPAC is a bibliographic database of library materials designed to allow library patrons to search for books and other materials without the assistance of a librarian. Starting as a workstation in a library, it has expanded to an online system available anywhere at any time. Easy to use, patrons can search for materials by title, author, subject, or keyword without the required training. An OPAC is often the main point of contact for library users and the collection.

The History of OPAC

Automating library systems began in the 1960s with circulation and then expanded to the card catalogue. The goal was to help users access the books they needed without the help of a librarian. In 1967, Frederick Kilgour began developing an online searchable database for the library materials at Ohio State University. Northwestern University and Stanford University were developing similar systems. The Library of Congress was also working on Machine-Readable Cataloging (MARC) through the work of Henriette Davidson Avram. Machine-readable means that a computer can process the information in the database. At first, these databases were only used by trained library professionals at university libraries, The Library of Congress, and specialized libraries such as The US National Library of Medicine.

In 1975, Ohio State University unveiled the first public-facing OPAC system that library patrons could use to search for materials using the title, author, or call number. They were able to see the location and availability of the library item. The database was not user-friendly because exact wording and spelling were necessary to find the titles. However, OPACs became widely used by universities. Each university developed its computer database and software. Eventually, software was created centrally and adopted by public libraries as well. During this transitional time, both the card catalogue and the new OPAC system were used together in the library.

In the 1980s, the second generation of OPAC was developed. Boolean logic was added to improve searching efficacy. Help screens made the system more user-friendly. However, the OPAC still provided limited information. Although materials might be located, very little information about the item was provided.

In the 1990s, interest in OPAC systems declined until the internet and search engines were introduced. OPAC systems adopted internet search engine functions to allow partial word matches and more natural language. The list of matches could now be organized by relevance. Interest in OPAC systems increased dramatically.

By 2004, with web 2.0, the OPAC database had become more interactive. Users were able to leave comments about books and save book lists. The search engines continued to improve, creating an easy-to-use interface that did not require any training.

When cloud-based systems were developed, OPAC and circulation connected. Patrons could check their accounts for overdue books and place holds and receive email notifications. OPAC systems expanded and combined with other organizations. The single university library or local library branch was connected to the entire system. Later it expanded even further to include multiple organizations. The materials were no longer confined to the library itself. Online databases, e-books, and websites were connected and referenced through an OPAC search. Today, next-generation OPAC systems are connected nationwide. Some systems are even available worldwide.

In 2015, with OPAC's improved stability and functionality, the card catalogue ceased to exist in the library system.

The Role of OPAC in a Library

Once a patron sets up an account, they can easily use an OPAC to perform tasks that would have required a librarian's help in the past. Because OPAC is connected to the circulation system, it provides up-to-the-minute access to what items are available, how many holds are on an item, and the location of an item. Patrons can also read a summary, add an item to a book list, or place a hold on an item if unavailable. They don't need to come to the library. Today's OPACs are available from anywhere. This means patrons may already know where an item is located when they arrive at the library. They can also place a hold on an item and wait to visit the library until it is available.

OPAC is now part of an integrated library system, providing users with access beyond the walls of their local library. This is called a **union catalogue**. Patrons can place interlibrary loans, accessing materials from other branches or organizations. Worldcat and Library World OPAC allows libraries to share materials worldwide. OPAC systems are also integrated with the library webpage, providing patrons with information about library events, programs, and other services.

How does the OPAC system?

Library OPAC system requires login credentials & passwords to access the digital catalogue of materials. To search for a book via OPAC: Online Public Access Catalogue, library patrons or students of college/university need to enter their credentials digitally via the web.

Once they log in to the online library system, a wide range of digital content is available to help them choose. Students can search their desired file by entering various fields such as – Title, Author, Subject, Keyword searching, etc. The search results offer them direct electronic access to the searched material or give out their physical location in the library. A wide range of digital content is available to help them choose. Students can search their desired file by entering.

Use of OPAC

Library patrons use an OPAC to search for materials without a librarian's assistance. It is designed to be searched by title, author, subject, or keyword in an interface that is more user-friendly than the previous card catalogue.

Features of OPAC

1. Searching Capabilities

Be it simple or advanced search, OPAC has it all. OPAC enhances the search capabilities, whether a boolean search, phrase search, or truncation. Browsing search by author, title, subject, and publication type is also provided.

2. User Assistance

On their search interfaces, they provide the user with on-screen assistance. Instructional help is always provided. The catalogues list the library's items and indicate whether they are currently checked out or available immediately.

3. Search Limit

The search limit is a crucial component of a successful and meaningful search. The OPAC makes this information available by specifying the publication year and its kind. Another feature is the ability to sort papers by author, title, and structure.

4. Bibliographic Display

The OPAC system includes options to limit the number of records per display and to modify the display screen. They also include a structured library entry format that allows for the display of catalogue card forms.

5. Search Strategy

With the help of this function, it is possible to create a search statement that will efficiently find more relevant information in a shorter time. The user can employ a variety of strategy tools available in the OPAC.

6. Easy To Use

OPAC is an interactive and user-friendly information system. Thanks to its connection to a document-searching circulation system, you can access it anytime and anywhere. It provides rapid access points for searching material by author, title, etc.

Purpose of OPAC

OPAC was developed as part of library automation. It was designed to allow library patrons to search for materials quickly and easily without the help of a librarian.

The purpose of OPAC, or the Online Public Access Catalogue, is to make digital resources search faster & easier for students by offering a digital library catalogue. Students need good internet connectivity & log-in ID to get started with the OPAC!

They can identify the number of copies left in the library, its location, and such crucial information and then visit the library to get the books. For e-books, they can directly get information & access it at any point.

Benefits & Importance of OPAC In The Digital Library

- The web-based cataloguing software is highly interactive, easy to navigate, and simple to understand or user-friendly.

- The library OPAC system provides easy & remote access to many library materials worldwide.
- Patrons get the option to perform an in-depth search for required files.
- The library material can be updated from time to time and speedily.
- The library patrons' time gets saved as they don't need to move from one place to another to find books.

The library management system can be accessed regardless of whether the library is open or not. Now that you've understood the functionality of the OPAC let's understand the benefits & importance of OPAC in the digital library.

#1: Extremely Simple-To-Use Software For Improved Efficiency

'I am not tech-savvy; how can I use OPAC?'

This is the first & foremost doubt that intimidates every faculty and student.

It's quite natural that not everyone is tech-savvy. One may not feel comfortable but rather nervous while using the OPAC-integrated library management software.

However, there's no need to worry as a plethora of library ERP solutions are built keeping this in mind fact and are extremely user-friendly.

With basic training, anyone can use the library software and search books via the OPAC.

#2: Better Productivity & Proper Management Of Books

The OPAC software enables librarians to catalogue different genres of books and maintain their database online.

It lets users search books on parameters such as title, author's name, volume, and keywords with clicks.

Unlike traditional working patterns, students & faculty don't need to search the books manually. The library management system automates everything and makes operations efficient

& faster. With such benefits & ease of doing daily work, the library software fosters better library management.

#3: Accurate Reports To Track The Ins-And-Outs Of Library

Library software integrated with the OPAC is not just helpful for librarians & students, but it's highly beneficial for educators as well.

It's the responsibility of educators to keep track of everything that goes on in their institution.

Monitoring daily activities aid them with information such as areas that need improvement & key performance indicators.

Whenever an educator needs reports regarding the library, for instance, if they want to know the number of students that actively use the OPAC and other digital library functionalities, they'll ask for reports from the librarian. The librarian will have to evaluate all the data for the required information, which will consume considerable time.

With a library ERP solution integrated with an analytics dashboard, the librarian can generate all the required reports with high accuracy, too, with just a few clicks of a button.

Library Management System Software

How To Use OPAC? | Steps To Follow

Whether you are a student or a faculty searching for a book, here's how to use the OPAC integrated into the digital library software.

Step #1:Log into the digital library portal with credentials.

Step #2:Try to enter keywords such as – Title/Author/Subject/Version and so on to search for the required book

Step #3:Check the result you get, and if you still don't find the required book, then enter another keyword.

Step #4:When you get the correct book result, note down the information and check the number of copies left and their location in the library.

Step #5:With the help of acquired information, check out the book in the library & issue it.

To sum up, a library management system with OPAC can be a catalyst that can boost efficiency, productivity, and institutional growth in the long run.

A digital library setup can help accelerate the online learning journey.

Therefore, educators must contact an experienced, renowned ERP provider & invest in the best library management software. This step may end up being a game-changer for educational institutions.

Life Long Learning System

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. Lifelong is the use of formal and informal learning opportunities throughout the life of people for their career development and the improvement of knowledge and skills needed for employment and professional growth. It relates to other educational concepts like distance education courses, adult education, continuing education, training, short-term courses and other related learning beyond the formal educational system. Information is expanding, as well as developments and changes in the field of Information and Communication Technology (ICT), which provides access to much of that information and applies the abilities effectively for using information resources that are fundamental to lifelong learning. It helps students to learn independently and enhance their performance in mastering the task/finding the information.

An information-literate individual can:

1. Determine the extent of information needed.

2. Access needed information effectively and efficiently

3. Evaluate the information and its sources critically

4. Incorporate selected information into one's knowledge base

5. Use information effectively to accomplish a specific purpose 6. Understand the economic, legal and social issues surrounding the use of information and access and use information ethically and legally.

Learning is as old as humankind. Indeed, curiosity and the capacity to learn are among the defining characteristics of being human. For hundreds of generations, people learned only through their own experience, and to a lesser extent, through observing others. Gradually, however, as language became more complex and sophisticated, it was possible to codify what had been learned by previous generations and in distant locations and to pass on information about unseen phenomena.

In most early cultures which relied on oral transmission of knowledge, people had highly evolved capacities for listening and for remembering; however, compared with most people living today in advanced western countries, the amount and complexity of information to be dealt with by an average human being was bounded and relatively slowly changing.

General Education Survey" last spring: as full-time information professionals with accredited graduate degrees in library and information science and many years of experience in effective teaching of information skills are best equipped to teach information literacy. The Library will need more staff to incorporate an information literacy program into the General Education Program. Time must be set aside to develop an effective information literacy program. The development of such a program should include a cooperative effort between the library faculty and faculty members from other divisions. Program development should also include a means of assessment. Released time and additional classroom space and equipment may be required.

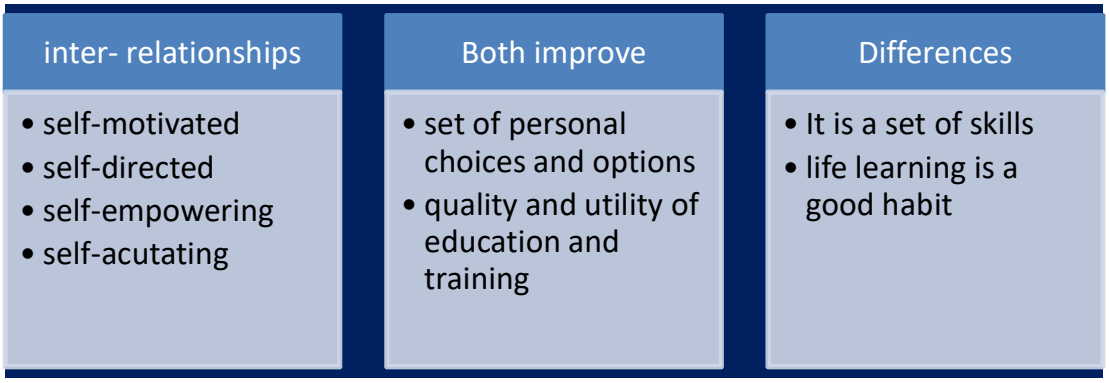
Inter-relations of information literacy and lifelong learning:

Both Information Literacy and Lifelong learning are:

1. 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

2. Self-empowering: They are aimed at helping individuals of all age groups to help themselves, regardless of their social or economic status, role in society, gender, race and religion, on ethnic background.

3. Self-actuating: The more information literate an individual sustains good information literacy learning and practices those habits, especially if practised over a lifetime. Theoretically, one could pursue becoming more information literate, but not continuously over one's lifetime. Conversely, one could pursue lifelong learning without first becoming information literate.



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

Information Literacy Education (ILE): The present-day information-centred work environment challenges everyone with three needs: new skills, lifelong learning and updating existing knowledge. ILE contributes significantly to fulfilling these needs by improving information-seeking behaviour.

Library and Information Science Professional bodies in the USA (The Association of College and Research Libraries, ACRL) and Australia have produced Standards for Information Literacy, and a UK body (Society of College, National and University Libraries, SCONUL) has produced a model for Information Literacy.

The IFLA Information Literacy Section has worked on a framework for Information Literacy for those professionals who need or are interested in starting an information literacy

programme, i.e., basic and higher education, in their efforts to meet their current information needs. Information Literacy education is vital to lifelong learning, employment and daily interpersonal communication for any citizen. E.g. when a person needs information about agriculture or health services or a student requires specific information to complete his assignments. The pedagogies allied with information literacy are active learning, project-based learning, internships, inquiry learning and service learning.

Also, 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 survive and compete in the 21st century and beyond successfully. 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 themselves. However, 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 practised over an entire lifetime. Theoretically, one could pursue becoming more information literate, but not continuously over one's lifetime. Conversely, one could pursue the goal of lifelong learning without having first become information literate. Neither path maximizes the individual's potential to "learn to learn." Information literacy and lifelong learning. Harnessed together, information literacy and lifelong learning substantially improve the following:

• Set of personal choices and options opened up for and offered to individuals in the context of personal, family and societal matters.

• Quality and utility of education and training in 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, moving up the career ladder rapidly and with appropriate rewards, and making cost-effective and wise economic and business decisions.

- Participation in the personal effects in social, cultural and political contexts, both at the local community and 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 adopting a positive frame of mind. The willingness to change and curiosity or thirst for knowledge are helpful pre-conditions to lifelong learning.

  Big or small, your library has an IL role. Regardless of its size and resources, the library has an important role as part of an institutional information literacy program, if not the precursor of the IL change. Librarians and other information specialists should be promoters of information literacy programs and activities because their library or information centre 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

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

• Principles
• Policies

• Programs
• Pilot Project
• Models
• Workshops
• Tutorials
• Brainstorming sessions
• Techniques, tools, methods.

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

Today's human lifespan is longer than in the past; scientific, technological and cultural changes are happening rapidly, and the sustainability of the change in information leaves today's individuals in need of continuous learning. As a result of this need, education today has gained a status that cannot be limited to particular periods in the human lifespan. Even the most developed countries have begun a quest to constantly develop the educational system and increase the quality of education. At the end of this development and change, “lifelong learning” is introduced, enabling individuals to learn the knowledge and skills they need at any stage [3]. The concept of lifelong learning was first employed in the 1920s by John Dewey, Eduard Lindeman and Basil Yeaxle, starting from the idea that it is a continuous part of everyday life [4]. Lifelong learning is defined by European Commission [5] as “learning activities undertaken throughout life resulting in an improvement in knowledge, skills and competencies within a personal, civic, social and employment-related perspective”. Lifelong learning is the intentional learning that people engage in throughout their lives for personal and professional fulfilment and to enhance the quality of their lives [6]. About the concept of lifelong learning, Reinsch highlights that the educational system is required to raise individuals who are undertaking lifelong learning, and besides the educational system, businesses and industry need lifelong learning and that individuals ought to actualize self-learning to transform the concept of life-long learning into the philosophy of life In recent years, there has been a great deal of knowledge regarding the recognition of LIFELONG LEARNING, which includes all formal, non-formal and informal aspects of education and training, at all ages and stages of life, and in all organizations.

So schools, colleges, universities and other higher education institutions must reconsider their facilities in the general learning domain throughout life as a part of this recognition [8].

Lifelong learning means providing a second chance for individuals by developing basic skills and various learning opportunities.

The understanding of lifelong learning acknowledges that learning is not restricted to time and place and can be undertaken anywhere the passion for learning is present. Lifelong learning is a skill that all individuals in information societies ought to have. By acquiring this skill, individuals can benefit from any opportunity they may encounter in their lives. Furthermore, lifelong learning helps to cope with changes in areas such as science and technology. And the keystone of lifelong learning is information literacy.

Information literacy and lifelong learning have a strategic and mutually strengthening relationship that is essential for the success of every individual, organization, institution and society inside the global information society. Breivik [14] notes that information literacy skills lay the foundations of lifelong learning in a world where information is cumulatively increasing and the technologies used to reach the mentioned information are constantly changing. Also, Breivik expresses that information literacy is a device where lifelong learning is the goal. It is an important step in the development of lifelong learning that individuals are provided with information literacy skills. Education's most important goal is raising individuals who can independently enact lifelong learning in today's information society. To reach this goal, the indispensable mean is information literacy. Therefore, in the course of the obligatory education process, it has become mandatory to educate the students to be able to reach the information that would meet their requirements in their personal, social and business lives, to evaluate this information and to use it effectively (information literate); in other words, to educate skilled individuals who can enact lifelong learning independently.

Individuals with information literacy and life-long learning skills are ready for the changes and hardships their careers and personal lives may bring. Individuals in an information society may come from above the struggles they face when they internalize the principles of lifelong learning as information literacy. Individuals with information literacy skills are productive individuals in education and business environments. The most important goal of education in an information society is to raise individuals who have learned how to learn as lifelong learners. To reach this goal, information literacy is indispensable [16]. When studies about life-long learning in Turkey are analyzed, have been reached by the studies that determine the key skills of life-long learning for the teacher candidates and teachers [17]; examining

lifelong learning trends of university students, teachers and teachers candidates [2-18-19-20]; determining teachers candidates' views about life-long learning [21-22]; examining perceptions of teacher candidates and teachers' competences for lifelong learning [23-24-25-26]. When the latest research in the literature on information literacy is analyzed, it can be seen that research is conducted either for information literacy or for the skills a person with information literacy must possess [27-28-29-30]. In theoretical studies, the definition of information literacy stated to include detecting the need for information, formulating information-searching strategies, determining its place and accessing it, analysis on information, evaluating, transferring, possessing problem-solving skills, life-long learning, learning society, sustainable education, excess knowledge, increase in the amount of information and respect to copyrights When studies investigating the relationship between lifelong learning and information literacy are examined, only theoretical studies have been conducted. But no analysis work has been found. The role of information literacy is vital for lifelong learning as it enhances the quality of education both in learning environments and in educational settings. Various models should be used, some activities should be enacted, and the efficiency of these should be investigated to provide these skills at all educational levels. Teachers' role is important in bringing up individuals who are lifelong learners and who improve themselves constantly. For teachers to undertake this role, they must be individuals who learn by themselves in their academic and professional lives. Thus they must be leaders in providing their students with studying opportunities and accessing and using information.

In addition, Breivik [33] states that including information literacy in teacher training programs is important. In this context, it is regarded as an important step in developing lifelong learning that individuals are provided with information literacy skills because it is only possible for the teaching candidates to succeed in their teaching careers depending on a learning process that will continue living.

For this reason, the pre-service training for teachers must also be suitable for gaining the mentioned qualities. Despite conceptual research on the relationship between lifelong learning and information literacy, no analysis work has been found. It would be useful to determine the relationship between their tendency towards lifelong learning and information literacy levels to reveal the learning profile of teaching candidates. A nutritional needs analysis can be done by

detecting teaching candidates' interests, attitudes, abilities, expectations and tendencies. Findings can be used in the development of the related programs.

This study showed that students' lifelong learning tendencies were high. Depending on the findings, it is thought that the students are open to lifelong learning and are motivated to learn. The higher scores for motivation, perseverance, self-regulation and curiosity can be evaluated as cues of the student's preparedness to become lifelong learning learners. Also, the higher scores of all sub-dimensions indicate that their skills of evaluating their level of knowledge, organizing learning, and locating and using the information from sources may not be as strong. The varying degrees of means in the sub-dimensions and whole scale that emerged in this study have also been noted by other researchers. One of these studies was conducted in 2012 by Chen et al. [38]. In Chen et al.'s study, it was discovered that engineering students in their study were more skilled in the application of skills and knowledge areas. Another study was carried out in 2013 by Gencel [23]. According to Gencel's study, prospective teachers' perceptions towards their LIFELONG LEARNING competencies were sufficient.

Similarly, in the research of Ozciftci and Cakır [18], it was observed that the teachers' LIFELONG LEARNING tendencies were high. Kuzu et al. 's [19] study determined that the teacher-candidates LIFELONG LEARNING tendencies scale scores are above the mean. Another study was conducted in 2015 by Ayra and Kösterelioğlu [20], who discovered that the teachers' LIFELONG LEARNING tendencies scale scores are above the scale mean score. Another research was conducted by Karakuş [24]. When the findings of the study are examined, it is seen that the students' lifelong learning competence point is higher than the scale's point, and according to this, the competency of students' lifelong learning is strong. Another research was conducted by Yavuz Konokman and Yanpar Yelken [25]. According to the findings, the perceptions of instructors' lifelong learning competency can be strong. Another research is conducted by İzci and Koç [21]. At the end of the research, it is concluded that teaching candidates have a strong sensibility for the lifelong learning required by the information age. According to the findings of the research conducted by Demirel, Sadi and Dağyar [26], it is concluded that the lifelong competency of science, physics, chemistry and biology teachers in all primary schools, secondary schools and high schools that are found in the city of Karaman is strong according to their statements.

On the contrary, research states that university students' lifelong learning tendencies are weak. One of these researches was conducted by Diker Coşkun and Demirel [2]. As a result of the study, the average point that the students get from the "Scale of Defining Lifelong Learning Tendencies" is lower than the median of the scale; therefore, it is considered that university students' tendency towards lifelong learning is weak. A significant finding is that teaching candidates' tendency towards lifelong learning is strong. All the subdimensions tendency is strong in terms of teaching as an occupation because it is of critical importance that teaching candidates who are always a part of education and teaching are highly motivated towards learning, feel curiosity for learning, and show perseverance in performing their future careers and demonstrating effective teaching skills. Our study's results provide evidence that the students who participated in the research tend to self-improve, update their knowledge, and adapt to the contemporary era, in which the phenomenon of change is constantly processed.

Promoting lifelong learning

Promoting lifelong learning through government document information literacy: Curriculum and learning assessment in the Government Document Information Literacy Program according to all universities

Promoting lifelong learning through information literacy is all learning activity taken throughout life to improve knowledge, skills and competencies within a personal, civic, social and employment-related perspective. This study reports on a survey of ten (10) Regional Public Libraries in Ghana investigating the promotion of Lifelong Learning through IL. The study used the single-case method. The sample size of the population for the study was 376 comprising the Executive Director, Deputy Executive Director, Regional Librarians, staff belonging to the library class in the regional libraries and the registered readers in the regional libraries. Copies of the questionnaire were completed by the staff belonging to the library class of the regional libraries and a sample of registered users of the regional libraries. Interviews were conducted with the Executive Director, Deputy Executive Director and Regional Librarians. The results indicate that most users are unaware of any IL activities being organized. However, they expressed interest in any programme that will help develop their information search and use skills. The study also reveals that most of the staff cannot train users in IL due to their level of

education. It has also come to light that there is no LIFELONG LEARNING and IL policy in the GhLA. This has led to the Regional Libraries providing IL services in a sporadic and uncoordinatedly. There is also a lack of funds and ICT equipment to promote LIFELONG LEARNING through IL. Suggestions to improve promoting LIFELONG LEARNING through IL in public libraries in Ghana include the following: the development of Information Literacy, the use of various promotion methods to promote Lifelong Learning and Information Literacy, training of staff for IL and the establishment of good relations and collaboration with other agencies to enhance implementation, evaluation, assessment and funding of ICT programmes.

As such, Information literacy is the basis for lifelong learning and for developing user sense-making ability. The ability to procure and use information effectively is vital for people. The information literate can take decisions, solve their problems and learn how to learn. Therefore, students need to be trained to the information competent. Information literacy skills help students to become lifelong learners. The paper discusses the concept, meaning, aims, needs, skills, benefits, IL education and the relationship between Information Literacy for Lifelong Learning.

Questions:

1. Discuss trends in information literacy.

2. Explain the practical steps for a web-based information literacy campaign.

3. Write notes on opac information literacy system.

4. Narrate the features of opac.

5. What do you understand about lifelong learning.

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