Chapter III

Information Literacy Skills and Electronic Resources: A Brief Note

3.1 Preamble
3.2 Information Literacy
3.3 Need for Information Literacy
3.4 Information Literacy Standards for Teacher Education
3.5 Information Literacy Standards
3.6 Why Information Literacy?
3.7 Information Literacy in Developing Countries
3.8 Electronic Resources
3.9 Conclusion
3.1 PREAMBLE

Information has become so important for decision making in today’s world. In the present world Air, Water, Food, Shelter is the four basic needs of human beings and now information is added as the fifth need. The technology world depends upon the information for social, economic, scientific, technological and industrial development. The problem of information used to be scarcity of information but in the present century it has become abundance of information. Information literacy is the surest way of helping solve the problem of choosing the right information from the abundance of information from various media. In the recent, decades have been termed as the “information age,” and the early twenty-first century has given rise to the “knowledge age” with the awareness that information in itself cannot solve problems; it is the effective use of information that promises solutions, therefore people need to be information literate (Farmer and Henri, 2008).

Information literacy can play a vital role in educating the users of libraries on various information and documentary resources, where to start searching for information, what, where and how to access them and compare retrieved information and how to communicate their information. Information literacy is importance particularly in this age because it allows us to cope by giving us the skills to know when we need information and where to locate it effectively and efficiently. It includes the technological skills needed to use the modern library as a gateway to information. It enables us to analyze and evaluate the information we find, thus giving us confidence in using that information to make a decision or create a product (ACRL, 2000). Information literacy skills assessment helps to reflect upon the teaching-learning process; provides input for revision and development of the curriculum; and helps to measure and monitor students’ performance.
3.2 INFORMATION LITERACY

The term Information literacy was first used by the president of US information Literacy Associations - Prof. Paul G. Zurkowski in 1974. Information literacy is the ability to identify what information is needed, understand how the information is organised, identify the best sources of information for a given need, locate those sources, evaluate the sources critically and share that information. IL is the only way to enable people to make efficient, effective, creative, legal, ethical and strategic use of information for achieving their goals.

Information literacy is a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information (Association of College and Research Libraries [ACRL], 2000). Information is available through libraries, community resources, special interest organisation, media and the internet and increasingly, information comes to individuals in an unfiltered format, raising questions about its authenticity, validity and reliability. Information literacy forms the basis of lifelong learning. It is common to all disciplines, to all learning environments, and to all levels of education.

Information is available from many sources and in many formats, such as printed text, television, videos, websites, library databases, etc. To be information literate, one needs to know why, when, and how to use of all these tools and think critically about the information they provide. IL is concerned with teaching and learning about the whole range of information sources and formats. Information literacy is two words “Information” and “Literacy”. Information is organised data and literacy is ability to read, write and understand. Literacy is a basic tool to participate in information literacy activities. So, traditionally information literacy is the ability to read, write and understand information. But, in computer and network environment, information literacy is related with the ability to access, process and use information...
effectively. The information literacy is the ability to recognise the need of information and locate access, use, compare and evaluate information so as to take quick and take right decision and thereby progressing towards knowledge society.

3.2.1 DEFINITIONS OF INFORMATION LITERACY

Paul Zurkowski first defined information literacy in (1974) as, ‘people trained in the application of information sources to their work can be called literates.’ The UNESCO-sponsored Meeting of Experts on Information literacy in Prague defines that,

“Information literacy’ encompass knowledge of one’s information concerns and needs, and the ability to identify, locate, evaluate, organize and effectively create, use and communicate information to address issues or problems at hand; it is a prerequisite for participating effectively in the information society, and is part of the basic human right of lifelong learning (US National Commission on Library and Information Science, 2003).

While Sheila Webber, who was instrumental in developing the Council for Information Literacy Implementation Program (UK) (CILIP) definition, had also developed an earlier definition:

According to Webber “information literacy” is the adoption of appropriate information behaviour to obtain, through whatever channel or medium, information well one's to information needs, together with a critical awareness of the importance of wise and ethical use of information in society (Webber & Johnston, 2008). Information literacy is knowing when and why you need information, where to find it, how to evaluate, use and communicate it in an ethical manner.
3.2.2 OBJECTIVES OF INFORMATION LITERACY

Within the frame work of the United Nations Literacy Decades (2003-2012), the new Information Literacy Program of UNESCO was launched during 2004-2005. The general objectives are;

1. To foster the development of information literate citizen with the technical and critical thinking skills and abilities needed to identify, acquire, manage and use information to enrich all aspects of their work and personal lives.
2. To identify and encourage effective practices in information literacy around the world.
3. To promote information literacy through regional approaches and to facilitate exchanges.
4. To propose innovative curricula about information literacy.
5. To improve co-operation between government officials, researchers, educators, librarians and media practitioners.

3.2.3 SPECIFIC ASPECTS OF INFORMATION LITERACY

Information literacy consists of the following aspects,

- **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 that the individual expects to inhabit.
- **Resource literacy** or the ability to understand the form, format, location and access methods of information resources, especially daily expanding networked information resources.
- **Social-structural literacy** or knowing 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 (including via World Wide Web, electronic mail and distribution lists, and CDROMs).

- **Emerging technology literacy**, or the ability to adapt to, understand, evaluate and make use of the continually emerging innovations in information technology so as not to be a prisoner of prior tools and resources, and to make intelligent decisions about the adoption of new ones.

- **Critical literacy** or the ability to evaluate critically the intellectual, human and social strengths and weaknesses, potentials and limits, benefits and costs of information technologies.

### 3.2.4 ABILITIES OF INFORMATION LITERATE

An information literate individual is one who is able to

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

### 3.2.5 DEVELOPMENT OF THE CONCEPT

A seminal event in the development of the concept of information literacy was the establishment of the American Library Association's Presidential Committee on Information Literacy whose final report outlined the importance of the concept. The
The concept of information literacy built upon and expanded the decades-long efforts of librarians to help their users learn about and utilize research tools (e.g., periodical indexes) and materials in their own libraries. Librarians wanted users to be able to transfer and apply this knowledge to new environments and to research tools that were new to them. Information literacy expands this effort beyond libraries and librarians, and focuses on the learner, rather than the teacher (Grassian, 2004; Grassian & Kaplowitz, 2001, pp.14-20).

The time-line of origin and growth of the Concept of ‘IL’:

- **1974**: The related term ‘Information Skills’ was first introduced by Zurkowski to refer to people's ability to solve their information problems by using relevant information sources and applying relevant technology (Zurkowski, 1974).

- **1983**: ‘A Nation at Risk: The Imperative for Education Reform’ shows that Americans are "rising a new generation of Americans that is scientifically and technologically illiterate."

- **1986**: ‘Educating Students to Think: The Role of the School Library Media Program’ outlines the roles of the library and the information resources in school education.

- **1987**: ‘Information Skills for an Information Society: A Review of Research’ includes library skills and computer skills in the definition of information literacy.


- **1989**: National Forum on Information Literacy (NFIL), a coalition of more than 65 national organizations, had its first meeting.

- **1998**: ‘Information Power: Building Partnerships for Learning’ emphasizes that the mission of the school library media program is to ensure that students and staff are effective users of ideas and information.
3.2.6 ASSESSMENT OF INFORMATION LITERACY

Assessment of IL is complicated by the broad variation in how IL is conceptualized and understood by individuals. Foster (1993), argues, however, that it is this fluidity in the semantic meaning of the term that ultimately renders it unworkable in a practical sense; in particular, he observes that it is impossible to recognize a person who is “information illiterate”, when there has been no consensus as to what constitutes a person who is recognised as “information literate”: “Since ultimately ‘information literate people are those who have learned how to learn’ (Foster, 1993).

Despite semantic disagreements that have beset the IL movement, there have been consistent attempts to develop a concrete pedagogical structure for IL and to facilitate the development of IL programs from a practical perspective. The high-profile ACRL “Information Literacy Competency Standards for Higher Education” (ACRL, 2000) represent a comprehensive attempt to offer a legitimate framework for assessing IL at post-secondary level, by providing educators with a pre-determined list of desirable IL standards, and including a range of indicative “performance indicators” and learning outcomes in order to enable the construction of valid assessment tools in multiple subject contexts.

3.3 NEED FOR INFORMATION LITERACY

The purpose of library is to collect information and make the information available, but the ultimate goal is to ensure that library users gain ready to access the information they need in a timely manner. So, that the information is not only collected but use appropriately. Information is the main aspect of every human’s life, education and business activities etc. The need of information literacy may be essential due to the following reasons:
1. **Locate and access:** Information literacy entails the ability to search, locate, evaluate and use this information or facts to create useful knowledge.

2. **Self-motivated learners:** Information literacy creates greater responsibility towards their own learning, which in turn would help them become self-motivated learners and thinkers who are creative, analytical and effective.

3. **Effective communication:** The information disseminated correctly and accurately and effective and scholarly communication of information handling.

4. **Recognize information:** Information is available through community resources, special internet organisations, manufactures and service providers, media, libraries and the internet. Information is available and retrieved for various sources and services. But the information seekers should be selecting the best information as per need.

5. **Develop and implementation:** The indispensable nature of IL led to the development and implementation of IL standards and guidelines for the integration of information related skills in the academic curriculum, where such competencies can be imparted more effectively to information seekers.

6. **Use for ICT for IL:** Information technology skills enable an individual to use computers, software applications, databases, and apply related technologies to achieve a wide variety of academic, work related, and personal goals. Among these, information literacy is to focus on content, communication, analysis, information searching and evaluation; whereas information technology fluency focuses on a deep understanding of technology and graduated increasingly skilled use of it.

7. **Changing library environment:** The changing library environment requires the libraries to play more important role through information literacy programmes. The abundance of information available through the internet in
public domain is in the form of subject gateways, e-books, e-journals, subject
and subject concept, web pages, etc.

3.3.1 MEDIUM OF INFORMATION LITERACY

Computer Literacy: Computer is a tool that facilitates and extends our abilities to
learn and process information. Computer literacy is generally thought of as familiarity
with the personal computer and the ability to create and manipulate documents and
data via word processing, spread sheets, databases and other software tools (ACRL,
2000). As technology changes by leaps and bounds, existing skills become antiquated
and there is no migration path to new skills.

Network Literacy: It is a closely related term to computer literacy, but is still
evolving. Network literacy is the ability to locate, access, and use information in a
networked environment such as World Wide Web (ACRL, 2000).

Digital Literacy: Digital literacy is the ability to understand and use information in
multiple formats from a wide range of sources when it presented via computers.
Digital literacy enables to critically examine the wide range of resources that are
accessible through on-line (ACRL, 2000). Digital literacy is the awareness, attitude
and ability of individuals to appropriately use digital tools and facilities to identify,
access, manage, integrate, evaluate, analyze and synthesize digital resources,
construct new knowledge, create media expressions, and communicate with others, in
the context of specific life situations, in order to enable constructive social action; and
to reflect upon this process.

Visual Literacy: Visual literacy is defined as the ability to understand and use
images, including the ability to think, learn and express oneself in terms of images
(ACRL, 2000). It is divided in to three constructs - visual learning, visual thinking
and visual communication. Visual learning refers to the acquisition and construction
of knowledge as a result of interaction with visual phenomenon. Visual thinking involves the ability to organize mental images around shapes, lines, colours, textures and compositions. Visual communication is defined as using visual symbols to express ideas and convey meaning. Visual thinking and visual learning may come more easily than visual communication.

**Media Literacy**: Media literacy is the ability of a citizen to access, analyse and produce information for specific outcomes (ACRL, 2000). Those who advocate media literacy recognize the influence television, motion pictures, radio, recorded music, newspapers and magazines have on us daily. Both fictional and non-fictional media provide information, help organize information and ideas, help create, reinforce and modify values and attitudes, help shape expectations and provide models for action. By developing lessons organized around these five assumptions, teachers can help students to be critical viewers and listeners who realize that all media are constructions that contain implicit messages.

### 3.3.2 INFORMATION LITERACY AND HIGHER EDUCATION

Why is information literacy important to higher education? Studies have shown that students are entering college and university environments without fundamental research and information competence skills (for example, the ability to formulate a research question, then efficiently and effectively find, evaluate, synthesize, and ethically use information pertaining to that question).

Students may have picked up the skills to send electronic mail, chat, and download music, but many have not learned how to effectively locate information; evaluate, synthesize, and integrate ideas; use information in original work or give proper credit for information used. Moreover, faculty want to see an improvement in the quality of student work, and students want to become more confident in their ability to complete assignments, carry out research projects, and become active,
independent learners. In addition, information literacy is required by accredited organizations, expected by employers in the workplace for organizational success, and desired by society, which needs an informed citizenry that is capable of making well-reasoned and well-founded decisions.

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

3.3.3 INFORMATION LITERACY IS A LIFELONG LEARNING

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

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

3.4. INFORMATION LITERACY STANDARDS FOR TEACHER EDUCATION

The information Literacy standards for Teacher Education were approved by ACRL board of directors on May 11, 2011. The main purposes of the Information Literacy Standards for Teacher Education are to:

• Guide teacher education faculty and instruction librarians in developing information literacy instruction for teacher education students.
• Enable the evaluation and assessment of such instruction and curricula through benchmarking outcomes.

The Standards also aim to lead teacher education students to consider how they might integrate information literacy into their future curriculum, instruction, and assessment activities once they become members of the teaching profession.

• The information literate teacher education student defines and articulates the need for information and selects strategies and tools to find that information.
• The information literate teacher education student locates and selects information based on its appropriateness to the specific information need and the developmental needs of the student.
• The information literate teacher education student organizes and analyzes the information in the context of specific information needs and the developmental appropriateness for the audience.
The information literate teacher education student synthesizes, processes, and presents the information in a way that is appropriate for the purpose for which information is needed.

The information literate teacher education student knows how to ethically use and disseminate information.

Though the standards are used as a guide to assessment, it has been found that use of this standards on the college campuses has not been absolute- rather pieces have been used as a framework for discussion and components have been adopted to reflect the need of constituencies. Cain (2002) has been critical of the standards as an assessment tool. She claimed that assessment tools assume that there is discernible evidence or proof of what is being measured.” Without a concrete understanding of what is meant by information and with thought processes and the like being difficult to measure exactly, applying standards may well result in the measurement of existing knowledge rather than development of knowledge.

The importance of these information literacy standards for higher education lies in the fact that it provides frameworks for teaching information literacy as well as assessing the information literacy level of individuals (Senlson & Stillwell, 2001). The standards can be used to develop information literacy programs and will ensure that information literacy training efforts will be unified and will contribute towards the clarification of desired outcomes (O'Connor, Radcliff, & Gedeon, 2001).

3.5 INFORMATION LITERACY STANDARDS

Association of College and Research Libraries (ACRL, 2000), a division of the American Library Association (ALA), released the ‘Information Literacy Competency Standards for Higher Education’. There are five standards, which are directly linked to a host of performance indicators. These standards and performance
indicators are often considered the best practices against which institutions of higher education can implement and assess information literacy programs. The standards are:

- **Standard One**: The information literate student determines the nature and extent of the information needed.
- **Standard Two**: The information literate student accesses needed information effectively and efficiently.
- **Standard Three**: The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.
- **Standard Four**: The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.
- **Standard Five**: The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

These standards are 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 being able to use an online catalogue to find a book in an academic library. Higher order skills would involve critically evaluating and synthesizing information from multiple sources into a coherent interpretation or argument.

There are five standards and twenty two performance indicators for assessing information literacy competency. The standards focus upon the needs of the students in higher education at all levels of education. The standards also list a range of outcomes for assessing students’ progress towards information literacy. These outcomes serve as guidelines for faculty, librarians and others in developing local
methods for measuring students learning in the context of an institution’s unique mission.

3.6 WHY INFORMATION LITERACY?

One can understand the importance of information literacy by just analysing the following Chinese proverb "Give a man a fish and he eats for a day; teach a man to fish and he eats for life". The implication of the proverb is that the customers have to be empowered for life with transferable skills. The advantages of information literacy are;

a) Saving of time by information skills
b) Effective deployment of information service staff
c) Best use of information resources
d) To add value to the profession as a whole
e) Effective use of stock
f) Abundant information choices
g) Caution on unfiltered information raising questions of validity, reliability, and authenticity.

3.6.1 INFORMATION LITERACY MODELS

Different models have been developed and propagated by authors, theorists and academicians.

Information Search process (Kuhlthau C. C., 1993): Information Search process model based on constructivist approach was developed by Kuhlthau. The model has seven stages which include initiation, selection, pre focus exploration, formulation, collection, presentation and assessment. This model demonstrates users’ approach to the research process and how users’ confidence increases.
Seven Pillars of information Literacy (Society of College, 1999): SCONUL Advisory Committee on Information Literacy developed Seven Pillars of Information Literacy model in 1999. The model has seven competence levels which include the ability to recognise a need for information, the ability to distinguish way in which the information gap may be addressed, the ability to construct strategies for locating information, the ability to locate and access information, the ability to compare and evaluate information obtained from different sources, the ability to organise, apply and communicate information to others in ways appropriate to the situation and the ability to synthesise and build upon existing information, contributing to the creation of new knowledge.

The Big 6 Skills (Eisenberg & Berkowitz, 1990): This is a process model developed to solve an information problem. It has 6 stages of the information problem-solving process that students apply in their information problem solving process, namely task definition, information seeking strategies, location and access, use of information synthesis and evaluation.

Research Process Model (Stripling & Pitts, 1988) is used by students as a guide through the stages of creating a research paper. It has ten steps starting from choosing a research topic and ending with the presentation of the final topic.

Pathways to Knowledge (Pappas & Tepe, 2002): The Information Inquiry model by Pappas and Tepe includes pathways to knowledge and is meant to encourage students to continuously explore and re-assess as they go about with their information process. The model has six steps namely appreciation and enjoyment, pre-search, search, interpretation, communication and evaluation.
3.7 INFORMATION LITERACY IN DEVELOPING COUNTRIES

Developing countries face a number of problems which stand in the way of developing their IL programs. The major problems confronting these countries are the traditional education system, lack of required human resources in the library and financial constraints and lack of support by the management. Unfortunately, the educational system in many developing countries does not encourage student initiatives and critical thinking. Moreover, the ratio of faculty to students is disproportional and educational institutions lack basic facilities such as functional classroom buildings, appropriate computer labs and library facilities.

3.7.1 INFORMATION LITERACY PROGRAMME IN INDIAN SCENARIO

Information literacy is a key component of and contributor to lifelong learning. Educational systems and institutions must take seriously the challenge of the information age. The central theme of higher education institutions in many parts of the world is to develop lifelong learners with the intellectual abilities of reasoning and critical thinking. Any training in skills provided towards this direction not only leads to the use of the library systems effectively but also adds value to them.

In India, University Grants Commission has taken sincere efforts to bring a boost in the higher education system by introducing UGC – INFONET E-Journals Consortium project. Information and Library Network (INFLIBNET) which is the coordinating agency for UGC – INFONET project conducts various training programmes, user awareness programmes, workshops and seminars to research scholars, faculty members and library staff from more than 40 universities across the country, on how to access these abundant resources offered by the UGC. INFLIBNET is also responsible for providing training to university library professionals in the use of this network for providing a variety of services to the users. Examples include:
- Computer Application to Library and Information Services (CALIS): a four – week intensive training programme focusing on the practical aspects in the use of computers in libraries.
- Workshop on Automation and Networking of University libraries (WANULIP), which covers the implementation of INFLIBNET in university libraries and
- Training in library management systems for university library staff.

There are several institutions that run continuing professional development courses and programmes for library and information professionals in India. Indian National Scientific Documentation Centre (INSDOC) and Professional bodies such as the Indian Library Association (ILA), the Indian Association of Special Libraries and Information Centres (IASLIC) and the Society for Information Science (SIS) un training sessions in small groups with hands – on experience for all users, with training to use the OPAC.

3.8 ELECTRONIC RESOURCES

Today, most of the academicians have become dependent on internet. It is the contribution of Information and Communication Technology and impact of internet that information processing, storing, searching, dissemination and use have become expeditious, easy and user friendly. In the present world, digital technology is available at our doorstep, capable of effectively creating and capturing information in various formats, making these available to others. Information technology has made a profound impact on availability and accessibility of electronic resources. To provide quick and comprehensive access to resources by using best possible tools and techniques is the ultimate aim of the every library. Numerous resources in the present electronic environment can be seamlessly integrated with a single login gateway which makes is user friendly (Chandel & Saikia, 2012).
The library and information centre is a part of any educational institution, which is the hub of the teaching, and learning activities where students, teacher and researchers get their required information according to their need. The emergence of electronic resources has drastically revamped the status of all the libraries and information centers across the world during the last decade. There has been a rapid urge of the user community to get more and more information online. The development of the ICT devices, the rapid rise of electronic databases, and modern e-book technologies have altogether changed the entire scenario of informatics. The users’ attitude to information is gradually shifting from the printed documents to electronic resources and thus, it has been their prerogative to know the details of the availability and organization of e-resources like online journals and databases, electronic theses and dissertations (ETDs), government publications, online newspapers, etc. in the information centers.

3.8.1 Types of Electronic resources

The electronic resources are basically divided into two major types:

1. Online e-resources, which may include
   - E-journals (Full text & Bibliographical databases)
   - E-books
   - Electronic Thesis & Dissertations (ETDs)
   - Online databases
   - Websites

2. Other electronic resource may include
   - CD ROM
   - Diskettes
   - Other portable computer databases
E-Journals

Electronic issues of journals and articles to periodicals the library subscribes in. It consists of full-text and bibliographical database. A full-text database contains the whole content of an article such as text, citation information, illustration, diagrams and tables. Bibliographic databases only contain citation of an article, such as author name, journal title, publication date and page numbers. Libraries have been exploring easy to cope with the problems of ever increasing prices of the journals, space requirements and decreasing level of usage as the journals get older. Nevertheless, libraries are required to maintain back issues of the journals, usually in bounded form. Electronic journal helps the librarians in addressing these problems to a great extent without significantly affecting the service levels. Electronic journals also offer benefit of full text searching and downloading of articles. Many publishers of electronic journals offer their journals through consortia of libraries at much lower rates. INDEST and INFLIBNET are two such consortia operating in India. Emerald, OCLC and J-Gate are some of the example of e-journal aggregator services.

E-Books

E-book is an electronic version of a printed book covering its full contents (text, tables, diagrams and illustration etc). An e-book collection is usually set up in an e-database, which supports full text searching within and across titles, advanced search and bookmark functions. Users can view full text of e-books in HTML or PDF format online. E-book has been described as text analogues to a book that is in digital form to be displayed on a computer screen. E-books can be read just like a printed book, using dedicated e-book reader such as Gemstar eBook or on a computer screen after downloading it. There are also some newer technologies developing such as electronic paper, which is much like paper, except that the text can be changed, and taking books in MP3 format. E-book offers advantages like portability, 24 hours
access, text search, annotation, linking, and multimedia and self publishing possibilities. Development of e-book is still in the infancy stage and issues like compatibility, e-book readers, availability and intellectual property rights are to be addressed before it can be implemented on large scale.

**Electronic Thesis and Dissertations (ETDs)**

An ETD is a document that explains the research or scholarship of a research scholar in an electronic format. It is simultaneously suitable for machine archives and worldwide retrieval. The ETD is similar to its paper predecessor. Furthermore, it may describe why the work was done, how the research relates to previous work as recorded in the literature, the research methods used, the results, and the interpretation and discussion of the results, and a summary with conclusions. The ETD is different from its paper predecessor, however, in a few important aspects. First, it provides a technologically advanced medium for expressing the scholar’s ideas. One can prepare an ETD by using nearly any word processor or document preparation system, and by incorporating relevant multimedia objects. Second, it is less expensive to prepare. By creating an ETD, the requirement of submitting multiple copies on special paper can be avoided. Third, ETDs promote greater access to the research work. ETDs are made available to anyone that browses the World Wide Web.

**Online databases**

An online database is a collection of information categorized by specific fields. Databases are usually searchable by keywords topics. E-database is an organised collection of information of a particular subject or multi-disciplinary subject areas. The information of an e-database can be searched and retrieved electronically. Contents include journal articles, newspaper articles, book reviews and conference proceedings, etc.
Websites

A library web page or Universal Resource Locator (URL) facilities single window access to various web enabled library services. A URL could be as simple as a library webpage listing the services with some links to catalogue and external free and subscribed resources or may include advance features like interactive helps and value added services such as subject gateways, self-help tools and frequently asked questions and information about the library such as timings, calendar, rules etc can be hosted on the library website.

3.8.4 Electronic Resources in Indian Scenario

Libraries function as an essential integral component in higher education system. Academic libraries in India are facing a lot of problems due to static budget and exponential price hike of library collections. The library environment is currently undergoing a rapid and dynamic revolution leading to new generation of libraries with the emphasis on e-resources. A lot of efforts have been taken in the past few years to overcome this problem of financial crunch by resource sharing through consortia for university libraries. UGC-INFONET and INDEST-AICTE consortium are two major initiatives for university library users. These revolutionary steps are providing scholarly resources including peer reviewed journals, databases, abstracts and proceedings etc. These efforts must be boon to university library users which will definitely boost the level of higher education system in our country. Library consortium is a group of two or more libraries which have agreed to co-operate with one another in order to fulfill certain similar needs, usually resource sharing.

3.6 CONCLUSION

Information literacy occurs at the intersection of teaching, thinking and learning, within the broader environment of technology. We can define information literacy as the set of skills needed to find, retrieve, analyse, and use information. Faculty members are the core employees of universities and they extensively
contribute towards the attainment of institutional goals. With the emergence of ICT, teachers are facing variety of options to teach and learn. There is a bundle of resources in front of faculty members to prepare themselves from which they have to consult to plan for teaching their students, as students and learners are well aware and more responsible. Faculty members now have to get up to date themselves with new trends of teaching, searching and learning more than the students. Information literacy makes faculty members to reach their objectives, expand their knowledge and capability, and play multi-disciplinary role in the diverse society. The faculty ornamented with information literacy can approach to the required information accurately and timely.

The fast growth of information and communication technologies and particularly internet and electronic resources has changed the traditional methods of research, storage, retrieval and communication of scholarly information. Electronic resources represent many challenges at every level of their selection, acquisition, preservation, maintenance and management. At the same time, these resources have also come with many advantages giving solutions to many professional problems like solution to the problem, providing remote access, convenience in use, increased readership with improved services, leading to more opportunities for productive research output and academic excellence within shortest possible time. It is being predicted that by 2020, more than 90% of the material would be in digital form. In such situation and future trend, library professionals shall have to cope up with new emerging digital environment and device best possible techniques and methods of managing these resources efficiently and effectively for their improved availability and accessibility ensuring convenient and comfortable use overcoming all the barriers coming on the way.