# ICT AWARENESS AND USE OF LIBRARY RESOURCES

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## Introduction

Information and Communication Technology (ICT) have produced tremendous changes in all spheres of life including economic, political, social and educational system. In the globalization era, ICT has become so important that it is one of the significant indices of national and economic development. The development of a country is based on the use of ICT based technology. Information divides the world into two blocks namely the information rich and the information poor countries. In the information explosion era. the use of ICT based tools and applications are inevitable for retrieval of information effectively and efficiently. With advances in ICT, electronic information in the form of electronic books, electronic journals, and the Internet has changed the world into an information age. Now, no institution or organization can rely on traditional printed information resource only to satisfy the information requirements of its users effectively. In the technology-driven information environment, users must be well acquainted with ICT products and the services offered by the information systems. They should be aware of and familiar with ICT tools and techniques for effective usage of their scholarly communications. In the complex information environment, information literacy competencies determine the use of information sources effectively for scholarly works. The research scholars forming part of the user community in the higher education system require huge quantities of information in order to fulfil their research works.

## Concept of ICT (Information Communication Technology)

ICT stands for Information and Communication Technology. It refers to the technologies that provide access to a wide variety of information through telecommunications. It is similar to Information Technology (IT), but focuses primarily on communication media and technologies, like the internet, wireless networks, cell phones and other communication mediums.

According to the Webster's New Encyclopaedia, "Information Technology is the collective term for various technologies involved in the processing and transmission of information. They include computing telecommunications and microelectronics". According to ALA Glossary. "Information Technology is the application of computers and technologies to the acquisition, organization, storage, retrieval and dissemination of information".

Information and Communication Technology (ICT) is an umbrella term that includes all technologies for the manipulation and communication of information. ICT is a technology that supports activities like gathering, processing, sharing and presenting data. Increasingly these activities also involve collaboration and communication. Hence, IT has become ICT. Information and Communication technology (ICT) is a diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage information.

Information and Communication Technology (ICT) is defined in various contexts relevant to Library and Information Science. Ayodlle (2002) defined ICT as electronic based technology generally used to retrieve store, process and package information as well as provide access to knowledge. In 2005, Ebijuwa (2005) defined ICT as tools used for collection, processing, storage, transmission, and dissemination of information. Anyakoha (2005) has also defined ICT as the electronic means of capturing, processing. storing, and disseminating information. The American Library Association (1983) defined Information Technology (IT) "as the application of computers and other technologies to the acquisition, organization, storage, retrieval, and dissemination of information. Computers are used to process and store data, while telecommunications technology provides information communication tools, which make it possible for users to access databases and link them with other computer networks at different locations". The terms Information Technology (IT) and ICT (Information and Communication Technologies) are used somewhat interchangeably.

These definitions show how changes in technologies affect the way in which information is accessed, stored and disseminated in libraries. Now information is available on CDs, audios, videos, as well as on the internet. These types of web based electronic information sources have become more popular in academic libraries. These

can be accessed by any user through online access via networks, E-resources are mainly in the form of e-books, e-journals, full text articles, newspapers, thesis, dissertations, databases and CD-ROMs. Since, all updated information is published in electronic form. it plays prominent role in academic libraries now-a-days. Thus, familiarity with ICT based information products and services are necessary among the users for the effective usage of ICT based products and services.

**Information Management and ICT**

Proliferation of information demands the need for information management and the retrieval of right information at the right time. Managing information becomes a challenge to the information professionals due to the exponential growth of information. Storing of information in automated system enables them to control information management. The ICT products and technologies help to monitor and provide effective services to the users in academic libraries. The ICT provides libraries with capabilities to locate, storage and retrieve, and disseminate information. Internet access enables libraries to locate information stored in other computers around the world. With online search facilities, information stored at different locations can be easily retrieved. Through the use of web pages, e-mail, and CD-ROM, libraries disseminate information. Digitization of library information resources, which converts print resources into electronic form, means that such information can be accessed from homes, offices, or any workstation connected to the Internet.

The application of ICT has caused significant changes in automated cataloguing circulation system, online information system, electronic document delivery, and CD-ROM databases. The advent of the internet, digitization, and the ability to access library and research materials from remote locations created dramatic changes by the end of the twentieth century. The expert systems, wireless networks, virtual collections. interactive Web interfaces, virtual reference services, and personal Web portals have brought significant changes in the library and information science environment. First and significant changes are occurring in librarianship, where digital and electronic libraries are being established to complement, and in some cases to completely replace, the traditional libraries.

**Components of ICT in Libraries**

The ultimate aim of the information center is to provide effective information services to the user community. The library professionals are using a number of ICT based technologies i.e., combination or fusion of several technologies. Chisenga (2004) said that ICT came about as a result of the digital convergence of computer technologies. telecommunication technologies and other media communication technologies. Patil Kumbar and Krishananda (2008) categorized the components of Information Technology (IT), frequently used in Library and Information centers are as follows:

1. Computer Technology
2. Communication Technology
3. Reprographic, micrographic and printing technology.

Rehman (2003) stated that ICT is the fusion of two important technologies namely electronics and communications. From these views, it is clear that the components of ICT technologies in libraries include computer technologies, communication technologies and reprographic technologies.

**1. Computer Technology**

The wide spread use of computer technology has made dramatic development in the information transmission process in every field of our life. The current developments in computer technology include Mainframe Computer, Super Computer, Mini Computer. Personal Computer, Microchip Technology. Artificial Intelligence, Software Technology and CD-ROM Technology.

**2. Communication Technology**

Communication or telecommunication technologies are used to transmit and receive information in the form of signals, using electrical or electromagnetic media as carriers of signals. Telecommunication technologies include Audio Technology, Audio-visual Technology, Motion Picture, TV, Videodisc, Video Conferencing Applications etc.

**3. Reprography and Publishing Technology**

Reprography and publishing technology is the field of information processing concerned with technologies and equipments for the reproduction of data in

documents. Micrographics are the field of IT concerned with making use of microforms. It includes optical media for high density recording and storage of optically encoded information. Printing technology is another device for the reproduction of data in documents.

**Impact of ICT in Libraries**

The ICT has reshaped the functioning and services of libraries. The activities which were carried out manually in the traditional libraries are now being carried out effectively and smoothly with the help of ICT. The ICT has changed the way of acquisition, technical processing, periodical subscription, and circulation activities in such a way that library readers can get desired information and services effectively in minimum time with minimum man power. Traditional libraries are changing their role and functions according to the new trends in society. Libraries are providing information through computers and internet. Without the help of the computers and library information centers cannot fully satisfy the users. Rana (2009) describes that ICT holds the key to the success of modernizing information services of library and information centers.

Applications of ICT are numerous but mainly it is used in converting the existing paper-print records into electronic format, its process of storage, retrieval and dissemination. ICT has impacted every sphere of academic library activities including collection, development strategies, library building and consortia for information sharing. It presents an opportunity to provide value-added information services and access to a wide variety of digital based information resources to their clients. Furthermore, academic libraries are also using modem ICTs to automate their core functions, implement efficient and effective library cooperation and resource sharing networks, implement management information systems, develop institutional repositories of digital local contents, digital libraries and initiate ICT based capacity building programmes for library users.

**Need for ICT in Libraries**

The literature in almost all the fields is increasing tremendously and in a multi-dimensional way. Because of the growth, manual bibliographic control is not feasible and hence ICT is needed. The information seeking behaviour of the users is also

changing according to their varied needs. To meet these changing needs, storage capacities of information retrieval techniques should be improved. The quality, user friendliness, effectiveness, reliability and regularity of library services can be much improved through ICT. Moreover, ICT in academic libraries are used

1. To utilize the emerging electronic resources effectively.

2. To provide round the clock services to the user community.

3. To extend the library services beyond the four walls of the libraries.

4. To provide regular updates on topic of interest to the users.

5. To promote teamwork across geographical distance.

**Benefits of ICT based Services**

Use of ICT in libraries enhances user satisfaction. It provides numerous benefits to library users. Some of the benefits are:

1. speedy and easy access to information.

2. remote access to users.

3. round the clock access to users (24x7)

4. access to unlimited information from different sources

5. Provision of information flexibility to be used by any individual according his/her requirements

6. Provision of increased flexibility

7. Reformatting and combining of data from different sources.

Information and Communication Technology (ICT) has brought unique changes and transformation to academic library and information services, conventional library services such as OPAC, users' services, reference services, bibliographic services, Current Awareness Services (CAS), Document delivery, Inter-Library Loan (ILL) Audio visual services and customer relations can be provided more efficiently and effectively using ICT. Moreover, it is offered in convenient time, place, and cost effectiveness, faster and most-up-to-date. The impact of ICT on information services is characterized by changes in format, contents and method of production and delivery of information products. Emergence of internet as the largest repository of information and knowledge has changed the role of library and information science professionals from intermediary host to that of a facilitator with new tools for dissemination of information. The shift from physical to virtual services environment

and extinction of some conventional information services has resulted in the emergence of new and innovational web-based technology.

**Challenges in Use of ICT in Academic Libraries**

No doubt, the ICT has given more benefits to the users and particularly the research scholars for their scholarly work. It has posed some challenges to the libraries and library professionals. Some of the challenges are:

1. Poor funding of ICT infrastructures.
2. Frequent changes of hardware and software
3. Lack of trained library professionals
4. Poor internet connectivity
5. Frequent power failure
6. Copyright and intellectual property rights management.

The challenges posed by the ICT can be effectively managed by proper planning and frequent updating of technical skills of library professionals by seminars and conferences. Proper awareness must be provided to the end users for effective use of ICT oriented information services.

Today people use the information technology as a primary source of information. The internet can be used for the efficient retrieval and processing of information needs. ICT based resources are now considered important to all types of libraries and they are reducing a large share of library expenses. They are used in abundance. These resources have solved the problem of space. Academic libraries play a significant role in supporting research in all subjects.

**ICT Awareness and Use of Library Resources**

Emerging ICT technologies and their applications have forced the researchers to be familiar with ICT products and aware of their applications. ICT awareness involves developing an understanding of many dimensions of the ICTs. This form of knowledge provides an essential foundation for ICT mastery as well as other ICT management skills such operating and utilizing the ICT Technologies, and ICT gadgets. ICT awareness is the awareness of the users of technical and technological aspects of ICT, browsing or surfing techniques, communication applications, knowledge of specialized software, word processor, spreadsheet and wo on. Every

researcher should have the knowledge of ICT or awareness about the ICT in order to access ICT enabled information services for their research work. Legal, copyrights aspects of information sources and research ethics are related to ICT awareness of the users. Apart from these, they should be aware of technological knowledge like operating various gadgets such as digital cameras, mobile phone, smart phones and tablets and also the ICT gadgets like portable media players; interactive whiteboards; voice projections systems and operating softwares, presentation tools, word processor, audio-video edition for pod casting: virtual Learning Environment; Video conferencing and You tube. The use of ICT in research will change the quality of research. ICT awareness enables the researcher in organizing instruction around problem- solving. It makes new demands on research by locating meaningful resources and guidance for solving the problem. Some of the categories of awareness of ICT are given as follows:

1. **Technical and Technological Awareness:** Every researcher should know about the technique of operating the computer and its accessories as well as electronic media which support its peripheral parts.

2. **Surfing Awareness:** The researcher should know about browsing or surfing the website and the rules of internet and the threats from internet as well as electronic media which support its peripheral parts. They should be well versed in sending emails, taking notes for the others through internet.

3. **Authoring Awareness:** The researcher should know about designing or authoring the website for his/her research publications and the rules of internet and its threats about digital copy rights of the website that he/she designs for the research process.

4. **Communication Awareness:** The researcher should be a problem solver, good communicator and observer. So, the researcher should understand the problem clearly and communicate with others and facilitate others with clear solutions.

5. **Maintenance Awareness:** Every researcher should be familiar with ICT products maintenance in order to solve day-to-day problems faced by them while using various ICT products.

Computers and other advances in information processing, storage, and communication technologies have revolutionized the role of libraries and information

centers all over the world. Moreover, due to the impact of ICT, E-journals, CD-ROM databases, online databases, e-books, web-based resources, and a variety of other electronic media are fast replacing the traditional resources of libraries. The emergence of electronic resources has drastically revamped the status of all the libraries and information centers across the world during the last few decades.

Now-a-days, librarians are shifting their role from managing of library learning resources to providing service-oriented digital information resources. Extensive use of computers, increased support on computer networks, prompt growth of Internet and information explosion in terms of quality and quantity has led libraries to implement new techniques for storage, organisation, management, retrieval and dissemination of electronic resources to the end users in the networked and digital environment.

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