

Use of Electronic Information Services in the Visually Impaired Libraries

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(Received 12 December 2014; Revised 2 January 2015; Accepted 25 February 2015; Available online 1 March 2015)

Abstract - The Libraries need to be committed to ensure full access of their range of services and facilities to their user community. Visually impaired have limited opportunities to access information especially those available in print. The Visually impaired library in India depend on two basic sources for their information one is Braille books and other is Talking book services. This study also Libraries /centers on meeting the reading needs of person with visually impaired through various assistive technology devices which include Braille Printer, Low Vision aid, Screen Reader to help them to achieve their education. Information Technology is an important tool in the inclusion process and can promote independence and autonomy of students with visually impaired Libraries.

Keywords: Electronic Information, Assistive, Braille, Visually impaired, Screen reader, scanner, software.

I. INTRODUCTION

Libraries are the lighthouse of information dissemination, an important component of any educational institution, and hub of learning activities where students, researchers, and teachers can explore the vast amount of information resources. The present age is regarded as the "age of information" and information has become the commodity in today's context of information explosion where we are living in the information society. Information has become an essential requirement for every one's life. Each one of us requires information for our day to day activities. In this context, Library and Information centers (LICs) are playing an important role in extending the required latest information services quickly to their users. In the 1960s and 1970s, Librarians were using electronic databases as a part of Library Services. In the 1980s, Libraries started using CD-ROM versions of electronic databases. In 1990s and from 2000 onwards, Internet access and Consortia approach of journals subscriptions diversified the availability of electronic information. Presently many libraries in India have provision to access the same electronic information in multiple ways for Visually Impaired people.

Visually impaired is a general term use to describe people who are partially-sighted or completely blind. The term will be use in similar sense throughout used for blind. According to "world health organization" (WHO) (2009) statistics there are about 314 millions visually impaired people globally with 45 million totally blind. 87% of the visually impaired live 50 year of age at higher risk. Although visually impaired people cannot read the conventional print they have the right to information and the right to read

information in formats that are accessible to them. The librarian to make information available in alternative formats like audio Braille, or large prints that can be easily accessed by the visually impaired. The only materials that were available were a few audio books. Libraries have been produced online sources of information for people. Who are visually impaired living in the Durham region. The list is based on employment related needs and is meant to educate people with visually impairment in the services that are available specifically to them. There are number of libraries are available in India like.

1. National Institute for the Visually Handicapped (NIVH) Library, deradun.
2. Rehabilitation Society of Visually Impaired (RSV) Library, Lucknow.
3. National Association for the Blind (NAB) Library, New Delhi.
4. Saksham Library, New Delhi.
5. Mulana Azad Library, AMU, Aligarh.
6. IGNO Library, Delhi.

II. ELECTRONIC INFORMATION SERVICES

Electronic means - In libraries, this usually describes a database that can be accessed with a computer. Online databases are electronic¹.

On the other hand, Electronic means of or relating to electronics; concerned with or using devices that operate on principles governing the behavior of electrons; "electronic devices".

Electronic Information Service - means a database that can be accessed by computers.

An electronic information service is any library system whose primary purpose is to provide access to, reference from, or otherwise utilize information from one or more databases stored electronically on online data storage media such as magnetic disk or optical disc. The storage information could be bibliographic or citation record, abstract, full-text, documents, numerical data, image records, sound records, inventory records, personnel records, financial records, or any other types of records that can be stored in digital form.

Access to this information is under the control of one or more computers, using nearby or distant microcomputer or other input/output terminals. The

information and the computer or computers that control it may be in the library, in a computing center serving the library, or in a nearby or distant organization with which the library has cooperative or contractual agreements. The library may own or control all the information, part of it, or none of it. Although many information seekers may never physically enter the library building, a large number probably will, at least for many years to come, to use its terminals and other facilities and to receive human assistance or companionship. Also, for many years to come, most libraries must cope with information in both electronic and traditional formats. So, until all of a library's information is in electronic form, its electronic information services must retain links to non-electronic information handling systems, particularly when document delivery is involved. The demand for information available only in traditional formats will continue far into the electronic information age, until some unknown point in time, if ever. Common examples of electronic information services providing direct services to library clients include mediated searching of remote databases, end-user searching of remote databases and end-user searching of local databases, including online public access catalogs, CD-ROM citation databases, and community information files. Examples of other electronic services providing indirect or internal services include acquiring or creating information in electronic databases, organization and preserving electronic information, and providing information and services to library management and staff as well as to external governing authorities and agencies. There is a commonly of competencies that are, or will be required in providing any of these electronic information services.

III.ELECTRONIC INFORMATION SERVICES IN VISUALLY IMPAIRED LIBRARIES

Apart from reading material available in Digital form, Visually impaired libraries possess enormous information in electronic form. In fact in a subject like Literature(English, Hindi, Urdu Language),History, science, etc. the electronic information is growing more rapidly. The change in the format of information has totally changed the shape of Visually Impaired libraries. Electronic Information Service for the production of alternative formats by the services for Visually Impaired, the important or common point that can found in electronic information services are as follow;

1. CD-ROM SERVICES

CD-ROM (Compact Disc Read Only Memory) has become the computer industry's preferred medium for publication and became increasingly popular in 1990s. It has added new dimensions as an economic

medium of publishing. It is cheaper and capable of containing enormous quantity of information. Most of the Indian libraries are using this medium to fulfill their user's requirements in an economic way. CD-ROM technology has been found to be very useful for the sources, which are under very frequent and heavy use, such as indexing/abstracting periodicals, encyclopedias, dictionaries and directories, etc. On account of its immense publishing potential, the demand and use of CD-ROMs is increasing day by day. Initially, these compact discs were able to 'read' only but in 1990s various versions of CD-ROMs, such as CD-R (Compact Disc-Recordable or Writeable) with rewritable CD-RWs (Compact Disc-Re Writable) came to prominence at the end of 1990s. Some important examples from important categories of reference sources available on CD-ROM are given as:1) Talking Books 2)Novels 3).Islamic Books. Encyclopedia for different subjects etc .Visually impaired Libraries are more use for storage data of different books.

2.E-DATABASE SERVICES

With the emergence of computers and communication technologies, the strength of information in the development of modern database has taken new shape. The information originating form a database has become a large segment of electronic publishing that provides a base or foundation for procedures, such as retrieving information, drawing conclusions, and making decisions. The holdings of the library database, consisting of books, periodicals, reports and theses, can be converted into electronic form that allows access to Visually Impaired public use through digital networks. ERIC (Educational Resource Information Center) is the largest educational database in the world that contains more than 8,00,000 records with the addition of 30,000 new records per year. It is available in CD-ROM format as well as on the net free of charge⁶. A list of useful e-databases is given as: National Institute for Visually Handicapped, Dehradun ,and different associations, Organizations.

3. ONLINE DATABASE SERVICES

Online Database is a searchable, electronic database of either full text documents or citations and abstracts. Although an online database is accessible through the Internet, the documents retrieved have been reviewed, unlike many of those found when searching the Internet using a search engine⁷. These are some of the online databases which are as following: JAWS software.

4. E-DOCUMENT DELIVERY SERVICES

The transfer of information traditionally recorded in a physical medium (print, videotape, sound recording, etc.) to the user electronically, usually via e-mail or the World Wide Web. Libraries employ digital technology to deliver the information contained in documents and files placed on reserve and requested via interlibrary loan⁸. Number of Visually Impaired Libraries are inter connected to each other and Document share to students demands.

5. WEB SERVICES

Web Services are increasingly gaining attention. Standardization efforts have improved their stability and range of applications. Composition and coordination techniques for Web Services enabling application integration effort beyond loosely coupled systems. This is also computer bases network of information recourses that combines text and multimedia. It is used to access information.

6. E-MAIL SERVICES

An abbreviation of electronic mail, an Internet protocol that allows computer users to exchange messages and data files in real time with other users, locally and across networks. E-mail requires a messaging system to allow users to store and forward messages and a mail program with an interface for sending and receiving. Users can send messages to a single recipient at a specific e-mail address or multicast to a distribution list or mailing list without creating a paper copy until hard copy is desired. Faster and more reliable than the postal service, e-mail can also be more convenient than telephone communication, but it has raised issues of security and privacy. Commonly used e-mail programs: *Lotus Notes, Eudora, Send mail, Critical Path*. Most Internet service providers offer an e-mail option to their subscribers¹¹. E-Mail Services are provided by many Visually Impaired libraries for document delivery purposes as National Institute for Visually Handicapped Library, Dehradun ,Shaksham, New Delhi and Mulana Azad Libraries.

7. FAX (FACSIMILE TRANSMISSION)

It is a system of communication by which electrical transmission of printed and written materials or drawing known as fax is achieved by radio, Telephone, which meets the educational needs of visual impaired.

8. E-INDEXING AND ABSTRACTING SERVICES

Indexing and abstracting services facilitate the broadest dissemination of information by pointing

researchers to articles that are relevant to the field. Once a journal is launched and has a track record of timely publication and solid content, it is appropriate to contact indexing and abstracting services for consideration.

9. E-CAS and SDI

A service or publication designed to alert scholars, researchers, readers, customers, or employees to recently published literature in their field(s) of specialization, usually available in special libraries serving companies, organizations, and institutions in which access to current information is essential. Such services can be tailored to fit the interest profile of a specific individual or group. Some online catalogs and bibliographic databases include a "preferred searches" option that allows the library user to archive search statements and re-execute them as needed.

A periodical that reproduces the tables of contents of the leading scholarly journals in an academic discipline or field to assist researchers in keeping abreast of the most recently published literature in their areas of interest or specialization, usually published weekly or monthly. Because currency is the *raison d'être* of this type of publication, libraries may limit back files to the most recent three to five years.

SDI is a refinement of Current Awareness Service and provides "anticipatory" service in the sense that the most useful information is identified, based on pre-determined needs of users. SDI is truly formalized by computers. It is like a literature search which is saved and run against each update of the database. It requires the same steps of analysis as a literature search. However, because it is stored and run over again, it can be enhanced by an interactive process of running the profile, reviewing output and looking for ways to remove false drops from future output, such as the use of subject categories. The incoming literature is screened and those which suit users' interest are selected and processed by bringing out the attention of target users¹⁵.

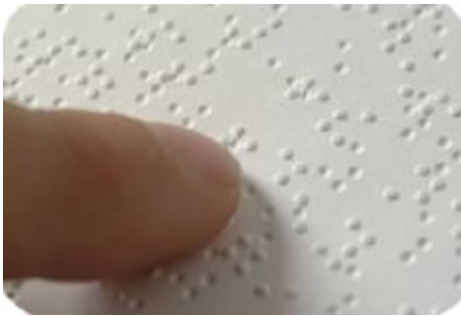
10. E-REFERENCE SERVICES

Reference services requested and provided over the Internet, usually via e-mail, instant messaging ("chat"), or Web-based submission forms, usually answered by librarians in the reference department of a library, sometimes by the participants in a collaborative reference system serving more than one institution. For an example, see *Ask a librarian...* from the National Institute for Visually Impaired Handicapped, Shaksham, Mulana Azad Library, etc..

Access to information is major problem for the disabled in India. The visually impaired in India till today depend on two primary sources for their information. One is Braille Books and the other is talking book service. But today ICT has helped to reduce the digital divide between sighted and the blind by providing information on their desktop. ICT and its tools are highly flexible and provide great scope for usage by persons with vision impairment. Information available to the seeing world is now available to the persons with vision impairment. It is very evident that those who are computer literate are able to gain education, and empowerment as compared non-literate in technology. Still with all these technologies the visually impaired has been facing problems in accessing the information.

Library Services for Visually Impaired Students: Libraries and information centres around the world have developed specialized information services to meet the library and information needs of their visually impaired education. These include:-

1. **Braille Books:** - Braille is a system a reading and writing whereby raised dots are used to represent letters which are read by touch. Braille books are appropriate for users who have both visual and hearing impaired.



2. **Talking Books:** - These are audio versions of books that could be recorded on Cassettes, CD-ROM, and DVD and on the internet as e-books. Talking books are preferred by majority of the visually impaired.
3. **Talking news papers,** audio recordings of news articles in the dailies.
4. **Large printed materials:-** These are documents in large fonts for use by partially sighted users.

Libraries are also taking advantage of advances in ICTs to increase information access for the visually impaired. A broad range of ICTs otherwise called adaptive or assistive technologies are now available to provide access to information in electronic database and on the internet giving blind users equal opportunities' as the sighted. These innovative technologies include.

- a. **Screen Magnifier:-** This is a software that allows text or graphic on computer screen to be magnified up to sixteen time the original size.
- b. **Screen Reader:-** A software that reads out the content of a document to the reader.

- c. **Voice Reorganization Software:-**This allows the user to input data into the computer by voice.

IV.THE READING SOURCES NEEDS OF PERSON WITH VISUAL IMPAIRMENT THROUGH ASSISTIVE TECHNOLOGY

Scholl(1986)defined this as “this process of constructing meaning through the dynamic interaction among the readers existing knowledge, the information suggested by the written language and the context of reading situation.”**The World Encyclopedia(1992)**in **Adesina (2007)** reported that people in many countries of the world read for various reasons. Some read for pleasure, other for information, students read to pass their examinations while some other read for fun. Reading can also defined as a “ a skill or activity of getting information from books, that is, an occasion when something written (literacy work) is spoken to an audience”. Blind and partially sighted students must access print resources in alternative forms. Although technology enables access, adapted materials such as audio textbooks are not readily available. Adaptive technology magnifies print or transforms it into audio or tactile forms; while speech synthesizers verbalize electronic resources. The Technology may be able to help the blind in the workplace, classroom, or the management of their home. Standard personal computers can be modified using large print, speech, or Braille adaptations. Adapted computer systems can be used to send and receive electronic mail, browse web pages, compose documents, work with spreadsheets and databases, and much more. Closed Circuit Television system scan be used to enlarge every day print. The Technology for the Blind Program also provides adaptive devices such as talking and large-print calculators, Braille writers, four-track tape recorders, note-takers, and other specialized adaptive devices for use in the workplace. As **Lucky and Achebe (2013)**described, the assistive technology devices include:

- (i) **Screen reader:** Software program that works in conjunction with speech synthesizer to provide verbalization of everything on the screen including menus, text and punctuation. It gives persons with visual impairment direct access to the world of print. It also creates independence in reading to the visually impaired. It helps a blind person to read freely at his/her own pace without assistance.
- (ii) **Braille translation software:** Translate text and formatting into appropriate Braille characters and formatting.
- (iii) **Braille embosser:** A Braille printer that embossers computer generated text as Braille on paper.
- (vi) **Closed circuit television:** Magnify a printed page through the use of a special television camera with a zoom lens and displays the image on a monitor.
- (iv) **Braille embosser:** A Braille printer that embossers computer generated text as Braille on paper.
- (vi)**Scanners:** Device that convert an image from a printed page to a computer file. Optical Character

Recognition (OCR) software makes the resulting complete file capable of being edited. With the help of ICT, the visually impaired have been rendered special attention to fully participate in the world by providing them with best possible support necessary to bridge gaps between accessibility and

literacy. More importantly, careers in science are now within the reach of the visually impaired and some of them have become successful in many scientific fields, including engineering, physics and chemistry.

There are many ways to provide Information services for Visually Impaired Students



1. Jaws (Job Access with speech) talking Software: It is conversion of a normal PC into talking PC to enable the blind internet Access and also to train blind persons on using the computer.

2. Magic Magnification software: useful for enlarging the screen from 2x to 16x enabling low vision students to view the monitor screen as well as use the add-on support tools for enhancing visible.

3. Talking Typing Teacher Pro: Talking Typing tutorials specially designed for the blind complete guidance and practice lessons for learning keyboarding skills and developing typing speed in a systematic manner. Since the program also has a complete display of all lessons, even the low vision students can read and learn to type.

4. Braille Scanning software –OBR (Optical Braille Recognition): It is a windows software program that allows you to read single and double sided and double sided Braille documents on a standard A 4. Scanner. It scans the Braille document, analyses the dot pattern, and translates it into normal text that it presents on the computer screen.

5. Index Basic Braille Embosser: It is not costly, high speed, Double sided Tractor feed continuous sheet, new generation technology Braille Embosser. There are some important features are: it produce 2 pages i.e., front and back at the same time ;uses Tractor feed paper which can be spiral bound using plastic wire making it very economical; does not require any special binding equipment; supplies with an acoustic cabinet. It also enables collection of the paper in an orderly manner.



6. Kurzweil Reading machine: It is a major reading devices for the visually impaired. This machine produces direct speech output from printed texts using electronic device. It enable the blind to have direct access to materials in print. The Latest discovery of this includes larger

memory automatic construction, multilingual capabilities of texts in several language and communication interface. It can also produce the recorder version of the text which can be transcribed into Braille material.

7.Zoom-Ex Instant Text Reader :It is a small portable that uses the new generation motion sensor technology in combination with its proprietary zoom office software to make scanning and instant reading of text fast and easy. Place a book under the highly sensitive camera and start reading or listening instantly and that too with an Indian accent voice and with every turn of a page automatically. It then converts these photographic images to readable text. A book of 200pages is read in 8minutes,Now read it at your own pace for long hours.

8.Freedom Scientifics SARA(Scanning and Reading appliances)

SARA is the next-generation self-contained scanning and reading appliance for people who are blind or have low

vision. SARA is simple to use, and quickly converts printed text to spoken text. No computer experience is needed. Read your documents without the need for sighted assistance. Easy to learn, easy to use - no computer experience needed. Convert printed text to human-like speech in your choice of voices and languages. Built-in keypad with brightly-colored tactile keys and an audible menu .Add a monitor for a complete low-vision scanning and reading appliance. Powerful low vision features tailor the appearance of text on the screen, including font style, size, character spacing, and colors. Fast, automatic page capture for efficient document acquisition. Save files in SARA or send to a USB thumb drive.



V.CONCLUSION

Visually Impaired Libraries have complicated nature of knowledge per se and its management, it is often difficult to estimate or demonstrate the value of knowledge. The teaching ,learning, research, other academic advancement of the visually impaired students in India today has become very necessary and should be regarded as an integral part of the national development process. It is therefore important that learning materials like Books, Journals, database and other relevant information sources should be made readily available for use them. ICT has brought about conversion of most information available in print to speech, through voice activation device, printer character have also been converted to Braille characters, which can be read. Despite the benefits of ICT, its successful application still has to contend with challenges of users technical know-how.

REFERENCES

- [1] Babalola ,Yemisi T.Library and information services to the visually impaired-the role of academic libraries. *canadian social science*.vol.7no.1,2011.pp140-147.
- [2] Brazier,H.(2007).The role and activities of IFLA Library for the blind section. *Library Trends*, 55(4) ,864-878.Retrieved Nov. 5*2014,from:http://muse.jnu.edu/journals/Library-trends/vol.55.4_brazier02.html.
- [3] Koganuramath, Muttayya M.and Choukimath ,Puttaraj A.(2009).Learning Resources Center for the Visually Impaired

students in the universities to foster Inclusive Education. *ICAL*.619-624.

- [4] Lucky,A.T. and Acheba,N.E.E.(2013).Information service delivery to the visually impaired: a case study to hope for blind foundation wusasa ,zaria(Nigeria). *Research Journal of Information Technology*.5(1):18-23.
- [5] Eskay, M. & Chima, J.N (2013) Library and information service delivery for the blind and the physically challenged in University of Nigeria Nsukka Library. *European Academic Research*, 1(5), 625-630.
- [6] G. Broll, S. Keck, P. Holleis and A. Butz,(2009) "Improving TheAccessibility of NFC/RFID-based Mobile Interaction through Learnability and Guidance", *International Conference on Human-Computer Interaction with mobile devices and services*, vol. 11.
- [7] S.-Y. Kim, B. Park and J. -J. Jung, (2011)"User Route analysis of using GPSON a Mobile Device and Moving Route Recommendation System", *TheKorea Contents Associations*, vol. 11, no. 2.
- [8] Comisco, J. (2008) Electronics text and visually impaired users: Standards and the move towards universal accessibility. *Scroll*, 1(1), 62-70. Retrieved Sept 6, 2014, from <http://fdt.library.utoronto.ca/index.php/fdt/article/.../4903/1760>
- [9] Koulikourdi, A., (2008). Library services for people with disabilities in GreQCQ. *Library Review*. 57(2)138148.Retrieved Sept 5, 2014, from <http://www.emeraldinsight.com/journal.html>.
- [10] Brazier,H.(2007).The role and activities of IFLA Library for the Blind Section.*LibraryTrends*,55(4),864-878.Retrieved sept5*2014,from:<http://muse.jhu.edu/journals/library-trends/vol55/55.4brazier02.html>
- [11] Eskay,Michael and Chima,J.N.(2013). Library and Information Science Delivery for the Blind and physically challenged in university of Nigeria Nsukka Library. *European Academic Research*,Vol.1,Issue5/,625-635