LIBRARY SUPPORT SERVICES FOR VISUALLY IMPAIRED STUDENTS IN ICT ENVIRONMENT

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The paper describes various aspects of providing reading services for visually impaired students who are unable and still desirous to read and improve their knowledge. The blinds / visually impaired students can't read the printed books because of their inability to see or because of low vision but with the help of 'screen reading software' and support of audio facility, they can read the e-books with screen reading softwares or can make use of Braille Printer for getting the print of required reading material available on-line in e-format. With this technology, library can offer specialized services to visually impaired readers. The screen reading software has immense capabilities to have interaction among visually impaired students with assistance of the trained library for effective access to numerous e-books and e- journals. Such a service by librarians to visually impaired students is useful for overcoming the difficulties of visually impaired/ blind students, teachers and researchers in inculcating their reading habits and empowering them with knowledge through right information.

INTRODUCTION

Information and Communication Technologies (ICT) supported activities in libraries and information centres has brought about numerous qualitative changes in the information services and products and the effective ways and means with which these services are provided in cost effective manner in least possible time with use of e- resources. However , visually disabled students can't make effective use of ICT enhanced library services for their educational upliftment without providing them special ICT infrastructure .Hence, the librarian should make deliberate efforts for such class of people with physical disability to streamline them on the way of reading by offering ICT infrastructure which would enable them to exploit the chances to read more and avail the facility of online availability of information from internet, digital libraries , institutional repositories as well as special collection in braille format meant for them.

Availability of well configured computers supported with braille printers and screen reading softwares is now no more a problem for the libraries and information centres. Proper thinking and well planned strategy for making availability certain special devices including low vision devices, Braille books, supporting softwares in libraries will make it possible for libraries to accommodate the visually impaired students as regular readers of the library.

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NEED OF LIBRARY SERVICES FOR VISUALLY IMPAIRED STUDENTS

Most of the readers can make use of all library services because they can read effectively, but visually impaired students can't read because of their blindness or low vision. They find it difficult to read normally and have to rely on making use

of Braille language developed by Luis Braille. With the help of touch, they identify the words printed on Braille printouts. Hence, it is the responsibility of the librarians and information specialists to provide them the facilities enabling them to use technological devices for reading and improving their knowledge through information dissemination. This will streamline the deprived class of visually impaired or low vision readers more effectively into educational process.

With the advent of ICT, many books and journals are now available in e-format which can be downloaded freely or on subscription basis and / or saved in the computer or any other storage device. The visually impaired students can read the e-books only with the help of screen reading softwares which supports audio feature. They can also get the print outs of the required pages from e-books, e-journals or e- resources with the help of Braille printer and can read the printed document (in Braille) for their reference. A 'Braille Library' consisting of latest computers and communication technologies with a Braille printer and screen reading software re of immense importance for offering the library services to visually impaired students. Audio and Braille books and magazines is a pre-requisite for the Braille library. Hence, libraries should deliberately make efforts to inculcate reading habits among them by developing Braille library.

In the International report prepared by IFLA [1] on library and information services for visually impaired people, it is reported that *'Over the past decade, an international awareness has developed, in particular among organizations of and for visually impaired people, that visually impaired people's access to reading materials remains highly restricted and reduces their life chances both in terms of employment and in leisure.'*

Considering the necessity of this service for the visually impaired students, the Government of India has made a special provision for employment of visually impaired in many sectors and this service will make them eligible to get the benefit of the government schemes for their employment. However, libraries have to play a very crucial role to make them eligible by providing special services to them.

INFRASTRUCTURE REQUIRED FOR VISUALLY IMPAIRED STUDENTS

Screen Reading Softwares

There are various screen reading software's available which helps us to transmit the text that is displayed on the computer screen into a form that the visually impaired person can process. These softwares helps the visually impaired persons by providing synthetic voice to read the text aloud and also to communicate it through e-mails. It is useful for both the libraries and visually impaired students. For licensed copies, it is not possible for the individual readers to subscribe the software due to its high prices but for the institutions and the libraries, it is possible to subscribe the software which can be used by multiple users at a time. The various softwares for screen reading available are:

Job Access with Speech (JAWS)

JAWS is produced and made available by the Blind and Low Vision Group at Freedom Scientific of St. Petersburg, Florida, USA. This software makes personal computer accessible to blind and visually impaired Users. It facilitates access to the information displayed on computer screen through text to speech. The visually impaired students or readers can access to the information displayed on the screen. With the information displayed on the screen, he can listen the information through the headphone or get the printouts through Braille Printer for its reading. In order to get the benefit of it, JAWS need to be installed in the computer. However, this software is expensive and unaffordable for blind people at individual level.

Non-Visual Desktop Access (NVDA)

It is open source and free screen reader for windows which enables blind and visually impaired people to make use of computers for reading the text on the screen in a computerized voice. By moving the curser to the required area of text with the mouse, they can read the text. It is helpful for converting the text into Braille if supported by Braille display. It uses virtual buffer for providing access to the web pages. It is useful for reading and writing the documents, preparing and producing spreadsheets like MS-Excel, sending and receiving e-mails and for browsing the web.

VoiceOver

It is a built in screen reader and reads aloud whatever that appears on the computer screen. This software enables to speak the text that is available in documents and windows.

BRELTTY

A blind person, who uses a Braille display, can make use of this software as a background process which provides access to the Linux /Unix console. It drives the display of Braille and provides entire screen review in functional way. It has the ability to fully implement usual screen review facilities, screen freezing for leisurely reviews, support for multiple Braille codes, has a modular design that allows easy addition of drivers for other Braille displays and speech synthesizers.

ORCA

OCRA is an extensible screen reader which is available freely and is open source software. It enables access to the graphical desktop through speech and Braille. It works with applications and toolkits that supports the Assistive Technology Service Provider Interface (AT-SPI).AT-SPI is an assistive technology infrastructure for Linux and Solaries.

Web Anywhere

It is web enabled screen reader for the web and available free for its use at wa.cs.washington.edu for its direct access. For using this software there is no need to install special software on the client machine. It runs on any operating system and regardless of what browser is installed on your computer. It works nicely after installation of recent version of Adobe Flash and embedded sound players like Windows Media Player and QuickTime. Since it is released on the web you always get the latest version of it.

Spoken Web

This is a system for creation of and access to 'VoiceSites', 'VioLinks' to create a 'spoken' network of information. By this Virtue, it enables the illiterate and the underprivileged with the power to access the information. Those people who don't have computer at their homes, can access it with the help of any landline phone or mobile phone. Hence, it can be used by numerous people who are illiterate and want to access information through speech.

Serotek, Emacspeak are few of the other screen reading softwares available for the visually impaired people to access the information.

INFRASTRUCTURAL FACILITIES

Other infrastructural facilities required include:

i) portable reading Cameras in combination with softwares to read books, magazines, documents etc,

ii) Screen magnification software with speech suitable for computer users with low vision which magnifies computer screen from 1 to 60 times its usual size,

iii) Hindi / Marathi or any other regional language OCR software, for text recognition of documents,

iv) Type Ability software which is a talking typing tutorial software for the visually challenged,

v) Portable Recorder designed to help record and reproduce sound works as also to develop digital accessible information system,

vi) PTV device which can allow you to listen music, radio, record sounds; to get backup of the data with the feature of alarm and calculator,

vii) Low vision kit consisting of handheld, pocket, illuminated, stand, neck and flexible arm magnifiers.

viii) Prismatic as well as aspheric spectacles, and

ix) telescopes and electronic magnifiers.

INDIAN SCENARIO

The Marrakesh Treaty was adopted on June 27, 2013 in Marrakesh. It has a social dimension of creating a set of mandatory limitations and exceptions for the blind, visually impaired and otherwise print disabled (VIPs). This treaty has considered 22 articles explaining the beneficiary persons, National law limitations and exceptions regarding accessible Format Copies under WIPO Copyright Treaty, obligations concerning technological measures, respect of privacy cross border exchange of accessible format copies etc.

The Persons with Disabilities (PWD) (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995

The Persons with Disabilities (Equal opportunities, protection of rights and Full Participation) Act, 1995 is a remarkable act ensuring equal opportunities to blinds and their protection of rights with full participation in nation building. Access to free education upto 18 years of age, provision of vocational training, provision of free of cost special books and equipments, designing and developing of new assistive devices, teaching aids and special teaching material, rehabilitation of persons with disabilities, job identification, provision of aids and appliances are the issues on which constructive provisions have been made in the act.

Role of NKC

National Knowledge Commission [2] has made recommendations on school education in 2007 and has mentioned that *'School buildings must have provisions for access and navigation for the visually impaired, the physically handicapped, etc. Teacher must be trained, sensitized and empowered to deal with children with different abilities in the classroom situation.*

While this is the ultimate goal, it must also be recognized that current schooling patterns are not always conducive to bringing out the full potential of physically disadvantaged children, and that therefore there is still a case for special schools. There is a perception that government mechanisms may not be best suited to provide sustained and sympathetic support for learners with special needs and severely disabled children (such as the blind). In this context, it may be better to identify appropriate and willing institutions outside the government who may become partners." (NKC, 2007) Thus, the libraries which are the part and parcel of educational institutions are supposed to make interaction with and provide collaboratively with other institutions to help visually impaired students to streamline those in academic endeavors.

Institutions Offering Library Services to Visually Impaired Students:

'Mitra Jyothi' is a charitable trust formed in 1990 to inspire and enable the visually impaired families lead independent and dignified lives through education, training, counseling, communication and technology. It's different programmes include talking book library, independent living skills, Braille transcription centre, job placement cell and computer training centre.

'National Association for the Blinds at Satpur has prepared a machine known as 'SARA' helpful for scanning and reading Marathi language. The machine has been specially prepared at Florida. When we put the reading document on the machine it is read by one camera. For the English matter, an option is provided as to which assent it has to be. The control is exercised by the machine on what should be the distance (Speed) between two words. There is a provision of attaching a speaker for the machine if two or more than two blind people are desirous to read the document at once [3].

National Library service for the Blind and Physically Handicapped (NLS) is a national network of cooperating libraries run by the Library of Congress which offers free library program of Braille and audio materials circulated to desired readers. It offers various services like Braille and audio reading download, Braille transcription and proofreading courses, music instruction and books etc.

Sugamya Pustakalaya: A Step Towards an Accessible Digital India

Department of Empowerment of Persons with Disabilities, Ministry of Social Justice and Empowerment, Government of India has recently launched an online library useful for visually disabled persons. It is known as 'Sugamya Pustakalaya: A Step towards an Accessible Digital India'. It is an online library which contains more than 2 lakhs books in several languages which provides the contents of the collection accessible to visually impaired and print-disabled persons. As an initiatives in this regard, the Govt. of India has planned to convert more than 100 government buildings in to fully accessible buildings for visually impaired and physically disabled persons, developing a portal for uploading pictures and comment on the accessibility of any building, introducing set-top boxes to make TV programmes more useful for visually impaired , converting the

contents available on government website from text to speech mode through screen reader softwares for visually impaired and launching a mobile application that will provide information on disabled – friendly public utilities in various cities.

CONCLUSION

In the digital era, technology has opened new ways and means which the libraries can exploit for providing advanced library facilities and services to be offered to visually impaired students. Availability of ramps, specialized seating arrangement for accessing the e-books or Braille books by visually impaired students, access to computers and computer as well as communication related technologies supported with screen reading softwares, audio facilities, low vision devices etc. is of immense importance to add to the value of the library services to the visually impaired students. A library service to visually impaired students with all these facilities is certainly a unique feature of a well modernized library in an academic and social pursuit.

REFERENCES

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