Access to Library by Visually Impaired Users: Role of Assistive Technology

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Abstract

The present age is full with innovations in Information Communication Technology (ICT), therefore, this opportunity could be availed by the library to make its resources accessible to all including persons with visual impairment. This paper aims to investigate the ways and means for library to provide access to users with visual impairment by using Information Communication Technology (ICT). Thus library can play an important role in rehabilitating the persons with visual impairment by empowering them with information through assistive Technology sothat they could realize their full potential to become a productive and integral part in to the main stream of the society to live with self- esteem.

Key-words: Information Communication Technology (ICT), Assistive Technology, Library E-Resources or Electronic Information Resources, disability rehabilitation, persons with disabilities, differently-abled.

Introduction

A library is a Universe of knowledge as it keeps record of all human thoughts and what is known about the universe by human. In other words, library is a collection of knowledge gained by human beings about the universe. Therefore, library, a social organization is entrusted with the responsibility to give access to this knowledge or information to enlighten the all members of society without any discrimination for social welfare. To perform this role effectively and efficiently library adopts new methods and techniques time to time. But for a long time it seemed like impossible task for library to give access to all users especially in the case of visually impaired persons. The library felt helpless to provide equal access to the information resources to these users and in order to perform this task library has to arrange Braille or Audio or Large text

format and it becomes a time consuming and laborious job for library due to the lack of proper infrastructures and networking of resources. But the present era is of Information Communication Technological (ICT) innovations as never before that's why this is the right time full with opportunities for library to make information resources accessible to all including users with visual impairment. This era is just like a boon for library when its dreams may come true if they adopt the changes properly.

Access to library resources by persons with visual impairment could be possible right now with the help of latest technological tools or Assistive Technology. The Assistive Technology is assistance through the technology designed for persons with disabilities to perform their activities comfortably. This is a collective terminology used for assistive, adaptive, and rehabilitative devices or tools as a result of technological advancements that help the differently- abled persons to perform their activities of daily living independently, or even with assistance. The information technology is helpful to remove barriers of distance or time and in speedy information retrieval. It has power and capacity to help every reader to get the desired information(Yadav et al. 2007).The implementation of assistive technologies in academic libraries is essential for making visually challenged students self-reliant learners to complete their academic and research works **(**Tripathi & Shukla 2014).

The information in itself is a powerful tool to empower the persons with visual impairment, therefore, if we give them access to desired information through these technological advancements, we can bring a transformation in their lives. However, the Indian scenario is very tragic with a number of more than fifty lakhs persons with visual impairment but we can achieve the objective of full flowering of disability rehabilitation programmes for visually impaired persons through libraries.

Hence, this paper is an attempt to finds out such kind of Assistive technology or devices to make library resources accessible to visually impaired users.

Accessible Technology for Library Resources for Visually Impaired users

The last few decades witnessed of a big paradigm shift in disability rehabilitation sector due to the sincere efforts of governments and people throughout the world. Besides this, the technological advancements have also played a significant role in this endeavor in the form of Assistive or Accessible Technological Tools. By using these Accessible Technology Tools a library can give access to its resources to visually impaired and low vision users not only to

strengthen the disability rehabilitation movements but also to make disabled – friendly environment in the society. A glimpse of some important devices or tools that can be used by the library to perform this task is as follows:

Screen Readers

A screen reader is a software application that works with computer's operating system and act like a reader. It reads the text loudly displayed on the Computer, Phone and Tablet screen with a speech synthesizer and thus it helps the person who is visually impaired to use these gazettes by reading the text on the screen for him. These softwares can be categorized in to two categories i.e. computer based screen readers and Phone and Tablet based screen readers.

Computer Based Screen Readers Softwares: This software makes a computer just like a talking computer. It reads the text displaying on the computer screen with a speech synthesizer for the visually impaired user and works according the commands given by the user through key board of the computer. It can be used by the visually impaired user independently to work with MS-office, internet browsing etc. Some softwares are:

JAWS (Job Access with Speech) Software

This is the widely used screen reader software programme. By using speech synthesizer it reads computer screen. Besides this it also provides Braille output. This software can be run through USB thumb drive on any computer without installation.

NVDA (Non Visual Desktop Access) Software

This is free open source screen reader software to read the text displayed on computer screen and easily usable by visually impaired person. It can be used without installation through a USB drive only and supports nearly 35 languages.

Windows Eyes

This software is very helpful for the blind and visually impaired users as it reads computer screen with speech synthesizer and provides Braille support also.

Zoom Text Magnifier-cum-Reader Software

This is an integrated magnifier cum screen reading software programme. It can read and enlarge all the text on computer screen. It is useful for low vision users also as it magnify the contents on computer screen and simultaneously read out in synthetic speech. This can be used through USB drive also to access the computers.

ORCA Software

This is an open source Linux based software that works as screen reader with additional features of Braille supportive and magnifier feature for low vision user also. It reads the text displaying on computer screen with speech synthesizer in many languages and output can be received in Braille if required.

Phone and Tablet Based Screen ReadersSoftwares

Besides this, some Phone and Tablet Based Screen Readers Softwares are also available through which phone and tablets can be used by visually impaired user easily to interact, receive, exchange and for sharing of information. For example: **Mobile Speak Software, BlackBerry Screen Reader Software, Nokia Screen Reader Software, TalkBack Software** and so on. Some of them are with inbuilt screen reader feature while some give option to download these applications as per individual user requirements.

Braille Translation Software

These softwares can convert the text in to Braille and as an output you can receive it on paper. This can be used to emboss or to print Braille on paper which one is suitable to visually impaired user for offline reading purpose. Thus by using in combination with screen reading software and requisite hardware the text in any language can be produced in to Braille language if asked or required by visually impaired user through these Braille Translation Software. Some softwares are as follows:

Shree-Lipi Braille Software for Indian Languages

This software is specially designed for Indian language fonts. It can translate the text of different Indian languages text in to Braille directly to get emboss Braille printout.

Duxbury Braille Translator (DBT) Software

It converts the regular print in to Braille with a formatting feature to automate the conversion process. It is also available in many Indian languages like Hindi, Gujrati, Punjabi, Tamil, Urdu, Bengali, Haryanvi etc. and it gives facility of direct typing in either Braille or print as per the requirement.

WinBraille Software

This free software has the same features with text editor to convert the text of various languages in to Braille and gives embosser printing.

Braille Master Software

This software is designed for text-to- Braille translation with a special feature to develop own Braille rules by the user. It is usable with Braille embosser and ink printer also for Braille printing in visual form. This software is useful for educators and researchers working and experiment with Braille code.

Optical Character Recognition (OCR) or Text Scanning Systems

This innovative technology helps in scanning of printed text and makes it readable by screen reading software or speech synthesizer by displaying on the computer screen. With the help of this system a visually impaired user can access the hard copy or printed resources of library independently. We may also get print out of desired text in Braille with Braille translation software. Text Cloner Pro and Open Book are good examples of such OCR scanning softwares. Some Indian language scanning softwares are also available for an example:Hindi OCR Software, Devnagri OCR Software, Tamil OCR Software etc.

Refreshable Braille Displays for Computers and phones

This is an electronic device with a tactile monitor to navigate and read information appearing on the screen in Braille. It is used as a portable part to attach to a computer or smartphone etc. with screen reader software to read the text displaying on screen and to access it in Braille also through the tactile monitor. Examples are – Basic Braille, Easy Braille and Brilliant Hardware.

Stand –Alone Braille Displays

These Refreshable Braille Displaysapparatus are also known as NoteTakers because these are used alone or independently without connection to a computer or smart phone. However, some models of these apparatus keep feature to be connected to a computer or smartphone through Bluetooth or USB. For example Brille EDGE 40 and BrailleNote Apex are good Note Takers.

OBR (Optical Braille Recognition) or Braille Scanning Software

This Braille Scanning Software application translates the Braille document in to sighted text after scanning and displays it on the computer screen and can be read through screen reading software. Thus, it is helpful for visually impaired as well as sighted user to read the Braille document to have conversation or discussion on some common topic and for those who are not trained to read Braille text.

DAISY (Digital Accessible Information System)

The DAISY system or Digital Accessible Information System is specially designed for visually impaired persons so that they could access information easily. The DAISY books can be accessed by visually impaired user very easily on computer, mobile phones or other DAISY players due to multiple file formats feature. These books are also known as digital talking books.

Conclusion

Thus, it can be concluded that the pr esent information age might prove as a golden period for libraries to become an organization to transform and enlighten the lives of persons with visual impairment by giving access to information or knowledge through technology.

It has been said that if information is available but not accessible by all information seekers this is more frustrating than having no information and due to this the first Law of Library Science remains incomplete. The day when Dr. Ranganathan established his dream as the first two fundamental laws of Library Science i.e. "Books are for Use and for All" these were purely dreams seemed to be impossible. But now these dreams may come true. The library web portal might be useful to provide access to library E-resources to maximum number of users (Shokeen 2009). But the users with visual impairment can also get benefit through it if the web portals are designed with assistive technology to make them capable to interact with such kind of users. As Adetoro (2010) surveyed that if the information material is transcribed into alternative formats only then visually impaired users can use it. However, the cost of these devices is too much to afford by a user independently but library can purchase it independently or in collaboration with other libraries to maximize the use of its resources and by visually impaired users too. Infact, this is the need of hour that library plan to work in this direction to give access to its resources to all including the users with visual impairment by using assistive technology.

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