

Adaptive Library Environment to Support Disabled Persons: Services and Strategies

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Abstract - The World Health Organization (WHO) found that 650mn of the world's population have some type of disability. As per UNESCAP-United Nations Economic and Social Commission for Asia and the Pacific, more than 400 million disabled people live in Asia, and most of them are not included in the various public activities. But, libraries as an integral part of our society, has to adopt adequate technology and services to cater the needs of disabled persons, such that they are provided with equal opportunities to avail library services. The present paper is a brief study about the possible methods that can be adopted in library environment to provide effective services to patrons with disability.

Keywords: Library services, Disability, Disabled persons, Equipment technology, Library environment, Library layout, Library policies

I. INTRODUCTION

Libraries are service institutions that are basically set up to cater the information needs of its patron. Modern technology has enabled libraries to become more and more user friendly. The impact of Information Technology on libraries has brought a tremendous drift from traditional concept of chained libraries to Library 2.0 (i.e. user-centered approach).

When we consider the whole library user community, even though their common demand is information, their level of perception and service expectations varies to great extent. Also, among the users there exist physical, attitudinal or behavioural barriers. Among the user community, sometimes inappropriate responses create barriers for disabled people. It has been realized that a majority of population with disabilities can lead a better quality of life if they have equal opportunities & services. The exclusion of people with disabilities arises from society's attitudes, practices and responses to their needs, rather than from any impairment people with disabilities may have.

Based on the Census 2001, there are 2.19crore persons with disabilities in India who constitute 2.13 percent of the country's population. This includes persons with visual, hearing, speech, motor and mental disabilities. 49% of disabled population are well-educated, 75% of persons with disabilities live in rural areas and only 34% are employed. There has been a growing recognition of

abilities of persons with disabilities and importance on streamlining them in the public based on their capabilities. So, the above mentioned barriers can be reduced by encouraging participation of disabled persons in public life and treating disabled persons more efficiently than other persons.

TABLE I DISABILITY-SPECIFIC DATA

Physical Disability	Visual Impairment	Hearing Impairment	Speech Disability	Locomotors Disability	Over lapping
41.32%	10.32%	8.36%	5.06%	23.04%	11.54%

Source: SARVEKSHANA, 36 and 47 rounds, National Sample Survey Organization, Department Of Statistics, Ministry of Planning & Program Implementation, Government of India.

The present paper emphasizes the concept of designing library services for the disabled users and suggests building a library environment that supports them in optimal usage of library services.

II. DISABILITY

A physical or mental deficiency that has a substantial and long-term adverse effect on the ability of disabled persons to carry out normal day-to-day activities.

A. Types of Disabilities

Types of disabilities include various physical and mental impairments that can hamper or reduce a person's ability to carry out his day to day activities. These impairments can be termed as disability of the person to do his or her day to day activities.

1. *Learning disability:* A learning disability is believed to be of neurological origin, which causes significant difficulties in perceiving and treating visual, auditory or spatial information.
2. *Speech impairment:* Speech impairments may range from problems with articulation or voice power to chronic hoarseness, complete noiselessness, stammering. Speech difficulties can also be linked with hearing impairment, cerebral palsy and brain injury. People with speech disabilities may be difficult

to understand and have difficulty in expressing ideas. Some of these difficulties can be managed by mechanical devices such as electronic speaking machines or computerized voice synthesizers

3. *Visual impairment*: Visual impairment or low vision is a severe reduction in vision that cannot be corrected with standard glasses or contact lenses and reduces a person's ability to function at certain or all tasks.
4. *Hearing impairment*: A person, who cannot hear at all, or could hear only loud sounds, or can hear only shouted words, or can hear only when the speaker is sitting in the front, or usually asking to repeat the words spoken or would like to see the face of the speaker.
5. *Asperger syndrome*: It is an autistic spectrum disorder caused by a neurological dysfunction. People with Asperger syndrome are likely to have the same range of intellectual skills as the general population, though they may have a number of other characteristics that make education less accessible to them.
6. *Psychiatric disability (Mental health conditions)*: Mental illness is a term that describes a broad range of mental and emotional conditions. The term 'psychiatric disability' is used when mental illness considerably interferes with the routine life activities, such as learning, communicating and working, among others.
7. *Mobility disability*: Mobility problems can arise from a wide range of causes and be long-lasting or temporary. Among the most common permanent disorders are amputation or severe spinal injury, partial or total paralysis, muscular dystrophy, types of arthritis, multiple sclerosis, head injury and cerebral palsy.

III. STRATEGIES TO ASSIST IN COMBATING DISABILITY

1. Provide assistance to users with a learning difficulty for identifying material that is essential to the achievement of satisfactory understanding of a subject.
2. Consider providing users with a reading program, annotated bibliography or annotated introduction keyed to central chapters of books.
3. Try to communicate in the preferred mode (for example, a taped record of a discussion may be necessary, rather than written materials)
4. Minimize the length and complexity of communications whenever possible by making use of communication devices wherever necessary.
5. Immediately after the important discussions / Seminars/ lecture, place the material in the Closed Reserve Section of the Library
6. If necessary, arrange facility like counseling or for Skills advisers. Additionally, in an academic setting assist the student in finding readers, note-takers or tutors, as necessary, or pair the student

with a sighted classmate or laboratory assistant. Moreover, ensure the person is aware of the appropriate supports through library.

7. Library staff's patient behavior is the most effective strategy in handling users with speech impairments. Speak with the same volume, pitch and pace as usual, maintain eye contact, encourage self-expression but do not pressure the user to speak, instead allow necessary time for the user to speak. Patiently respond to all appropriate attempts at communication. Be alert to the person's needs. Ask and find out what support the user may need, if required. But, don't assume that it is needed. Speak directly to the disabled user as you would to any other person - even if speech is impaired
8. Ensure that users with vision impairments are notified of novel library services and plans in an appropriate way. Ensure information is received in appropriate formats-enlarged copies of the required size, brailled information or audio tapes-for all important or recurrent information
9. Ensure the flexibility with returning dates for the borrowed resources.
10. Doors of the library should be kept closed or open, not partly open. Keep walking space clear of objects.
11. Library staff should be provided with sufficient training to serve disabled persons. Also, they should be aware of their own abilities and limitations. If they are in a situation that is causing difficulties or are unsure of how to assist a user, seek advice of the Disability Advisers or Personal Counselors

IV. EQUIPMENT TECHNOLOGY TO FACILITATE DISABLED USERS IN LIBRARY

The equipments developed for supporting disabled people enhance their lives, increase their independence and assist them in their daily activities.

Modern technological developments in this field have indeed turned to be a boon to disabled people.

It has offered a variety of high-tech products, augmentative and alternative communication devices, computer access equipment, and multilingual speech synthesis and voice recognition software, virtual on-screen keyboards, voice-enabled communication boards, and other tools adapted to the distinctive needs of the disabled.

Among these, there are equipments that can be of a great help to the disabled user to make optimal use of library services. So, an attempt has been made here to suggest and, or introduce few of such equipments belonging to six different categories:

A. Mobility

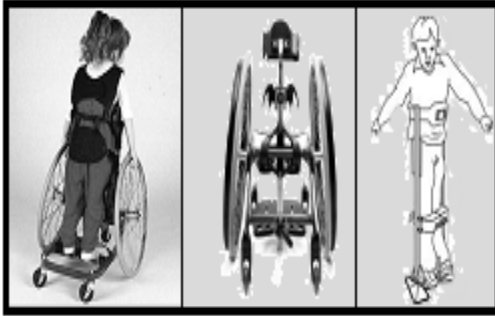


Fig.1 Standing equipments

Standing equipments are support systems that are designed to take some weight through legs (weight bear) and to stand upright.

It is suitable for person with fair to good upper body control and who are able to hold their head up independently.

Therefore, these supporting systems would be of a great help for the disabled user to independently browse the books through the shelves in library.



Fig.2 Stair lifts

The stair lifts have specialized seats suitable for users with disabilities. The stair lifts can be easily controlled by the user. They are available for both curved and straight staircases.

Lifts are important equipments required inevitably in a multi-storeyed library building, to access the library resources in different floors (apart from ground floor).

Stair lifts have plus point where in they can be self-operated. Unlike in other lifts, there may be a need for a staff to help disabled people operate the lifts.

B. Communication

1. *Communication aids with voice output*
2. *Communication Aids with direct selection*



Fig.3 Communication aids with direct selection

The communication aids with direct selection have symbols on buttons, cells or touch screens which generate speech output when pressed. The speech output may use digitized speech, synthesized speech or both. Digitized messages are created by recording spoken words directly into the communication aid which can be re-recorded as your needs change. Synthesized speech is artificial, computer-generated speech - the quality of which is far better than it used to be. These communication equipments help users with speech impairments to express their simple needs in the library.

C. Communication aids with keyboard and text-input



Fig.4 Communication aids with direct selection

The communication aids with text input via a standard or a touch screen keyboard will help the user with speech disability to type whatever they want to say and the message would be produced by text-to-speech. In a library environment, such speech tools play a vital role in supporting users with speech impairment to express their information need.

D. Telecare



Fig.5 Equipments for calling for help

These products, also called paging systems can raise an alarm or trigger a pager a short distance away, a range within the library. Thus they may alert the staff that he/she

requires help. Some are triggered when personal alarm button is pressed or, others are triggered by sensors such as a fire alarm. Since an emergency may happen at any time, it is important that, in a library, such equipments should be easily made available. Because, during emergency the disabled users will have great difficulty in evacuating the place immediately.

E. Furniture



Fig.6 Desks with manual height adjustment

The desks and tables with manual height adjustment can be easily accessed by users on wheelchair.

They also include features such as lipped tops, front cut-outs, braked castors, tilting tops and wheelchair access. The surfaces may be plastic, melamine or wooden.

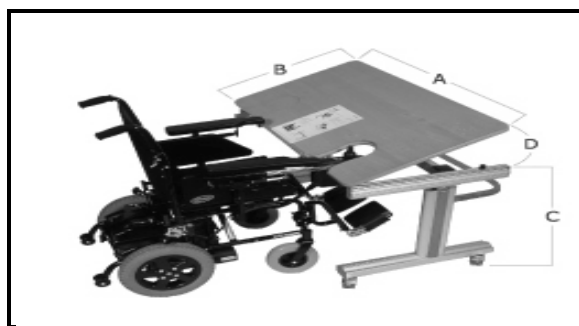


Fig.7Tilting tables

Tilting tables suitable for use with a chair or wheelchair. Comprises a metal frame which is manually adjustable in height via a winding mechanism and wooden table top with one lipped edge.

F. Computing



Fig.8 Touch Screen

A touch screen gives an alternate method of interacting with a computer which can be useful if disabled user have difficulty using a mouse or keyboard.

With a touch screen, selections and movements are made by pointing at the screen surface. In my view, there should be at least one touch screen system in the library to reduce the intricacy in communication between library staff and disabled users.

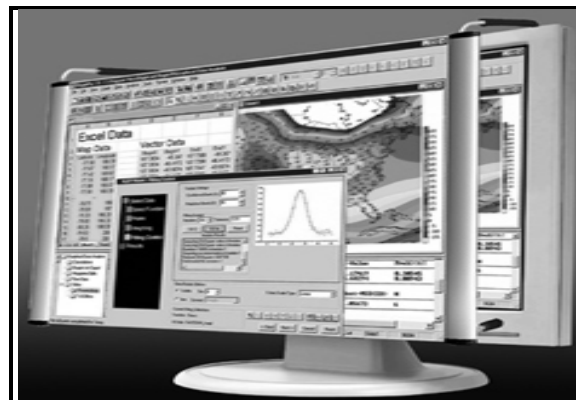


Fig.9 Screen magnifiers

The magnifying screens for attachment to computer monitors assist the users with visual impairment to read the content on computer screen more accurately.



Fig.10 Keyboards for users with visual impairment

Included here are keyboards with larger keys than standard ones. These large keys may have large print and/or high contrast (e.g. black letters on a white or yellow background) lettering. They may also have multi-colored keys to provide distinction between the different areas of the keyboard.

The keys on these keyboards may be laid out in the standard QWERTY format or alphabetically (ABC). Also included in this section are computer keyboards with Braille keys replacing the traditional QWERTY keyboard keys.



Fig.11 Mouse for disabled users

Generally when we buy a computer, it comes with a standard mouse and keyboard. These can be difficult to use for many people with disabilities - perhaps because of low vision, tremor or poor grip. The alternatives in using a standard mouse or keyboard include trackballs, switch adaptors and head operated mice.



Fig.12 Talking Labels

The ‘talking labels’ are devices that can provide audible messages stating what a specific item is, or what it contains. Thus, for instance, in a library pressing a button on the book may identify its title as "Five Laws of Library Science". Talking labels require set-up before use, this may involve pre-recording an audible message and sticking labels on the books to be identified or scanning the books' barcodes. Hence these devices can help users with visual impairment to identify the books while browsing through the library shelves.

V. LIBRARY MAP: BETTER ACCESSIBLE LIBRARY

The barriers for equality of access certainly exist. The library building with inadequate design and adaptation factors is one among them. The aim is to ensure that people with disabilities can approach, enter, navigate and use library setting as easily as other people.

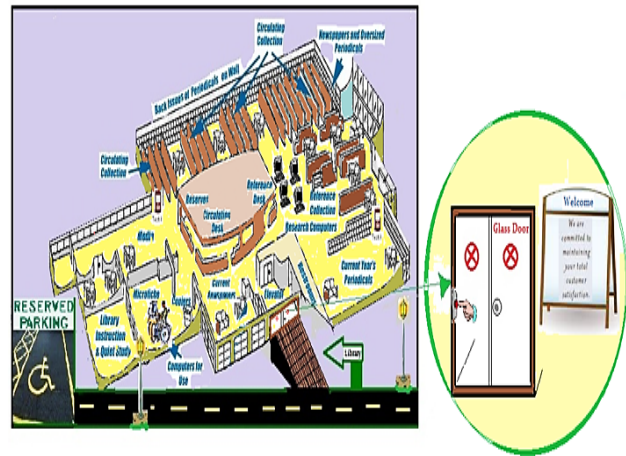


Fig.13 Accessible library for disabled users

The most necessary factors that make any library easily accessible by disabled users (most of them are indicated in fig.13) include:

1. Suitable parking bays within easy reach of the library
2. Adequately well-lit and signposted paths
3. Wheelchair accessible entrance, free from any obstruction
4. Doorway with a buzzer to alert attention or gain assistance
5. Signboard at the entrance to indicate that staff are willing to provide assistance to users
6. Sufficiently spacious aisles for navigation of wheelchair users
7. Low-level circulation & reference desks
8. Text-phone facilities
9. Height adjustable furniture
10. Easily accessible equipments within reachable height, e.g. photocopier
11. Seating with good back and arm support
12. Wheelchair accessible toilets
13. Slip-resistant floors etc.

VI. LIBRARY SERVICES FOR USERS WITH DISABILITY

In addition to standard library services, there is a huge demand for other value added services by our special users. When such support services are offered, these users will be on par with the normal users in delivering their tasks. This can indeed fill in the gap and make the library services almost complete.

Research in this area of study is very indispensable to make the reverie of optimum library services into reality. The aim should be to support equality for people with disabilities in access to and participation in library services. The library services / assistance that can be provided to people with disabilities are:

1. Helping to retrieve items from the library shelves.

2. Assisting to search for the information, for e.g. to find the document in Online Public Access Catalogue (OPAC).
3. Provide a separate closed reserved section in the library with special facilities for serving the disabled users.
4. Offer special borrowing conditions, where in there can be a proxy user who can borrow the library resources on behalf of the user with disability. Also provide homebound delivery of books for those who are eligible.
5. Round the clock enquiries and counseling cell should be offered. Motivating users to make effective use of services.
6. Separate caregiver personnel should be appointed in order to provide assistance at each and every step of service. Such person should assist in using library catalogs, copying machines etc.
7. Sign language interpretation for library programs should be made available.
8. Resources / materials regarding sign language instruction need to be provided.

VII. CONCLUSION

In the contemporary years, there have been immense positive changes in the perception of the society towards persons with disabilities. More and more libraries should consider providing equal services to users with disability to stamp out “information service divide”.

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