Information seeking behavior of teachers and practitioners of the disabled: implications for libraries

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ABSTRACT

In this study, the authors present the results of a survey conducted on the role of libraries to fulfill information needs and seeking behavior of teachers and practitioners working in the field of disability. The questionnaire was distributed among 355 teachers and practitioners from different fields of disability, (visual, hearing and speech language, mental retardation, and locomotor disability) in Odisha, India. In total, 335 questionnaires were retrieved which represents 84.81% response rate. Results reveal that the professionals though depend greatly on their respective library for seeking information and also commented that their library collection resources were very poor. The professionals also agreed that they do have not sufficient ICT skills to search online information resources and require training in locating, evaluating and managing the online information.

Keywords: Teachers of disabled children; Information use; Library use; India

INTRODUCTION

Social development is mostly influenced by the availability of information and knowledge, which are the most important factors in the progress and prosperity of a society. An individual's life is also influenced by the increasing development of the information society. The invention of the computers and internet related technologies have a growing impact on the social, political and economic transformation of the society. Thus, each and every individual has achieved his ultimate goal in life. The current technology is mostly accelerated in the educational sector, where the teachers and students can communicate and interact with each other both formally and informally. This study focuses on how the technology fulfills the information needs of the professionals, i.e. teachers and practitioners working in the field of disability, which is ultimately useful to students with disabilities.

According to Gregory (1997), disability is not just about being different (e.g. left-handed or red-haired), but about how the difference is evaluated. In our society a disability may be associated with an inability to perform efficiently certain tasks, which are of particular significance. The *World Health Organization* (2001) defines disabilities as "an umbrella term, covering impairments, activity limitations, and participation restrictions ... thus

disability is a complex phenomenon, reflecting an interaction between features of a person's body and features of the society in which he or she lives."

Today, ICT in education encompasses a range of rapidly evolving technologies such as desktop, notebook and handheld computers, digital cameras, local area networking, Bluetooth, the Internet, the World Wide Web, CD-ROMs and DVDs; and applications such as word processors, spreadsheets, tutorials, simulations, electronic mail (email), digital libraries, computer-mediated conferencing, videoconferencing, and virtual reality (Blurton, 1999). Therefore, the role of technology is very much inevitable to fulfill the information needs of every individual.

Information technology (IT) has brought drastic changes in the life of disabled children. IT provides various softwares and techniques to educate the pupil. The integration of IT in teaching is central in ensuring quality in the educational system (Wiki Educator, 2009). Teachers and practitioners adopt different technologies for students with hearing, vision, communication, physical and intellectual disabilities. They use specialized equipments such as computers with synthesized speech, Braille devices, optical character recognition, screen readers, note takers, interactive educational software programs, and audiotapes to assist the children. In this study the practitioners are categorized as occupational therapists (OTs), physical therapists (PTs), speech language pathologists (SLP), audiologists, orthotists and prosthetists.

Information seeking behavior is viewed by Wilson (1999) as a broad term encompassing the ways individuals articulate their information needs, seek, evaluate, select, and use information. In other words, information seeking behavior is purposive in nature and is a consequence of a need to satisfy some goal. With the advent of information need and seeking behavior research, different models were proposed for identifying different steps involved in this process. The stages of Kuhlthau's model (1991) are: a) initiation, b) selection, c) exploration, d) formulation, e) collection, and f) presentation.

An individual can fulfill his or her information needs from varying sources. For this reason the library is accepted as a place where one can get information from different sources. Libraries are dedicated to providing free and equitable access to information for all, be it in written, electronic or audiovisual form. ICT refocused the library as a key resource in schools, and is central to the technology planning. The role of librarians is to locate, coordinate, cache and catalogue Internet sites, and CD ROM based materials as well as print based materials. Librarians train staff and students in accessing, verifying, evaluating and annotating online information (Blackmore et al., 2003).

India's first library started functioning in 1985 with the aim of circulating literature to blind readers free of cost throughout the country. In a commendable operation, this met with considerable success. The library trained local residents in Braille who in turn transcribe books to Braille books for the blind in their spare time. Today's school libraries have seen a virtual transformation as compared to its earlier days. A variety of instructional materials has brought about a sea of change. Libraries situated at health care centers play a more meaningful role by contributing to the quality of life and the maintenance of human dignity, besides being a pathway to information (Rajyalakshmi, 2006).

LITERATURE REVIEW

McKnight and Peet (2000) reviewed literature on health care providers' information seeking behavior and found that they prefer colleagues, supervisors, and the Internet as information sources. Other common sources of information were professional meetings and continuing education courses, information in personal libraries, and subscribed journals. A study that looked at actual search terms entered into the OTseeker database found that most terms fell in the categories of diagnoses and interventions (Bennett, et al., 2006). No comparable data were available for SLPs although one study noted that SLPs reported needing clinical information related to patient care in almost a third of all cases *(Nail-Chiwetalu and Bernstein,* 2007). More than half of the SLPs also considered themselves very successful at finding answers to their questions and applying the information. Other studies have investigated the impact of library services on clinical practice. Marshall (1992) found that physicians reported "probably or definitely" implementing changes to patient care as a result of information provided by the library in 80% of cases.

Powell and Case-Smith (2003) surveyed the "Information literacy skills of occupational therapy graduates: a survey of learning outcomes". Approximately 69%f the 85 respondents prefer to use information from their colleagues, supervisors, and the internet rather than the journal literature while 26% have searched MEDLINE or CINAHL since they graduated. Although 42% of the respondents found formal library instruction sessions useful, there are no statistical correlation between this and the respondents who preferred to use the journal literature or use professional libraries.

Westbrook (2001) carried out an information needs analysis of faculty staff at a private non-profit special school in Texas. The aim of the study was to "identify and delineate the professional information needs of faculty with particular reference to their curricular support issues". Two main methods were used in the analysis namely focus group interviews and questionnaires, the latter being constructed according to results elicited by the former. The data were analyzed "using simple descriptive statistics" and identified various faculty information needs. These include a greater variety of high-interest books for students with low reading ability; equipment needs with more VCRs, televisions and (presumably electronic) access to the library catalogue from the classroom; various electronic resources including web site lesson-plans; news updates related to professional issues; and current contents notification. The findings of the study also resulted in a set of recommendations useful for strategic planning.

In another specific study, the Royal National Institute for the Blind (1999) investigated the financial information needs of blind and sight-impaired people. It was found that a large proportion of people who were receiving their financial information in standard print would prefer large print. However, younger participants were more likely to want to read Braille or a computer disk. Paul (2000) states that one of the barriers encountered by students with disabilities is the teachers' lack of knowledge about the disability and the types of technology related services and accommodations they require. Research has also shown that inadequate knowledge about disabilities leads to negative attitudes towards persons with disabilities.

Bohannon (1990) conducted semi-structured telephone interviews with 27 physical therapists (PTs) and categorized their information-seeking style as reactive, proactive or a

combination of both. The study suggested that information seeking was often the result of an acute information need (i.e.reactive) but many PTs continually look for information (i.e. proactive). PTs claimed to use between three to eleven types of sources each on a regular basis for accessing information.

AIMS AND OBJECTIVES OF THE STUDY

The objectives of this study are to:
(a) Analyze different types of information sought by teachers of the disabled in Odisha, India
(b) Identify different channels they use to obtain information
(c) Find out various sources and reference tools used in libraries
(d) Determine the government policies and legislations related to the disabled
(e) Find out various advantages and benefits of using assistive technologies by professionals to educate students with disabilities.

METHODOLOGY

A structured questionnaire was designed for data collection and a total of 395 questionnaires were distributed to teachers and practitioners in the field of disability in Odisha, India. A total of 355 questionnaires (84.81%) were returned. Among the 335 respondents, 75 (23%) professionals are working for the visually impaired, 104 (31%) professionals are teachers and SLPs, working for the hearing impaired, 58 (17%) professionals are working for mentally retarded children, and 98 (29%) professionals (physiotherapists, occupational therapists, orthotists and prosthetists) are working for locomotor disability. From 335 professionals, 193 are males (57.6%) and 142 are females (42.4%).

Table 1: Professional Qualifications of the Respondents

| No. | Professional Qualifications | Different fields of Disability and Number of Professionals | | | | TOTAL |
		Visually Disabled (75)	Hearing and Speech disabled (104)	Mentally Disabled (58)	Physically Disabled (98)	
1	Certificate	3	1	0	4	8
2	Diploma	42	39	27	11	119
3	B. Ed (Spl)	25	41	27	3	96
4	M. Ed	5	2	4	0	11
5	BPT	0	0	0	26	26
6	BOT	0	0	0	12	12
7	BPPOE	0	0	0	11	11
8	BASLP	0	13	0	0	13
9	MASLP	0	8	0	0	8
10	MPT	0	0	0	20	20
11	MOT	0	0	0	11	11
	TOTAL	75	104	58	98	335

A total of 119 respondents have diplomas followed by 96 with B.Ed. (Special) and 11 have M.Ed degrees (Table 1). Most of these professionals are special teachers handling people such as the blind, hearing disabled, mental retardation and physically disabled. The practitioners reveal their professional qualifications as speech and language therapists (13 with Bachelors in Speech Language Pathology and 8 with Masters in Speech Language Pathology), physiotherapists (26 with Bachelors in Physiotherapy and 20 with Masters in Physiotherapy), occupational therapists (12 with Bachelors in Occupational Therapy and 11 with Masters in Occupational Therapy), prosthetists and orthotists (11 with Bachelors in Prosthetic and Orthotic Engineering). The remaining professionals possess the following credentials, 4 with certificates, 11 with diplomas, and 3 with Bachelors of Education degrees.

The information sought from the questionnaire included respondents' professional qualification, computer literacy and skills, frequency of searching online information, usage of software programmes, frequency of using the library, types of information sought, sources of information and reference tools used.

FINDINGS

(a) Types of Information Sought by Respondents

The respondents seek information for different purposes. Table 2 indicates that the respondents seek information mainly to prepare for their class notes (233), to become generally aware of information related to the disabled (228), to write their lesson plans (226), to find out topics which will be discussed in class (202), to prepare answers to questions (178), to write reports (149), and to find information to support their research assignments (114). Table 2 also shows that the highest number of professionals who seek information for writing lesson plans are those involved with the blind (71), hearing and speech disabled (83), and mentally disabled (45). A higher number of respondents involved with the physically handicapped need information for their research work (66) and the lowest number who needed information for this purpose are those involved with the visually disabled (5), hearing and speech disabled (27) and mentally disabled (16).

Table 2: Main Purpose of Seeking Information by the Respondents

No	Purpose of Seeking Information	Different Types of Disability and Number of Professionals				
		Visually Disabled (75)	Hearing and Speech Disabled (104)	Mentally Disabled (58)	Physically Disabled (98)	Total (335)
1	Lesson plan writing	71	83	45	27	226
2	Prepare the class notes	69	80	36	48	233
3	Report Writing	26	59	32	32	149
4	General Awareness	68	67	35	58	228
5	Research Work	5	27	16	66	114
6	Prepare answers to questions	50	64	27	37	178
7	Discussions	48	63	36	55	202
8	Other purpose	0	0	0	0	0

(b) Type of Channels Used to Seek Information

Table 3 shows that the main channels respondents use to obtain information are articles or books (307), talking to co-workers or experts (270), attending conferences or workshops (270) and emailing peers (124). The least number of professionals (72) scan journal titles or get information through searching electronic databases (81).

Table 3: Channels Used by Respondents to Seek Information

No.	Different channels used for Information seeking	Different types of Disability and Number of Professionals				
		Visually Disabled (75)	Hearing and Speech Disabled (104)	Mentally Disabled (58)	Physically Disabled (98)	TOTAL (335)
1	Conversing with Co-workers or other experts in Institute	68	74	54	74	270
2	E-mailing co-workers	25	33	10	56	124
3	Discussion lists	21	27	15	33	96
4	Reading email alerts	20	16	7	49	92
5	Scanning journal titles	7	26	4	35	72
6	Reading articles /books	74	98	50	85	307
7	Attending conferences /workshops	60	83	49	78	270
8	Searching Electronics databases	10	32	4	35	81

(c) Sources of Information Used in Libraries

Out of a total of 335 respondents, 79% (263) indicated that they use libraries regularly while 21% (72) did not. The respondents used different sources provided by their libraries are indicated (Figure 1). The respondents fulfill their information needs from mainly from textbooks (312, 93.13%), reference books (298, 88.96%), newspapers (259, 77.31%), magazines (228, 68.06%) and journals (168, 50.15%). Very few use conference proceedings, e-books, and e-journals. The low usage of electronic resources may be attributed to respondents lacking skills in handling such resources. When asked on the usefulness of getting trained in searching, locating, evaluating and managing online resources, almost all respondents indicated yes (324, 97%) and they indicated needing training programmes.
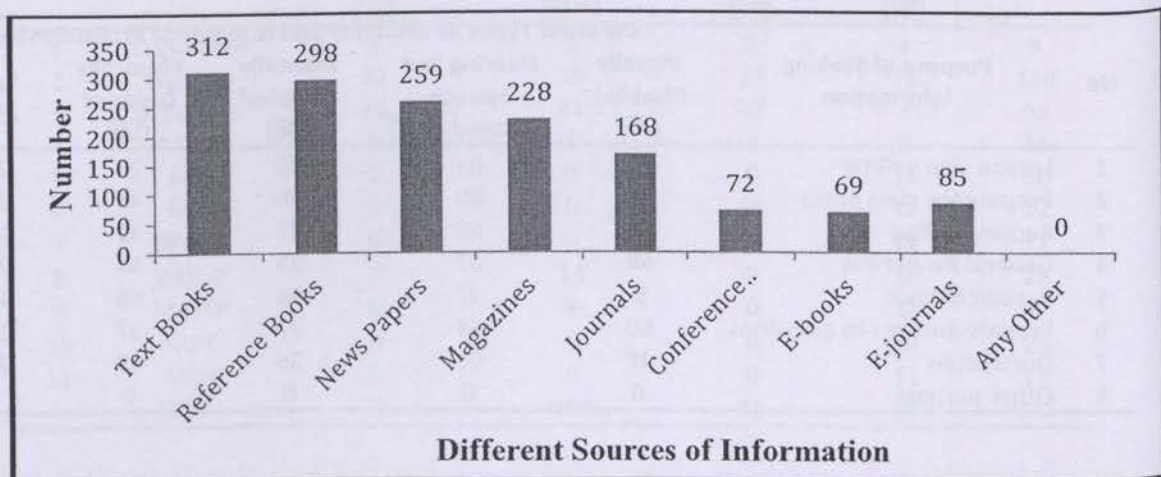

Figure 1: Sources Used by Teachers and Practitioners of the Disabled

(d) Reference Tools Used for Searching Information

Figure 2 shows the various reference tools used by respondents when searching for information. Respondents do refer to dictionaries (321, 95.82%), encyclopedias (167, 49.85%) and directories (122, 36.42%). Very few indicated referring to thesaurus (53, 15.82%) and gazetteers (44, 13.13%). Popular dictionaries referred to are the *Oxford Dictionary, Oxford Braille Dictionary, Bhargav's Concise Dictionary, Technical Dictionary, American Sign Language Concise Dictionary, Dictionary of Hearing, Dictionary of Communication Disorder* and several others.
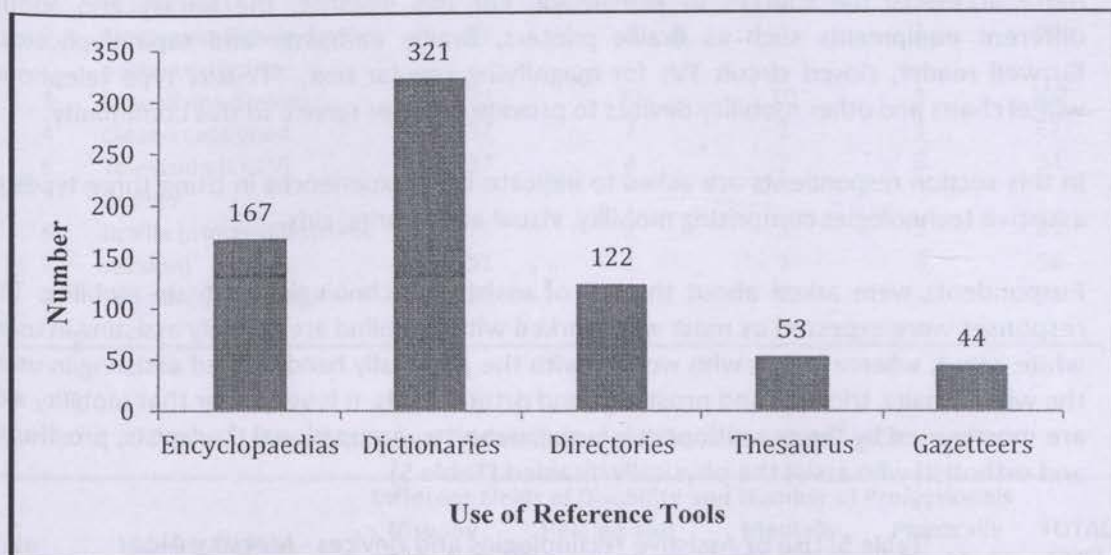

Figure 2: Awareness about Reference Tools Used

(e) Knowledge on Government Policies and Legislation of Respondents

The Government of India has enacted policies, procedures and different legislations to uplift persons with disabilities. This includes sources such as Persons with Disabilities Act, 1995; The National Trust Act, 1999; The Rehabilitation Council of India Act, 1992; and the National Policy on Education, 1986.

Table 4: Respondent's Knowledge in Government Policies and Legislation

No	Knowledge in Different Areas	Different Fields of Disability and Number of Professionals				TOTAL (335)
		Visually Disabled (75)	Hearing and Speech Disabled (104)	Mentally Disabled (58)	Physically Disabled (98)	
1	Special Education Policies and Procedure	70	78	56	32	236
2	Federal Disabilities Legislation	49	38	12	26	125
3	Curriculum Adaptation	67	66	38	9	180
4	Assistive Technology	37	48	13	44	142
5	Research Development	5	29	9	58	101

Table 4 indicates that a high number of respondents (236, 70.5%) are aware of special education policies and procedures and this is especially so among 56 out of 58 respondents who teach the mentally disabled. About 50% of respondents are aware about disability

legislations, curriculum adoption and assistive technologies that are available. The respondents are less aware about research developments related to the disabled.

(f) Respondents' Use of Assistive Technologies and Devices

Technology plays an essential role for teachers and practitioners of students with disabilities. Technology makes some of the routine teaching task easier. Technology helps in reading books, journals, newspapers and hearing the spoken words. The assistive technological aids help the disabled people to have a better level of independence and more access to the sources of knowledge. For this instance, the library also adopts different equipments such as Braille printers, Braille embosser and tape duplicators, Kuzweil reader, closed circuit TVs for magnifying regular text, TTY-text type telephone, wheel chairs and other mobility devices to provide a better service to this community.

In this section respondents are asked to indicate their experiences in using three types of assistive technologies comprising mobility, visual and hearing aids.

Respondents were asked about the use of assistive technologies that aid mobility. The responses were expected as most who worked with the blind are actively assisting in using white canes, whereas most who worked with the physically handicapped assisting in using the wheel chairs, tricycles and prosthetic and orthotic aids. It is very clear that mobility aids are mostly used by the practitioners (physiotherapists, occupational therapists, prosthetist and orthotist) who assist the physically disabled (Table 5).

Table 5: Use of Assistive Technologies and Devices - Mobility Aids

No	Mobility Aids	Different Fields of Disability and Number of Professionals				TOTAL (335)
		Visually Disabled (75)	Hearing and Speech Disabled (104)	Mentally Disabled (58)	Physically Disabled (98)	
1	Vehicles	1	1	9	20	31
2	Wheel Chairs	2	15	48	85	150
3	White Canes	75	6	4	39	124
4	Tricycle	0	15	20	60	95
5	Prosthetic	0	11	9	69	89
6	Orthotic	0	6	5	74	85

Table 6 indicates the visual aids used by the respondents. About 107 respondents have used audio textbooks for teaching, 84 used Braille texts, 81 used Braillers, 68 used electronic Braille devices, 67 used magnifying devices and 56 used Braille printers. Only 54 respondents are familiar with CCTV and 31 with the Speech synthesizer. These responses indicate that teachers who are handling the visually disabled are reported as the highest users of assistive visual aids and devices.

Table 7 indicates the use of hearing aids and devices amongst teachers and practitioners who work for the disabled. The highest users of this category of devices are teachers and STs who handle the hearing and speech disabled compared to teachers and practitioners in the other category of the disabled. The result indicates that use of assistive technology and devices (hearing devices) is the highest with 167 respondents using hearing aids for students for teaching and treatment, 106 respondents use tactile devices,78 use the Loop

Induction System, 73 use the FM system, 31 use cochlear implants, 21 helped in the Interactive Videodiscs and only 3 respondents helped in using real time captioning.

Table 6: Use of Assistive Technologies and Devices - Visual Aids

No	Visual Aids	Different Fields of Disability and Number of Professionals				
		Visually Disabled (75)	Hearing and Speech Disabled (104)	Mentally Disabled (58)	Physically Disabled (98)	TOTAL (335)
1	Braille texts	75	2	4	3	84
2	Electronics Braille devices Audio textbooks	63	3	1	1	68
3	Magnifying devices	73	23	10	1	107
4	Closed captioned	57	7	2	1	67
5	Television (CCTV) Brailler	37	4	7	6	54
6	Braille printer (Electronic	71	2	3	5	81
7	version)	51	1	1	3	56
8	Speech Synthesizer	29	1	0	1	31

Table 7: Use of Assistive Technologies and Devices - Hearing Devices

No	Hearing Devices	Different Fields of Disability and Number of Professionals				
		Visually Disabled (75)	Hearing and Speech Disabled (104)	Mentally Disabled (58)	Physically Disabled (98)	TOTAL (335)
1	Hearing aids	0	104	42	21	167
2	FM System	2	59	8	4	73
3	Tactile device	66	28	8	4	106
4	Cochlear implants	0	28	0	3	31
5	Real time Captioning	0	1	0	2	3
6	Interactive videodiscs	0	15	4	2	21
7	Loop Induction System	0	77	0	1	78

When asked about the respondents' knowledge about the software programme related to the fields they teach or practice, 72% (240) indicated they have no knowledge and 28%(95) indicated having a good knowledge. Some of the software indicated by respondents include Doctor Speech, Hearing Aid Analyzer, *VAGHMI (Voice & speech system)*, Gross Motor Ability Estimator (GMAE), ILeap, Job Access with Speech (JAWS), Shruti-Drishti, Win Braille, Screen Access For All (SAFA), BERA, SUPERNOVA, Open Book 8.0, Braille-to-text, Text-to-Braille and Speech-to-text.

CONCLUSION AND RECOMMENDATION

The main findings of this study show that teachers and practitioners teaching the disabled mainly seek information to plan lessons, prepare for class notes, and obtain general awareness. The professionals used mainly books and articles when seeking information, and they also discuss with colleagues and other experts in their institutions as well as

attend conferences and workshops. However, the information seeking mechanism related to ICT is very poor such as emailing co-workers, reading email alerts, scanning journal titles and searching electronic databases. Most teachers are aware of special education policies and legislations related to the disabled but needs to be made more aware of new developments and research in this area. In this context the library can play a part in inclusion programmes to create such awareness.

The findings also revealed that most of the teachers and practitioners use libraries regularly. The respondents are very much aware about text books, reference books, newspapers, magazines and print journals since their libraries provide these resources. Both teachers and practitioners are unfamiliar with e-journals and e-books and their use of these resources is low. The respondents are aware about dictionaries and they also use different specialized dictionaries. All respondents indicated that they would like to receive training on how to search, locate and manage online resources to support their information needs. In this respect the libraries could provide such training and help fill up this skills gap. Use of software and hardware by the teachers is a big problem due to lack of computer and also information searching skills.

There is a vast amount of information available on the Internet and it is very difficult for an individual to locate and evaluate useful information over the Internet. As information that are available on the Internet grew, it is essential to organize the information so that the professionals acquire training on how to locate, evaluate and manage the information. Assistive technology (AT) is a specialized technology (hardware and software) that are used by people with disabilities to adapt so that specific tasks can be performed. The use of these technologies allows teachers to focus on the required curriculum while meeting the individual needs of the students. The results show that the respondents are well acquainted with the ATs to some extent.

In India, the National Institute for the Visually Handicapped (NIVH) hosts three national libraries that are capable of accommodating the reading interest of visually impaired persons, scholars, researchers and professionals working in the field of visual disability. A rich anthology of literature concerning general and disability specific subjects in print, Braille and talking books, adorn the bookshelves of the three libraries. Keeping in view the limited access of the visually impaired people to public libraries and to realize the aim of the Sarva Siksha Abhiya, the Braille and Talking Book Library has opened up library extension service counters in different parts of the country. There are now 35 extension counters (nivh.in). The seven national institutes for the disabled in India provide a well equipped library with an advanced collection of resources and technology oriented library services to its users.

Based on the above findings the following recommendations are drawn:
- Lbraries should upgrade their facilities and collections to serve the teachers and practitioners in order to meet their information needs for class preparation, clinical practices and improve personal competencies by using the available resources.
- Digital information literacy programmes to train both teachers and practitioners on searching and managing online resources should be arranged.
- Libraries should assist the teachers and practitioners to use proper hardware and software and online access to related resources to fulfill the information needs of the professionals and the students.

- The State and Central governments should take necessary measures to provide computer and Internet facilities to use ATs, software and other data tools at low cost to teachers and practitioners working for the disabled.
- Separate library buildings, required collections and necessary equipment facilities should be provided for use by the disabled
- Library buildings must be designed or modified with necessary infrastructure to facilitate the movement of users in wheelchairs and walking areas for the physically challenged.

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