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Use of Assistive Technology in blind schools of West Bengal: A comparative study

Sudipta Pradhan
spradhan.lisc@gmail.com

Mahadev Samanta
mahadev.lisc@gmail.com

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Sudipta Pradhan

Ph. D. Research Scholar, Department of Library and Information Science, Vidyasagar University,

Midnapore – 721102. E-mail: spradhan.lisc@gmail.com

And

Mahadev Samanta

Assistant Librarian, Indian Institute of Management, Calcutta,

Joka, Kolkata- 700104. E-mail: mahadev.lisc@gmail.com

Abstract: - The present study compares use of assistive technology for the visually challenged students provided by the special schools in the Medinipur division under the Districts of Bankura, Purulia, Paschim Medinipur, Jhargram and Purba Medinipur and that of the special schools in the Burdwan division under the districts of Birbhum, Purba Bardhaman, Paschim Bardhaman and Hooghly for providing services to the visually challenged students of secondary and higher secondary level. The study reveals that the institutes meant for the visually challenged should increase access, availability and funding for assistive technology through efforts and initiatives. Only one institute in Medinipur division i.e. Vivekananda Mission Asram (VMA) uses sufficient Braille resources and Assistive technology. Among the institutes in Burdwan division Asansol Braille Academy uses sufficient Braille resources and assistive technology. It has been revealed from the study that due to improper information about the assistance from the Government level (both Central and State) these institutes are suffering from shortage of funds. Also shortage of teaching faculty in these institutes is another hindrance in the overall development of the visually challenged students. The school authorities must take initiatives in introducing assistive technologies to visually-challenged students and they should get proper training in using it. There is great need of development and implementation of laws, regulations, policies, practices and procedures or organizational structures that promote access to Assistive Technology devices and services because people with disabilities have to stop being underrepresented in libraries.

INTRODUCTION

The state of West Bengal has issued the West Bengal Persons with Disabilities Rules 1999 to implement the provisions under the Central Persons with Disabilities Act 1995. West Bengal is an eastern state, which according to the West Bengal Census 2011, is the fourth most populous state in India. The state of West Bengal in India has a population of 91,276,115, spread over an area of about 88.752 sq. km. and literacy rate of 76.26 percent. The total differently able population is about 2,017,406 and visually challenged population is 4,24,473 among which 2,23,325 are males and 2,01,148 are females(Census Data, 2011).

The Census of India 2011 shows that six to seven percent of India's population is differently abled and it is estimated that this number will increase due to poverty, malnutrition, emergence of new diseases, drug abuse, road accidents, armed conflict, violence, poor health care and service, and other factors leading to disability. The World Bank Report (2007) predicts that between 1990 and 2020, there would be a doubling of disabled population due to injuries and accidents, and more than 40 percent increase may be witnessed in the share of disability due to non communicable diseases. This compels us to think that India should have a comprehensive policy for differently abled people to ensure their access to higher education, which should be based on a multi-faceted approach to make them realize their full individual potential and maximize their social and economic contribution to the society (Mitra, Shukla and Sen, 2014).

Visually challenged people are those who suffer from either of the following conditions:

(a) Total absence of sight.

(b) Visual acuity not exceeding 6/60 or 20/200 in the better eye with correcting lenses.

(c) Limitation of the field of vision subtending an angle of 20 degree or worse (Roodhooft, 2002).

The main causes of blindness are cataract, trachoma, AMD and glaucoma which account for more than 70 % of the global blindness. Other causes of blindness are childhood blindness, onchocerciasis

(river blindness), diabetes retinopathy, corneal opacities, ocular injuries, leprosy and visual loss (Mittal, n.d.).

Students with visual impairments face unique challenges in the educational environment. Not only must they be able to access text information across all curricular areas, but they also need to be able to participate fully in instruction that is often rich with visual content. Assistive technology is one way of supporting them in that process. Consideration of assistive technology by the Individualized Education Program (IEP) team is required for all students with disabilities under the Individuals with Disabilities Education Act (IDEA), and when deemed appropriate, it must be provided and supported by the local education agency. This is to ensure that students with disabilities have the tools necessary to fully access and participate in the curriculum, with the greatest possible level of independence. Even more important, use of assistive technology helps prepare students for independent living, vocational pursuits, or higher education. "Assistive technology" refers to a range of tools, devices, and strategies that allow a student to accomplish a task that they would otherwise be unable to do, or would have difficulty accomplishing effectively. Assistive technology can be simple or complex. Examples of low tech tools for students with visual impairments might include enlarged text or raised line paper, while high tech tools may encompass digital tools that "read" to the student, connect to a braille display, or even incorporate GPS (Tebo, n.d.).

REVIEW OF THE RELATED LITERATURES

A literature review is an evaluative report of studies found in the literature related to a selected area. The review should describe, summarize, evaluate and clarify this literature. It gives a theoretical basis for the research and helps to determine the nature of the research. Review of related studies helps to bring clarity and broaden the knowledge base in the subject area (Boote and Beile, 2005).

Rosen suggests that a variety of enabling technologies has made library operations at the American Foundation for the Blind accessible to persons who are blind or visually impaired (Rosen, 1991).

Koulikourdi highlighted the current use of assistive technologies (AT) in Greek libraries, unveiled the relationship between AT suppliers and library authorities and achieved a better understanding of companies' and libraries' perspective (Koulikourdi, 2008).

Koganuramath & Choukimath enumerated the salient features, special services, special resources, assistive/adaptive technologies and futuristic plans of a state-of-the-art 'Learning Resource Centre for the Visually Impaired Students' to foster inclusive education (Koganuramath and Choukimath, 2009).

Roy & Bandyopadhyay described the barrier free environment in university libraries with proper equipment's, technologies and infrastructural facilities and need based services for the visually disabled (Roy and Bandyopadhyay, 2009).

Zia & Fatima identified the digital library services for visually impaired (VI) students, studying in the University of Karachi who have a keen interest in using digital information through digital libraries because they were aware of the importance and usefulness of digital information and wanted to get benefit of that in their education (Zia and Fatima, 2011).

Wong & Cohen investigates the barriers and challenges to the use of assistive technologies by students with visual impairments in Singapore in a special school context. Findings reveal limited content knowledge amongst teachers in assistive technology resulting in inconsistencies and inadequacies in the delivery of instruction (Wong and Cohen, 2011).

Lucky & Acheba suggested the information service delivery to the visually impaired. This study centers on meeting the reading needs of persons with visual impairment through various assistive technology devices (Lucky and Acheba, 2013).

Andreas Kleynhans & Fourie identified the importance of clarifying terminology such as visually impaired and related terms before embarking on accessibility studies of electronic information resources in library contexts. They contributed to the clarification of terminology essential for the selection of participants in accessibility studies, as well as enriching the literature on accessibility for visually impaired people in the context of LIS (Andreas Kleynhans and Fourie, 2014).

Mitra, Shukla & Sen highlighted the scenario of academic library services for the differently abled students being provided by some university libraries in India. They also highlighted the special equipments, infrastructure and services that the libraries are expected to provide for the disabled pupil (Mitra, Shukla and Sen, 2014).

Ramasesh & Jagadish highlighted the use of various assistive technologies by the visually challenged users of the Mysore University Library (Ramasesh and Jagadish, 2014).

OBJECTIVES

The objectives of the study are:

▪ To depict the different centres which provide information services for the visually challenged students.

▪ To identify the existing collections, infrastructure and services offered by the centres for the visually challenged.

▪ To explore the utilization of Assistive Technologies by the visually challenged students in these centres.

IMPORTANCE

Information services to the general users and to that of the special users differ in their context. To serve the users with special needs like that of visually challenged users we need special type of information services. So this study which focuses mainly on the Assistive Technology use for the visually challenged students of Medinipur division (Bankura, Purulia, Paschim Medinipur, Jhargram and Purba Medinipur districts) and Burdwan division (Birbhum, Purba Bardhaman, Paschim Bardhaman and Hooghly) in West Bengal will be important not only from services point of view but also will help to identify the information needs of these students which in turn will help to improve the information services for them.

SCOPE AND COVERAGE

The scope of this study focuses on the activities of all the Schools which function in the Medinipur division under the Districts of Bankura, Purulia, Paschim Medinipur, Jhargram, Purba Medinipur and Burdwan division under the districts of Birbhum, Purba Bardhaman, Paschim Bardhaman and Hooghly for providing services to the visually challenged students of secondary and higher secondary level. However the study revealed that no such special school for the visually challenged is found in Jhargram district. The organizations in the rest of the above- mentioned districts have been surveyed to identify the information services provided by these institutions to the visually challenged students. The following

schools provide services to these students (Source- Mass Education Extension & Library Services Department, WB and West Bengal Directory of Blind Institute).

Medinipur Division

Bankura District:

1. BankuraSammilani Blind School (BSBS), Kenduadihi, Bankura.

Purulia District:

1. ManbhumDristiPratibandhiSikshyatan (MDPS), Vivekananda Nagar, Purulia.

PaschimMedinipur District:

1. ShyamchakPratibandhiKalyanSamity (SPKS), Shyamchak, PaschimMedinipur.

2. AsharAloo Handicapped Society (AAHS), Maratala, PaschimMedinipur.

3. SATHI (An institution of Education & Training for Deaf & Blind) (SATHI), Khakurda, PaschimMedinipur.

4. Nimbark Math PratibandhiSikshaNiketan (Residential school for the Visually Handicapped) (NMPSN), Sankarpur, Daspur, PaschimMedinipur.

PurbaMedinipur District:

1. MoynaRamkrishnayan Association (MRA), Moyna, PurbaMedinipur.

2. Vivekananda LoksikshaNiketan (Special school for the VH & MR) (VLN), Faridpur, PurbaMedinipur.

3. TaporparaPratibandhiKalyanGami Kendra (TPKGK), Pataspur, PurbaMedinipur .

4. NimtouriTamlukUnnayanSamity (NTUS), Kulberia, PurbaMedinipur.

5. Vivekananda Mission Asram (Residential school for the Blind) (VMA), Chaitanyapur, PurbaMedinipur.

Burdwan Division

Birbhum District:

1.   Sri Sri Ramkrishna Satyananda Dristideep Sikshaniketan (SSRSDS), Rampurhat, Birbhum

2.   Sri Aurobindo Institute for Sightless (SAIS), Suri, Birbhum.

PurbaBardhaman District:

1.	Burdwan Blind Academy (School Section) (BBA), Sripally, Purba Bardhaman.

2.	Nazrul Smriti Dristihin Vidyalaya (NSDV), Gangpur, Purba Bardhaman

PaschimBardhaman District:

1.	Asansol Braille Academy (ABA), Asansol, PaschimBardhaman.

Hooghly District:

1.	Louis Braille Memorial School for the Sightless (LBMSS), Makhla, Hooghly.

2.	Jirat Astha Welfare Society (JIAWS), Jirat, Hooghly.

METHODOLOGY

The study is basically based on field survey in order to examine the trends of services with the existing conditions of institutions providing services for visually challenged students. Data has been collected by visiting the schools meant for visually challenged students in the above mentioned districts. All the eleven schools meant for the visually challenged students (some of them also include other physically challenged and mentally retarded students) situated in these districts are surveyed. Questionnaire method, interview method and observation method has been used for data collection. Two sets of questionnaire have been prepared to obtain the data. One set is meant for the organization to get an idea of the functioning and services provided by these organizations to the visually challenged students. The head of the institution is interviewed for getting answers to specific queries. The other set is meant for the students to get information on the services availed by them from these organizations. As these students are visually challenged so the questions were asked in the form of interview and kept unstructured for their opinion to be expressed freely.

Sample size has been restricted to 10% of the total population of students from these organizations. This 10% has been selected in some organizations according to the ranks obtained in their class examinations while in some other organizations where ranking system is not followed there the most active students are selected as sample. Likert-type questionnaire has been prepared to collect data on their satisfaction from the library services. The researchers have personally interviewed the students to understand their information needs and thereby get an idea of their satisfaction levels from the information services. Therefore this research work will use multiple methods for collecting data.

FINDINGS

The study revealed that Medinipur division is divided into Bankura, Purulia, Paschim Medinipur, Jhargram and Purba Medinipur districts and Burdwan is divided into Birbhum, Purba Bardhaman, Paschim Bardhaman and Hooghly districts. A total of eleven institutions have been found from Medinipur division and seven institutes have been found from the Burdwan division where information services are provided for the visually challenged students.

Table 1: Sample study

Medinipur Division			Burdwan Division		
School / Institute	Total no. of Students	Sample size of students	School / Institute	Total no. of Students	Sample size of students
BSBS	53	5	SSRSDS	30	3
MDPS	73	7	SAIS	54	5
SPKS	6	1	BBA	38	4
AAHS	15	2	NSDV	15	2
SATHI	17	2	ABA	35	4
NMPSN	66	7	LBMSS	95	10
MRA	22	2	JIAWS	4	1
VLN	43	4			
TPKGK	11	2			
NTUS	35	4			
VMA	36	17			
Total	**515**	**52**	**Total**	**271**	**29**

The data was collected through physical survey conducted in the 11 institutes in Medinipur division and 7 institutes in Burdwan division following questionnaire method and general interview method for the organization head and general interview method and observation method for the visually impaired

students. The institutional head is interviewed for getting answers to specific queries. Table 1 shows the total population of students to be 515 and 271 in Medinipur and Burdwan division respectively. 10% students from each institute have been selected as sample. The sample size is therefore 52 and 29 respectively.

Table 2: Library resources available for the visually challenged students

Sl. No.		Name of the Institutes	Library resources			
			Braille book	Talking book	Audio book	Assistive technology
1	Midnapore Division	BSBS	Yes	No	No	Yes
2		MDPS	Yes	No	Yes	No
3		SPKS	No	No	No	No
4		AAHS	Yes	No	Yes	Yes
5		SATHI	Yes	No	Yes	Yes
6		NMPSN	Yes	Yes	Yes	Yes
7		MRA	Yes	No	No	No
8		VLN	Yes	No	Yes	Yes
9		TPKGK	Yes	No	No	No
10		NTUS	Yes	No	No	Yes
11		VMA	Yes	Yes	Yes	Yes
1	Burdwan Division	SSRSDS	Yes	Yes	Yes	Yes
2		SAIS	Yes	No	Yes	Yes
3		BBA(S.S)	Yes	No	Yes	Yes
4		NSDV	Yes	No	No	No
5		ABA	Yes	No	Yes	Yes
6		LBMSS	Yes	Yes	No	Yes
7		JIAWS	Yes	No	No	Yes

Table 2 highlights the library resources available in the eighteen institutions. It was found that Braille book is not present in only one institute in Medinipur division. All other institutes have Braille books. On the other hand two institutes in Medinipur division and two institutes in Burdwan division have Talking books in the library. Six institutes have Audio books and Assistive technology is used in seven institutes in Medinipur division. Four institutes have Audio books and Assistive technology is also used in six institutes in Burdwan division All types of information resources are available in Vivekananda Mission Asram and Nimbark Math Pratibandhi Siksha Niketan (Residential school for the Visually Handicapped) in Medinipur division and Sri Sri Ramkrishna Satyananda Dristideep Sikshaniketan in Burdwan division.

Table 3: Library facilities available for visually challenged students

Name of the Institute	Educational Standard	No of enrolled students	No. of Braille books	Type of resources	Software used
Medinipur Division					
BSBS	Class I – Class VI	53	~310	Braille book, Geometric kits, Braille slate and Stylus, Taylor's frame & type, Tactile Map, Alphabet board, Braille Board.	JAWS
MDPS	Class I – Class VIII	73	~435	Braille book, Large Print readers, Geometric kits, Braille slate, Taylor's frame & type, Tactile Map, Alphabet board, Braille Board.	No software
SPKS	Class I – Class IV	6	NIL	Braille stick, Braille slate	No software

AAHS	Class I – Class VI	15	~80	Braille books, Sound recorders, Taylor frame & type. Types Algebra, Types arithmetic, Magnifiers, Stylus, Computers	JAWS
SATHI	Sponsored by WB Govt. till Class I to Class VI and Non-Sponsored till Class VIII	17	~95	Braille books, Sound recorders, Magnifiers, Computer, Eye-p, Braille slate, Taylor frame & type. Types Algebra, Types arithmetic, Stylus, Geometric Kits, Signature guide	JAWS
NMPSN	Class I – Class VIII	66	~320	Braille books, Large print readers, Talking books, Sound recorders, Magnifiers, Computers	Braille Transcribe software
MRA	Class I – Class IV	22	~98	Braille books, Large print readers, Sound recorders, Magnifiers, Taylor frame & type, Abacus, Geometric kits, Types	No software
VLN	Class I – Class IV	43	~180	Braille books, Large print readers, Sound recorders, Magnifiers, Taylor frame & type. Types Algebra, Types arithmetic, Stylus Computers, Manual Braille Writer	JAWS

TPKGK	Class I – Class IV	11	~55	Braille books, Geometric kits, Braille slate, Taylor frame	No software
NTUS	Class I – Class X	35	~175	Braille books, Sound recorders, Magnifiers, Taylor frame & type. Types Algebra, Types arithmetic, Stylus Computers	JAWS
VMA	Class I – Class XII	174	~885	Braille books, Talking book, Large print readers, Electronic books, Sound recorders, Magnifiers, Journals, CD - DVD Player, I-Pod system, internet services, Braille & Ink print study materials, Computers	JAWS, MAGIC, DIRECT BRAILLE, DOT DIRECT BRAILLE, WINE BRAILLE
Burdwan Division					
SSRSDS	Class I – Class VIII	30	~600	Braille book, Geometric kits, Braille slate, Tailor from & type, Tactile Board, Alphabet Board, Braille Board, Brailler and Talking Books	Braille Transcribe software
SAIS	Class I – Class X	54	~1008	Braille book, Geometric kits, Braille slate, Braille cane, Tailor from & type, Tactile Board, Tactile map, Brailler and Eye p	No software

BBA (S.S)	Class I – Class VIII	38	~400	Braille book, Geometric kits, Braille slate, Braille cane,Tailor from & type, Tactile Board	No software
NSDV	Class I – Class VI	15	~200	Braille book, Geometric kits, Braille slate, Braille cane, Tailor from & type.	No software
ABA	Class I – Class VI	35	~700	Braille book, Braille cane, Braille slate, Abacus, Taylor frame, Types Algebra, Types arithmetic, Stylus, Geometric Kits, Signature guide, Magnifier, Long cane, Tactile Diagram set, Measuring Tactile type,	NVDA, JAWS, DUXBURY, SPARSHA
LBMSS	Class I – Class X	95	~1200	Braille book, Geometric kits, Braille slate, Braille cane, Tailor from & type, Tactile Board, Tactile map, Brailler, Magnifier, Talking book	No software
JIAWS	Class I – Class VIII	4	~30	Braille book, Geometric kits, Braille slate, Braille cane, Tailor from & type, Tactile Board, Abacus, Magnifier, Sound recorder, Large print books	No software

Table 3 gives statistics of total number of Braille books and also shows the total resources along with its types. Braille books are available in all the institutes except Shyamchak Pratibandhi Kalyan Samity (SPKS). Among the institutes Vivekananda Mission Asram (VMA) has the richest collection both in terms of Braille books and also the total no. of resources in Medinipur division and Asansol Braille Academy (ABA) has the richest collection in Burdwan division. VMA has many modern types of equipment like that of CD - DVD Player, I-Pod system, internet services, and Braille & Ink print study materials for the visually challenged, unavailable at the other institutes of Medinipur and Burdwan division. This may be due to the educational standard of this school which is till class XII and is also conducting D. EL. ED. training unlike other schools which are either till class IV or till class VI or class VIII or class X. But, for this particular study only the students till class XII standard are considered.

A software called JAWS which is a computer screen reader program for Microsoft Windows that allows the visually challenged to read the screen either with a text to speech output or by a refreshable Braille display is used by most of the institutes except Manbhum Dristi Pratibandhi Sikshyatan (MDPS), Shyamchak Pratibandhi Kalyan Samity (SPKS), Nimbark Math Pratibandhi Siksha Niketan (NMPSN), Moyna Ramkrishnayan Association (MRA) and Taporpara Pratibandhi Kalyan Gami Kendra (TPKGK). Some other softwares like Braille Transcribe software which transforms any printed document to Braille document is used only by Nimbark Math Pratibandhi Siksha Niketan (NMPSN). Only Vivekananda Mission Asram (VMA) uses MAGIC for Screen Enlargement which enables screen reading, DIRECT BRAILLE which when typed is directly displayed in Braille characters on screen, DOT DIRECT BRAILLE which is quite similar to DIRECT BRAILLE but with some added features and WINE BRAILLE which converts the normal written material into Braille fonts in addition to JAWS software in Medinipur division. On the other hand only one institute in Burdwan division i.e. Asansol Braille Academy (ABA) uses NVDA (Non Visual Desktop Access) for reading the text on the screen in a computerised voice, JAWS, DUXBURY Braille Translation software which converts text to Braille for Braille printers and SPARSHA software that enables conversion of Indian languages text as input in Unicode and can convert it into Braille.

Table 4: Use of library resources

Sl. No.	Library resources	Total no. of Sample size	Usage of resources by students	% of usage	Total no. of Sample size	Usage of resources by students	% of usage
		Medinipur Division			**Burdwan Division**		
1	Braille Slate & stylus		20	38.46		12	41.38
2	Braille Cane		45	86.54		20	68.97
3	Braille Books		49	94.23		27	93.10
4	Abacus		7	13.46		9	31.03
5	Taylor frame & type		21	40.38		18	62.07
6	Geometric kits		25	48.07		20	68.97
7	Tactile Board	52	20	38.46	29	16	55.17
8	Alphabet Board		24	46.15		14	48.28
9	Types of Algebra		32	61.54		11	37.93
10	Types of Arithmetic		35	67.31		11	37.93
11	Magnifiers		21	40.38		6	20.69
12	Signature Guide		25	48.07		15	51.72
13	Eye-p		2	3.84		3	10.34

14	Tactile map		3	5.77		6	20.69
15	Sound recorder		34	65.38		9	31.03
16	Talking books		16	30.77		8	27.59
17	Large print books		11	21.15		1	3.45
18	Electronic books		11	21.15		0	0
19	Brailler		16	30.77		12	41.38
20	Manual Braille Writer		2	3.84		0	0
21	BRL XEROX		8	15.38		0	0
22	T.V with R.C.I.		8	15.38		0	0
23	Computers		22	41.31		9	31.03
24	Software		16	30.77		4	13.79

Table 4 shows the different types of library resources used by visually challenged students in the eighteen institutions. It was found that the usage of Braille books is maximum (94.23%) followed by Sound recorder (65.38%) and Magnifiers (61.54%), Geometric Kits (48.07%), Computer (42.31%), Taylor frame & types (40.38%), Large print readers (40.38%) and Braille Slate & Stylus (38.46%) are used by sufficient students in Medinipur division. On the other hand Braille books (93.10%), Geometric kits (68.97%), Sound recorder (31.03%), Eye-p (10.34%), Talking books (27.59%) and Brailler (41.38%) are used by students in Burdwan division.

CONCLUSION

According to Census 2011, out of the total disabled population, 19% of the population are visually challenged in India. In West Bengal out of the total disabled population, 21% of the population are visually challenged. Education is the actual necessity for the overall socio-economic development of the people in any country and India is no exception. Article 21A of the Constitution of India guarantees education as a fundamental right and Section 26 of the Persons with Disabilities Act, 1995 ensures free and compulsory education to all children with disabilities up to the minimum age of 18 years. Sarva Shiksha Abhiyan (SSA) launched by the Government has the goal of eight years of elementary schooling for all children including children with disabilities in the age group of 6-14 years by 2010. Children with disabilities in the age group of 15-18 years are provided free education under Integrated Education for Disabled Children (IEDC) Scheme (Social Statistics Division, 2017). As schools are the centres for elementary education for all the individuals in the country therefore schools meant for the challenged population needs real attention. Challenged students face more difficulties than most of the people to meet their information needs. This study on the assistive technology available for the visually challenged students in blind schools in Medinipur division and Burdwan division depicts the status of the libraries in these schools.

The institutes meant for the visually challenged in both the divisions should increase access, availability and funding for assistive technology through efforts and initiatives. Only one institute in Medinipur division i.e. Vivekananda Mission Asram (VMA) and one institute in Burdwan division i.e. Asansol Braille Academy (ABA) uses sufficient Braille resources and Assistive technology. It has been revealed from the study that due to improper information about the assistance from the Government level (both Central and State) these institutes are suffering from shortage of funds. Also shortage of teaching faculty in these institutes is another hindrance in the overall development of the visually challenged students.

For the improvement of the library services trained library professionals are needed which is missing in these institutes. Only in two institutes in Medinipur division, VMA and AAHS and one institute in Burdwan division i.e. ABA, trained librarians are recruited to run the library.

All this institutes it has been noticed that Current Awareness Service and Selective Disseminatin of Information services are not provided time to time. Altering service, Title announcement service, Career guidance service and Vocational training programme are provided to the students.

So the overall scenario looks quite disappointing and needs attention from the governmental level. Raising awareness for education and information among the visually challenged population is needed to make them independent in the future.

REFERENCES

Andreas Kleynhans, S., & Fourie, I. (2014). Ensuring accessibility of electronic information resources for visually impaired people: The need to clarify concepts such as visually impaired. Library Hi Tech, 32(2), 368-379.Available at: http://dx.doi.org/10.1108/LHT-11-2013-0148

Boote, D. N., & Beile, P. (2005). Scholars before researchers: On the centrality of the dissertation literature review in research preparation. Educational researcher, 34(6), 3-15. Available at: http://www.library.cqu.edu.au/tutorials/litreviewpages/

India. Census 2011. Available at: http://censusindia.gov.in. Viewed on 21 December 2014.

Koganuramath, M. M., & Choukimath, P. A. (2009, October). Learning resource centre for the visually impaired students in the universities to foster inclusive education. In International Conference on Academic Libraries (ICAL), Delhi University, Delhi.

Koulikourdi, A. (2008). Assistive technologies in Greek libraries. Library hi tech, 26(3), 387-397.

Lucky, A. T., & Achebe, N. E. E. (2013). Information service delivery to the visually impaired: a case study of hope for the blind foundation wusasa, Zaria (Nigeria). Research Journal of Information Technology, 5(1), 18-23.

Mitra, S., Shukla, A., & Sen, B. K. (2014). University library services for the differently-abled people: A pilot study. Library herald, 52(3), 251-268.Doi. 10.5958/0976-2469.2014.01408.0

Mittal, S. R. (n.d.) Visual Impairment. *Rehabilitation Council of India.* 357-412. Available at: www.rehabcouncil.nic.in/writereaddata/vi.pdf

New Delhi. Social Statistics Division. 2017. Disabled persons in India: a statistical profile 2016. Ministry of statistics and programme implementation, 107.

Ramasesh, C. P., & Jagadish, J. (2014). Trends in extending information services for visually challenged library users.*Changing Role of Academic Libraries in the Quality Enhancement in Higher Education,* 384-395.

Roodhooft, J.M.J. (2002). Leading causes of blindness worldwide. Bull Soc Belge Ophtalmol, 283, 19-25.

Rosen, L. (1991). Enabling blind and visually impaired library users: Inmagic and adaptive technology. Library hi tech, 9(3), 45-61.

Roy, P. C., & Bandyopadhyay, R. (2009). Designing barrier free services for visually challenged persons in the academic libraries in India. *In International Conference on Academic Libraries (ICAL-2009),* 626-629.

Tebo, L. R., & Ed, M. OTR/L. *ATP (n. d.).* A Resource Guide to Assistive Technology for Students with Visual Impairment‖. *Capstone project, Bowling Green State University*.

Wong, M. E., & Cohen, L. (2011). School, family and other influences on assistive technology use: Access and challenges for students with visual impairment in Singapore. *British Journal of Visual Impairment*, *29*(2), 130-144.

West Bengal. Directory of Blind Institutes. Available at: http://www.webelmediatronics.in/brlads/directory_WB.htm

West Bengal. Mass Education Extension & Library Services Department. Available at: http://www.meels.gov.in

Zia, M. W., & Fatima, F. (2011). Digital library services for visually impaired students: A study of the University of Karachi. Pakistan Journal of Information Management and Libraries, 1(12).