DESIDOC Journal of Library & Information Technology, Vol. 36, No. 2, March 2016, pp. 93-97 DOI: 10.14429/djlit.36.2.9803

Use of Library Technology and Services by the Visually-impaired and the Blind in the University of Khartoum, Sudan

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ABSTRACT

This study investigates the existing library and information services, facilities and support available for the visually-impaired and blind students at the University of Khartoum in Sudan.It also highlighted the specific difficulties faced by these students in satisfying their information needs. The study sample consisted of 20 subjects out of a total population of 45 visually-impaired and blind students, constituting 44.44 % of the study population. Literature review was also used to collect data about some aspects of the study topic, such as the different types of technologies available for enabling the visually-impaired and blind to benefit from library services. The study revealed that the services and facilities available at the University of Khartoum are inadequate. A number of recommendations that are expected to improve the situation are suggested, including the need of the visually impaired and blind students for more training on using the available assistive technologies.

Keywords: Library services, visually-impaired, assistive technologies, tactile tools, braille books

1. INTRODUCTION

The term 'special needs' in the context of library services relates to the needs of people who cannot make use of conventional libraries and library materials and services. Bhattacharya & Roy[1] outlined four categories of people with special needs which include-mobility impairments; blindness; low vision; hearing or speech impairments and specific learning disabilities. The visually-impaired and blind people constitute an important segment of the society all over the world. Hence, they should have access to knowledge and information on an equal basis with the other segments of the society. According to the World Health Organisation[2], there are about 285 million visually-impaired people worldwide, out of which 39 million are blind and 246 with low vision. These statistics also indicate that 90 % of the world`s visually-impaired population live in developing countries.

1.1 Library and Information Services for Visually-impaired in University of Khartoum

The higher education scene in Sudan has changed dramatically during the last two and a half decades. More and more new government and private universities and colleges were established throughout the country. The intake of students to the already existing universities has also highly increased, including intake by the oldest and largest university in the country, the University of Khartoum (UofK). This change was started in the year 1990 with what was called then the 'Higher Education Revolution' and continued throughout the last two and a half or so decades. The increase in the number of higher education institutions and students intake was also accompanied by the introduction of new academic programmes and modes of higher education, such as undergraduate diplomas and distance learning programmes. This change in higher education policy resulted in enabling a large number of students, including students with special needs, to join the higher education institutions. At the University of Khartoum, there has been a steady increase in the number of visually-impaired and blind students, particularly in the humanities and social sciences faculties and schools. This necessitated the provision of suitable information resources and services that would cater for the special needs of this segment of the student population.

1.2 Assistive Technologies for the Visually-impaired and the Blind

Due to their special physical situation, the visually-impaired and blind people need some special requirements to fulfil their need for information and knowledge. This has been facilitated by the current advances in ICT.

1.2.1 Computer Technologies

Suomi & Sachdeva[3] maintain that there is little differentiation between technologies in general and

Received 10 December 2016, revised 2 March 2016, online published 28 March 2016

assistive technology; all technology is assisting humans in their life. However, in health care the term 'assistive technology' has often a special meaning. They point out that assistive technology devices enable individuals with disabilities to participate in society as contributing members.

The American Foundation for the Blind (AFB)[4] lists a number of technologies which are designed specifically to help people with vision loss or other disabilities. These include the following broad categories:

(i) Screen readers for blind individuals

These are software programmes that allow blind or visually-impaired people to read texts displayed on the screen with a speech synthesizer. It is the interface between the computer`s operating system, its applications, and the user. The IFLA Library Services to people with Special Needs Section[5] defines a screen reader as: 'A software application that identifies and interprets what is displayed on a screen and then represents it through text-to-speech, sound icons, or a Braille output device. Screen readers are potentially helpful for people with visual limitations, people who are illiterate, or people with learning disabilities'. Screen readers are the primary way by which visually-impaired people can access the internet as noted by Williamson & Schauder[6].

(ii) Screen magnifiers for low-vision computer users

These enlarge texts and graphics on a computer screen. A screen magnification system is loaded into the computer`s memory and functions similarly to a magnifying glass moving over a page, following the cursor and magnifying the area around it.

1.2.2 Tactile Tools

There are also a number of tactile tools for reading print. These tools mainly utilise the Braille system which is considered to be the primary means of reading print for the visually-impaired. It is a system of raised dots arranged in a specific pattern. These include the following:

(i) Braille books—Braille books are appropriate for users who have both visual and hearing impairment.

(ii) Large printed materials—these are documents printed in large fonts for use by partially sighted users.

(iii) Braille translation software, and Braille embossers—Braille translation software is a programme that converts print material in electronic format into Braille. These programmes must be used with a braille embosser to produce material in hard copy braille. The braille embosser is a device that resembles a printer and which produces materials in braille instead of in ink as in the case with the printer.

1.2.3 Auditory Tools

Babalola & Yacob[7] listed a number of auditory tools for reading printed material, these include:

(a) Talking books-these are audio versions of books that could be recorded on cassettes, CD-ROM, DVD and on the internet as e-books.

(b) Talking newspapers- audio recordings of news articles in the dailies.

According to Getz[8], talking books are preferred by the majority of the visually-impaired and the blind.

2. LITERATURE REVIEW

Library services available worldwide for the visually-impaired are inadequate.The IFLA Declaration of Fundamental Rights to Access and Express Information[9] states that library services for the visually-impaired and the blind even in relatively developed and prosperous countries are under developed compared to public libraries, and that most provide less than 5 % of the materials published in their countries. Pillai[10] suggests that Indian universities should establish a learning centre for the blind and visually-impaired with all facilities such as assistive technologies, online materials and audio studios. Koganuramath & Choukimath[11] further outline the purposes of such learning centre in India as: (a) To provide 'Equity of Access' to the visually-impaired students; (b) To improve the 'access audit' of national higher education system; (c) To provide access to the academic information sources; (d) To explore the views of constituent universities about 'disability information services'; (e) To explore the utiliation of 'Assistive Technologies' and; (f) To train the library staff in providing information services to the visually-challenged students.

Ajobiewe[12] comments on library services for the visually-impaired in Nigeria and states that it is quite evident that a few institutions scattered throughout Nigeria produce reading and information materials for the visually-handicapped students. He further indicates that these services are mainly for the visually-handicapped in schools and few adults who become blind later in life.

3. OBJECTIVES

The objectives of the study are to:

(a) Highlight the technologies and facilities available for providing visually-impaired and blind students with their information needs

(b) Investigate existing library and information services for the visually-impaired students at the University of Khartoum

(c) Highlight the difficulties faced by visually-impaired and blind students at the University of Khartoum in using the library to satisfy their information needs.

4. METHODOLOGY

This study has adopted the qualitative approach and followed the case study method to gain information about the research topic. Data is collected by employing two sets of semi-structured interviews. An interview

was done with those working at the library which was devoted to the visually-impaired and blind students at the University of Khartoum, and the other one with a sample of these students to investigate their opinion of the information services they are provided with. The students sample consisted of 20 subjects out of a total population of 45 visually-impaired and blind students, constituting 44.44 % of the study population. Literature review is also used to collect data about some aspects of the study topic.

5. DATA ANALYSIS AND DISCUSSIONS

Library services for visually-impaired students at the University of Khartoum were established in 2003 by the inauguration of the "Audio Library". This library was initially supported by the Deanship of Students who led the initiative for establishing a library dedicated for the visually-impaired and blind students at the University of Khartoum. The library consists of two separate rooms one is used as a listening room equipped with a number of tape recorders, whereas the second room is used as a computer laboratory equipped with computers loaded with some assistive technologies. There are three staff members working at the Audio Library. The Librarian who holds a Master's degree in Library and Information Science (MLIS); an Assistant Librarian with a Postgraduate Diploma in LIS, and a Library Attendant with a School Leaving Certificate.

The total number of visually-impaired and blind students at the University is currently 45 students, enrolled mainly in the social sciences and humanities faculties and schools. Table 1 shows distribution of visually-impaired students across the University of Khartoum.

Table 1. Distribution of visually impaired students in the University of Khartoum

Faculty/school	No. of students	Percentage
Education	17	(37.78 **%)**
Arts	15	(33.33 **%)**
Economics	05	(11.11 **%)**
Business administration	05	(11.11 **%)**
Law	02	(4.44 **%)**
Science	01	(2.22 **%)**

5.1 Library Equipment

Table 2 shows the number of different library equipment available in the Audio Library. In addition to the equipment available within the Audio Library, each student is offered a digital voice recorder for his/her personal use. However, most of the students interviewed expressed their inability to fully get advantage of these recorders because of their lack of knowledge to operate these gadgets. Students were also asked about their opinion of whether the equipment in the library is sufficient to enable them to satisfy their information needs. The majority 19 (95%) affirmed that it was not sufficient.

Table 2. Library equipment

Unit	Total
Tape recorder	8
Computer	5
Scanner	1
Magnifier	1

5.2 Library Services Offered

The Audio Library of the University of Khartoum provides the following services and facilities to the visually-impaired and blind students of the university:

- Listening to audio tape cassettes which consist mainly of recorded academic material;
- Reading of books and journals written in Braille;
- Copying of cassettes and disks;
- Recording of written lectures notes; this activity is carried out by volunteers;
- Conducting of training courses in computer skills and Braille;
- Listening to talking books (service started in late 2009);
- Browsing the internet via the Ibsar screen reader programme;
- Borrowing services, mainly of cassettes and material written in Braille.

5.3 Mode of Access to Library Services and Facilities

Students were asked about how they have access the library materials and facilities. Most of them conveyed that they do so by the assistance of the library staff as illustrated by Table 3.

The vitually-impaired students at the University of Khartoum are in need of more training on how to use the library facilities by themselves.

Table 3. Mode of access to library materials and facilities

Mode of Access	Frequency	Percentage
By themselves	5	(25 %)
By assistance from library staff	15	(75 %)

5.4 Knowledge of Braille

The students were asked whether they know how to read and write in Braille, and a little over half of the number of the students 11 (55 %) stated that they can read or write in Braille. This was attributed to the fact that they had already learned Braille before they joined the university. These students complained that they are in need of an embosser, which is lacking in the Audio Library, to be able to print out materials in Braille. Nine (45 %) students didn't have knowledge of Braille.

5.5 Browsing the Internet

Some of the interviewed students stated that they

browse the internet at the library by using the Ibsar screen reader, and that they mainly browse the internet for academic purposes. However, the majority stated that they needed more training in how to use the computer in general and the Ibsar screen reader in particular.

6. RESULTS AND FINDINGS

- The library offers a range of services to its users with assistance from the library staff and student volunteers.
- There is an apparent shortage of library and technological equipment in relation to the number of visually-impaired students at the University of Khartoum.
- There are only five PCs in the Audio Library loaded with the screen reader Ibsar. The reason given for this small number of PCs with this important software is that it is a commercial software offering one license for one computer.
- Although all visually-impaired and blind students are offered digital voice recorders, they prefer using the more traditional tape recorders. This is due to the fact that they consider the digital ones as complicated and difficult to operate.
- The library buildings consist of two separate halls, one of these halls is located on the upper floor of the Main Library building, which makes it very difficult for blind students to access that hall.

7. CONCLUSIONS

- More training courses should be conducted for both library staff and students in using computers and surfing the internet via the screen reader available at the library so as to enable these students to have easy access to the information they need. Students should also be trained on how to use the digital voice recorders they are offered.
- Training courses should also be conducted in using the Braille system to enable all students to benefit from the available material in Braille.
- The library administration should take advantage of the available free and open source screen reader programmes such as the NVDA and Microsoft's Window-eyes. This will enable a larger number of students to have access to the internet.
- Both halls of the Audio Library should be located on the ground floor for easy accessibility by users.
- The Main Library of University of Khartoum should work in collaboration with the Deanship of Students to supply the Audio Library with sufficient equipment, including an embosser, which is a necessary tool for enabling students to print materials in Braille.

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