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Digital library services for visually impaired students: A study of the University of Karachi

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Abstract

The aim of this study was to identify the digital library services for visually impaired (VI) students, studying in the University of Karachi. The VI students have the same information needs as that of sighted people but digital information services are not available for them. The VI students have been facing problems in searching information on the internet because they can not use computer and internet without the support of a helper or some specific software or hardware. The researchers collected data by interviewing VI students. The findings show that the VI students had 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.

Keywords: Visually impaired persons; Digital libraries; Students; University of Karachi

Introduction

Digital library is a strong aspect of modern librarianship. It has fastened rate of the dissemination of information world wide without the limitations of distance and time. Professionals are doing their best to improve digital library services day by day to meet the intellectual needs of their users. While searching literature on this topic we came to know that previously people rarely did such a study related to digital library services for VI users. As far as Pakistan is concerned, VI people are totally neglected in the context of digital library. There are very limited resources and services for them.

Visually impaired people have an equal right to use information available on the internet. They also have the same information needs as sighted people have. Digital libraries offer audio facility for visually impaired people. The core idea of this service is to disseminate information equally to those people who have visual disability. On the basis of this idea, we conducted this study to identify the digital information needs of the VI students of the University of Karachi and facilities available to them at digital library access points in the university.

Objective of the study

The objective of this study was to identify the facilities provided by digital libraries for visually impaired students at different access points of the University of Karachi. This study will be helpful to plan the provision of such facilities at the internet access points of the university so that the VI students can use the digital material to fulfill their information needs.

Research questions

The following research questions were set for this study:

1. Are there any digital information services available for visually impaired students at the internet access points of the University of Karachi?
2. What are the information needs regarding digital library of the VI students of the University of Karachi?

Hypothesis

The available digital information services at access points of the University of Karachi are not enough to meet the needs of VI people.

Methodology

The population for this study was visually impaired students studying in the University of Karachi. Twenty-nine VI students were found studying in Masters and Bachelors programs. Interview was used as a tool for the collection of data. The interviews were based on a questionnaire which consisted of open ended as well as close ended questions.

Previous studies

Up till now, no research has been conducted on the services of digital libraries for visually impaired students in any Pakistani university. Therefore, this is the first effort to conduct a study on this topic. A few researches have been conducted on the digital library access problems and usage of computer and the internet. Akasha (2007) found that the HEC Digital Library was providing information resources for the benefit of faculty, researchers and students but the users were not fully aware of the use and usefulness of the digital library.

NoVA, Non Visual Access to Digital Library, was a UK based project concerned to provide digital library services to visually impaired people, equally as sighted people, to fulfill their information needs. This project was funded by the Council of Museums, Archives and Libraries. NoVa found that sighted people searched and used information easier than VI people. The people who were VI but possessed enough sight to be able to see through magnification got information easier than completely blind people. Another study conducted by the Nielsen Norman Group, estimates that “the Web is about three times easier to use for sighted users than it is for users who are blind or who have low vision" (Coyne & Nielsen, 2001, p. 5). Findings from this study also revealed that the people using screen magnification had a higher success rate than those using a screen reader. Comparisons of time spent on searching during the NoVA usability tests show that visually impaired people had to spend more time on searching for information than sighted people. However, time can vary considerably as the design of a site can reduce the time needed if a number of simple design features are included, such as a logical and meaningful menu, a search facility and reduction in the number of links per page.

Defining “DIGITAL LIBRARY” for this study

A digital library collects, organizes, preserves and disseminates information in digital format. The collection of a digital library consists of full text, metadata and multimedia sources. Borgman (2000) defines digital library as: “digital libraries are a set of electronic resources and associated technical capabilities for creating, searching and using information. In this sense they are an extension and enhancement of information storage and retrieval system that manipulate digital data in any medium and exist in distributed networks.”

A digital library should not be just a digital information repository but it must be a growing, interactive and collaborative center between users and information. Digital libraries have the same purpose, functions and goals as traditional libraries like collection development and management and the fastest access to information. The difference between digital libraries and traditional libraries is that digital libraries deal only with digital material and provide all the services online via the internet. On the other hand traditional libraries need physical existence of users to use the library and to access the required information. A traditional library provides services to users if they physically visit to the library.

Digital libraries for visually impaired users

The visually impaired people are equally important part of our society and they have equal rights to get all information produced in the world, but they require special services and facilities to get information. Sometimes libraries provide some software packages and sometimes audio aids, to facilitate these special users. The blind and visually impaired students have had a very restricted access to information. The reason is that the production of formats readable to them (such as Braille and audio) is

rather slow as well as expensive and thus only a small amount of published works has been made available in the adjusted formats. However, since digital formats have come into being, the situation has significantly been changed for the better, primarily because of the possibility to use text-to-speech software that reads aloud digital text on computer screen. It enables visually impaired person to access digital information at the same time as any one else and at no additional cost. Digital libraries on the World Wide Web are particularly important in the context, both if they contain full text documents or secondary information resources (Golub, 2002).

Access points for digital library in the University of Karachi

Dr. Mahmud Hussain Library

Dr. Mahmud Hussain Library provides services to both the faculties of science and arts. There is a computer section consisting of 30 computers, where students are provided with the internet facility and access to digital libraries but there is no facility available for VI students.

Latif Ebrahim Jamal National Science Information Center (LEJ)

The LEJ National Information Center is a part of International Center for Chemical & Biological Sciences (ICCBS) Library System. Its digital library provides access to a wide range of non-printed resources, for e.g. CD ROMs, databases and online digital resources etc. The library has over 300 computer terminals, providing online resources on various disciplines. The DL has also digitized important books in the library. The DL is also equipped with video conferences and lecture facility but there is no facility available for VI students.

Applied Economics Research Center (AERC)

The AERC maintains a library in the field of applied economics. A wide range of material is used for teaching M.Phil/PhD and other research programs but there is no facility for VI students. The AERC has operational computer center with a large number of PCs. The lab is intensively utilized for research and training purpose only and with limited use of the internet. However, to utilize resources of the HEC DL a small computer section is being established inside the AERC library.

Area Study Center for Europe

The center undertakes research at M.Phil and PhD level. The ASCE has a low number of computers available for the use of students, which hardly fulfills their information needs. Students can access to the digital library from ASCE but there is no facility available for VI students.

Findings

The analysis of data shows that seven respondents (24%) were female and 22 (76%) were male. The students were studying in different faculties. Twenty-three (79%) were studying in social sciences and humanities while six (21%) were studying in sciences. Sixteen respondents (55%) were studying in masters programs and 13 (45%) were studying in bachelors programs.

The visually impaired students were asked about the kind of material they used for study. None of them said that he/she used book material because they were unable to read it. Six (21%) used journals, nine (31%) used e-material while 17 students (59%) used Braille material. Hence it is found that VI students preferred Braille material over other material (Table 1).

Table 1. Kind of material used by visually impaired students

Material	Frequency	Percent
Books	0	0
Journals	6	21
E-material	9	31
Braille	17	59

Eighteen students (62%) were computer users while 11 (38%) were non users. It can be concluded that majority of the VI students used computer. Majority of the VI students used computer to fulfill their educational needs. Fourteen users (48%) mentioned that they used computer for educational purposes and seven (24%) VI students used computer for entertainment. Seventeen students (59%) were users of the internet while 12 (41%) were not using it. The respondents were asked about the problems faced while using computer. Twenty-one respondents (72%) said that they were facing problem because

the helper was not available at access points of the University of Karachi. Seven (24%) stated that they did not understand the key board because memorizing keyboard was very difficult for them, 27 (93%) said that there was a lack of facilities and equipments for VI students due to which they were unable to use computers, five (17%) said that there was no training program for VI users to use computer, four (14%) said that the software for VI users to use computer had many weaknesses which created problems for them while using it. Hence majority of the respondents faced problem of lack of facilities and equipments and helpers at the access points in the University of Karachi (Table 2).

Table 2. Problems in using computer

Problem	Frequency	Percent
Non availability of helpers	21	72
Lack of keyboard understanding	7	24
Lack of facilities & equipments	27	93
Lack of training	5	17
Weaknesses of software	4	14

In response to another question, it was found that 16 students (55%) needed helper while using computer. Only two (7%) said that they used computer independently without any helper. Majority of the VI students (18, 62%) were familiar with digital library. Eleven respondents (38%) were found unfamiliar with this service. Eleven respondents (38%) were not using digital library websites while majority (18, 62%) said that they had already used different digital library websites.

Mentioning the reasons due to which they were not using computers, eight students (28%) stated that they did not have computer, two (7%) said that they did not have interest, one (3%) said that he/she was not feeling any need to use computer, six (21%) could not use computer without a helper and most of the time the helper was not available, two (7%) said that there was no training program about the use of computer for VI students, eight students (28%) said that they needed software to use computer which was mostly not installed at the access points of the University of Karachi (Table 3).

Table 3. Reasons for not using computer

Reason	Frequency	Percent
Don't have computer	8	28
Don't have interest	2	7
No need to use computer	1	3
Need helper	6	21
No training	2	7
Need of software	8	28

Regarding facilities for VI students while using the internet it was found that 13 (45%) respondents were using the internet with the help of audio facility, three (10%) were using it with the help of software (e.g. JAWS, etc.), two (7%) respondents were using text to speech converter and 11 (38%) mentioned that they had no facility for using the internet. The respondents did not use these audio facilities, software, converters etc. at the access points of the University of Karachi (Table 4).

Table 4. Facilities for VI people while using the internet

Facility	Frequency	Percent
Audio facility	13	45
Software	3	10
Text to speech converter	2	7
No facility	11	38

When the researchers asked the VI students whether they used any website having audio facility, 15 students (52%) said that they found audio facility on websites, while 14 (48%) never found any audio facility on the websites they visited.

The visually impaired students were invited to give suggestions to increase facilities for VI students. Twenty students (69%) proposed that software packages for VI should be installed at access points in the University of Karachi, 25 (86%) were of the view that the university should hire helpers for VI

students at the access points, 18 (62%) said that university should provide special hardware, 28 (97%) suggested that the HEC Digital Library should provide special services to VI students, 20 (69%) suggested that websites should provide audio facility so that the VI students can fulfill their information needs from online sources. Two students (7%) suggested large size fonts on websites and five (17%) suggested Braille material to increase the facilities for VI students (Table 5). Majority of the respondents (18, 62%) were missing internet as a source of information while 11 (38%) did not agree to it.

Table 5. Suggestions to increase facilities for visually impaired

Suggestion	Frequency	Percent
Special software	20	69
Helpers	25	86
Hardware for VI users	18	62
HEC digital library should provide services for VI	28	97
Audio on websites	20	69
Large font on websites	2	7
Braille material	5	17

The respondents were very clear about their information needs and they were also aware of the importance and usefulness of the digital information in the present age and most of them used computer and the internet for educational purpose. The VI students had a keen interest in using digital information to fulfill their information needs but they needed special services to use this information. These services could be in the form of audio facility on websites, availability of helpers or suitable hardware/software at the access points of digital libraries in the University of Karachi.

Summary and recommendations

In the view of above analysis of data it can be concluded that most of the visually impaired students of the University of Karachi were interested in using computer and the internet. They were using these technologies at places other than the university because there was no facility for VI students at the access points within the university campus. Majority of them used computer for educational purpose rather than for entertainment but these users faced problems while using online information sources. Most of them used computer with the support of helper but some time due to the unavailability of helper they were unable to use computer as well as the internet. Some of the users faced problem while using computer and internet due to the unavailability of specialized facilities and equipments at the access points in the university. Few of the users faced problems of keyboard understanding especially those who were visually impaired by birth. Weaknesses in the available software also created problems for VI students. Very few VI students used computer with a helper.

Majority of the respondents were unaware of digital library and they did not use any digital library website. Most of the students were aware about the audio facility available on the internet and they had used websites having this facility. A few of them had awareness about speech to text or text to speech converter. A majority of the VI students suggested that the HEC Digital Library should provide special services for VI students at their access points. Some of them suggested audio websites and special hardware. They also recommended that the HEC Digital Library or the university should provide special software and helpers for visually impaired students.

Based on the findings of this study some measures are suggested to plan digital information services for visually impaired students of the University of Karachi.

1. HEC Digital Library is responsible for providing online information services at higher education level in Pakistan. Some changes are required in the website of this library to provide information for visually impaired students in the form of text to speech.
2. Four access points of the HEC Digital Library in the University of Karachi do not provide user friendly environment for VI students. These access points should be equipped with software and hardware specially designed for VI students. Computers with Braille keyboard, Braille mouse, close circuit screen display and Braille printers can be provided. Some computers equipped with speaker or head phone can be reserved for VI students.
3. There is a need to provide training of Braille computer literacy for visually impaired students.
4. Braille conversion of the information material should be available on the digital library website. It should also be Braille print friendly.
5. The HEC can provide helper staff for visually impaired users at the access points.

6. The internet facility should also be provided in each faculty of the University of Karachi so that visually impaired users can use the digital information services near to their departments because it is very difficult for them to go to far places.

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