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EFFECT OF TECHNOLOGICAL ADVANCEMENT ON LEARNING PROCESS OF VISUALLY IMPAIRED LIBRARY READERS: A CASE STUDY OF GOVERNMENT DIVISIONAL PUBLIC LIBRARY VISUALLY IMPAIRED UNIT KOTA RAJASTHAN, INDIA.

Suleiman Sambo[1], Hauwa Ibrahim[2], Murjanatu Abdulkarim[3], Jamila Yakubu[4], Abdulmumini Shehu[5]

[1]Ph. D. Research Scholar in Library and Information Science, Carrier Point University, Kota
sulebasawa@gmail.com

[2]Kashim Ibrahim Library, Ahmadu Bello University, Zaria
hauwaibrahim@gmail.com

[3]College of Agric. & Animal Science, Ahmadu Bello University, Zaria
Murjis2000@yahoo.co.uk

[4]Kashim Ibrahim Library, Ahmadu Bello University, Zaria
Abdulmuminishehu82@gmail.com

[5]President Kennedy Library, Ahmadu Bello University, Zaria
Jamilayakubu7@gmail.com

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Abstract
The paper attempt to study the Effect of Technological Advancement on Learning Process of Visually Impaired (VI) Library Readers with special reference to VI Unit of Government Divisional Public Library Kota Rajasthan, India. The main objective of the paper is to analyze Visually Impaired Reader's attitude and the usefulness of technological facilities in VI Unit of the Public Library towards their learning process. Structured Interview method was used for data collection while simple frequency count and percentages was used for analysis. Finally the paper highlight the various major findings of the study and offer some vital suggestions on how the overall system and services of Government Public Library Kota can be improved with special attention to VI unit.

Keywords:

Visually Impaired*, Visual Acuity, Government, Public Library, learning,

* For the purpose of this study, the term "Visually Impaired" applies to both people who can partially see and those who cannot, i.e. who are totally blind.

1. INTRODUCTION

In accordance with one of the main objective of IFLA, (International Federation of Library Associations and Institutions) public library is established to provide information resources, which communicate experience and ideas from one person to another and make them easily and freely available to all people, regardless of race, nationality, age, gender, religion, language, disability, employment status and educational attainment. Visually Impaired (VI) people are among many readers of public library all over the world. According to Stewart (2014) Visual impairment is defined as "sight loss that cannot be fully corrected using glasses or contact lenses". Ranjita (2011) states that most at times disabled (including Visually Impaired) have been stigmatized, marginalized and discriminated in almost all part of the society. They have represented a segment of the population that is most backward, leased serve and grossly neglected. It has been customarily to deny them their rightful identity, development and social respect especially in developing countries where survival is a bit difficult. In some places the elimination of Visually Impaired people is considered justifiable since they are regarded as weak and dependent members and hence a liability to entire society. It have becoming the moral duty of the present modern society to provide them with a suitable environmental conditions, instructional methods, useful materials and equipment to approach the latest information

resources and be in the main stream of the education system so as to contribute meaningfully to the development of the society as a whole which is one the major aim of public library.

Learning is a complex process. It can be defined as a change in disposition; a relatively permanent change in behavior over time and this is brought about partly by knowledge. "Learning can happen as an outcome of a fresh attained skills, principles, perception, knowledge, facts, and new information at hand" Ghulam et al (2015). Learning can be reinforced with different learning resources because they stimulate, motivate as well as focus learners' attention for a while during the instructional process.

Visually Impaired traditionally pass through this learning process by reading Braille, Tape Audio-Books and large print books produced and provided by specialized libraries for the blind. But new technologies have opened up new areas of reading, participations and activities for people with disabilities that were inaccessible only a few years ago. Visually Impaired can have access to computer programmes, Internet and digital resources using Braille displays, screen magnifying monitors, screen magnification, scanning software with OCR, Screen Readers and speech synthesis. These electronic aids are named Assistive or Adaptive Technology (AT).

2. GOVT. DIVISIONAL PUBLIC LIBRARY KOTA: BRIEF OVERVIEW

The library was establish in 1956 and starts offering services to readers immediately from a rented building of Dan Mal ji ki Haweli (Baphana Haweli) in Nagar Seth Kota Rajasthan. In 2013 with the financial assistance from Raja Ram Mohun Roy Library Foundation Kolkata (RRRLF) the library moved to its new building which is situated in CAD Colony Campus in front of Income Tax Colony, Dadabari Kota Rajasthan. Due to its long journey of moving from one place to another, the library suffers from lost of books and damages. The library is now under the leadership of Dr. Deepak Kumar Shrivastava.

2.1 List of equipment in VI Unit of GDPL

***Table 1*: Equipment**

S. NO	NAME OF EQUIPMENT	NUMBER
1	Computers	11
2	Earphone	11
3	Scanner	01
4	Printer	02
5	Braille Typewriter	01

2.2 Some of the software available in VI unit of GDPL Kota.

2.2.1. Screen Reading Software (SRC): This present graphics and text as speech via a speech synthesizer also known as Text To Speech System (TTS). It's not only reading the text on the computer display but also facilitate VI readers to review their input as they type.

A screen reader is a software application which, rather than presenting web content visually, converts text into 'synthesised speech' allowing user to alternatively listen to content. In more accurate terms – content displayed in screen is sent to standard output, whether a video monitor is present or not. Interpretations are then synthesized to the user with text-to-speech, sound icons, or a Braille output device. Screen readers are a form of Assistive Technology (AT) which are essential to people who are blind, as well as useful to people who are either visually impaired, illiterate or suffer a learning disability. The most widely used screen readers are: JAWS from Freedom Scientific, Window-Eyes from GW Micro, Dolphin Supernova by Dolphin, System Access from Serotek, and Zoom Text Magnifier/Reader from AiSquared which are prominent examples in the English-speaking market. The open source screen reader Non Visual Desktop Access (NVDA) is gaining popularity.

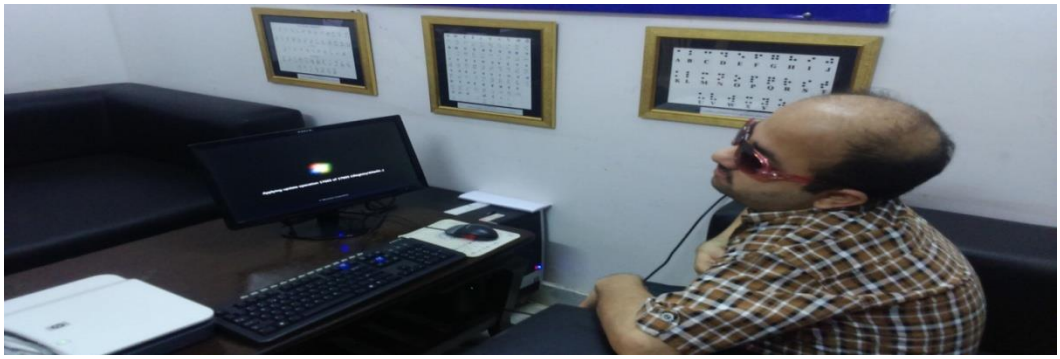


Photo 1: Visually Impaired Reader of GDP Library Kota is Using NVDA Software

2.2.2. Optical Character Recognition (OCR): This is used in conjunction with a computer and a scanner to copy printed text to the computer and hold it electronically so that a screen reader can read it for the VI. It is a technology that enables you to convert different types of documents, such as scanned paper documents, PDF files or images captured by a digital camera into editable and searchable data.

Let's take a look on how Fine Reader OCR recognizes text. First, the program analyzes the structure of document image. It divides the page into elements such as blocks of texts, tables, images, etc. The lines are divided into words and then - into characters. Once the characters have been singled out, the program compares them with a set of pattern images. It advances numerous hypotheses about what this character is. Basing on these hypotheses the program analyzes different variants of breaking of lines into words and words into characters. After processing huge number of such probabilistic hypotheses, the program finally takes the decision, presenting you the recognized text.

2.2.3. Job Access With Speech (JAWS): is one of the world's most popular screen reader, developed for computer users whose vision loss prevents them from seeing screen content or navigating with a mouse. It is a screen reading program that gives users voice output or Refreshable Braille display access to compute programs. This provide speech technology that works with the windows operating system to access popular software application and the internet, with its internal software speech synthesizer and the computer's sound card, information on the screen can be read to the listening of VI.

3. PPROBLEM STATEMENT

Information is growing very fast with technological advancement and people need for current information is increasing day by day, Visually Impaired are not left out, which makes learning process much easier but complicated, this is where public library comes in to focus to provide information resources that will satisfy the increasing need. According to Michel (1996) "The ideal library service is one where each individual, regardless of the degree of visual impairment, has access to the materials and information at the time they are required, in a format that can be used, in the quantities that are needed, and where the needs of the user are understood by the

staff". But because most of these information resources are available in print format and soft copies which can only be accessed visually, Visually Impaired are a facing numerous challenges in coping with the phase of technological advancement, this create the need to study the EFFECT OF TECHNOLOGICAL ADVANCEMENT ON LEARNING PROCESS OF VISUALLY IMPAIRED LIBRARY READERS with special reference to Visually Impaired unit of Government Divisional Public Library Kota.

4. OBJECTIVE OF THE STUDY

The main objectives of the study are the following:

To find out basic requirement for visually impaired readers;

To examine the benefit of the VI unit in the learning process of VI readers;

To investigate the opinion of VI readers with regard to VI unit of the public library;

To determine the challenges face in using the VI unit by VI readers;

To provide suggestions on how the VI unit can be improved for VI readers.

5. SCOPE OD THE STUDY

The scope of the study covers Visually Impaired readers of Government Divisional Public Library Kota, Rajasthan which include both registered and non registered regular readers.

6. METHODOLOGY

The research method adopted for the study is survey and instrument is interview. There are three fundamental types of research interviews: structured, semi-structured and unstructured. For this study structured interview was adopted and conducted among Visually Impaired Readers of government public library Kota because structured interviews are, essentially, verbally administered questionnaires, in which a list of predetermined questions are asked, with little or no variation and with no scope for follow-up questions to responses that warrant further elaboration. Consequently, they are relatively quick and easy to administer and may be of particular use if clarification of certain questions are required or if there are likely to be literacy

or numeracy problems with the respondents. Structured interviews are easy to replicate as a fixed set of closed questions are used, which are easy to quantify – this means it is easy to test for reliability and also Structured interviews are fairly quick to conduct which means that many interviews can take place within a short amount of time. This means a large sample can be obtained resulting in the findings being representative and having the ability to be generalized to a large population. Total population sampling was used; this is a type of purposive sampling technique which involves examining the total population that have a particular set of characteristics (e.g., specific attributes/traits, experience, knowledge, skills, exposure to an event, etc.). "In the case of total population sampling, the population of interest tends to have some characteristics that are not very common. It is important to note that since it is these characteristics that we are interested in, they influence our choice of total population sampling" Thygesen & Ersbøll (2014).

Data analysis and interpretation is based on a sample population of 28 Visually Impaired readers of Government Public Library Kota Rajasthan which represent the total number of both registered and non registered readers.

Table2: Population sample distribution of GDPL

S.No	Readers category	No of Readers	%
1	Registered Readers	8	29
2	Non Regd Readers	20	71
Total		28	100

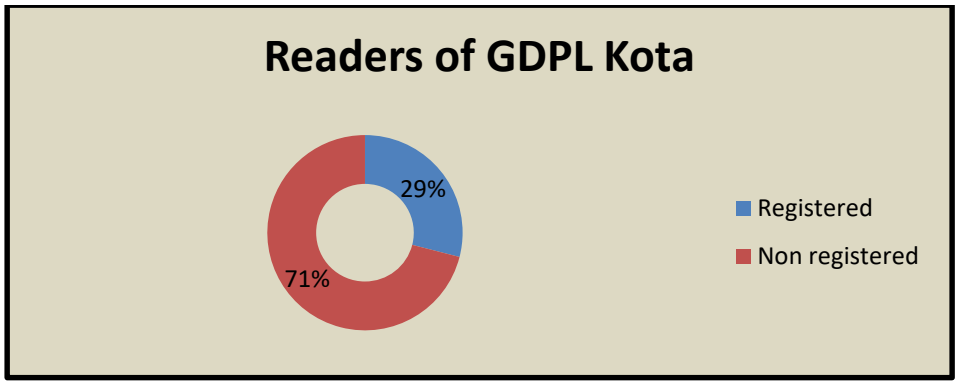


Figure 1: Population sample distribution of GDPL Kota.

7. DATA PRESENTATION AND ANYLYSIS

A total number of 28 respondents were picked i.e. total population of VI readers in Government Divisional Public Library Kota Rajasthan but 25 were fully interviewed which means 89% responded. The analysis is based on simple frequency count and percentages.

7.1 Age distribution of respondents

Table 3: Age of respondents

Age	No of Readers	%
10-15	0	0
16-20	4	16
21-29	8	32
30 and above	13	52
Total	25	100

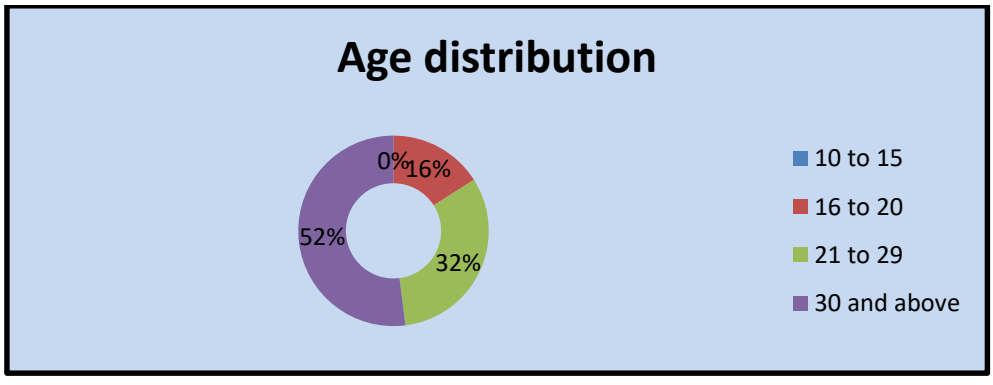


Figure 2: Age distribution of readers.

Table 3 above shows that 52% of the respondents are between the ages of 30 and above, 32% are between the ages of 21 to 29 and 16% are in the range of 16 to 20 while none was between the ranges of 10 to 15.

7.2 Frequency of visit to public library by respondents

Table 4: Frequency of visit

Frequency	No of Readers	%
Once a day	0	0
Once in two days	2	8
Once a week	11	44
Occasionally	12	48
Total	25	100

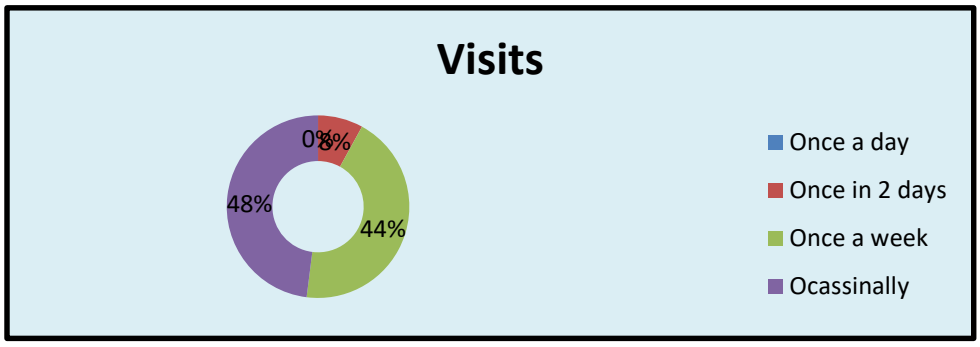


Figure 3: Visits by readers.

From table 4 above, 48% of the total respondents visit the public library occasionally, 44% visit once a week and 8% go to the library once in two days while none of the respondents visit the library every day.

7.3 Purpose for using VI unit facilities

Table 5: Purpose of using the facilities

Purpose	No of Readers	%
Academic	5	20
Improve knowledge	8	32

Recreation	5	20
Current awareness	7	28
Total	25	100

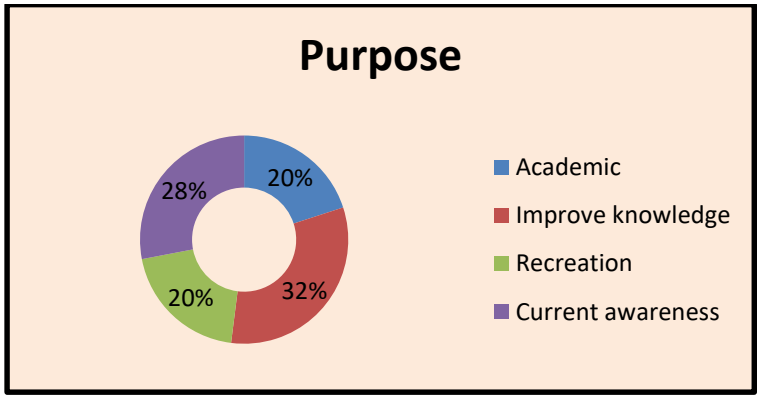


Figure 4: Purpose of visiting library by readers.

As shown in table 5 above, 32% of the respondents visit the public library for the purpose of improving their knowledge, 28% go for current awareness, 20% visit for recreation purpose while 20% go for academic purpose.

7.4 Learning how to use the VI unit facilities

Table 6: How to use the facilities

How to use facilities	No of Readers	%
Self	2	8
Family/friends	10	40
Library staff	13	52
Total	25	100

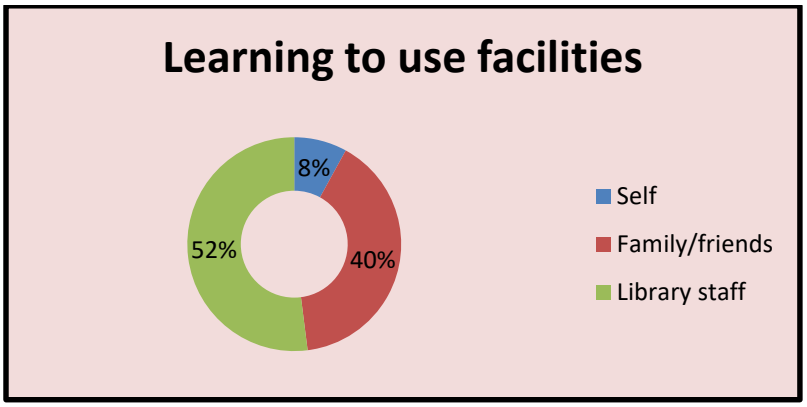


Figure 5: How readers learn to use the facilities.

Table 6 above shows that 52% of the respondents learn how to use the VI facilities from the library staff, 40% learns from their families and friends while 8% learn by themselves.

7.5 Usefulness of VI unit facilities in learning process

Table 7: **Usefulness of facilities**

Usefulness	No of Readers	%
Very useful	21	84
Not useful	4	16
Total	25	100

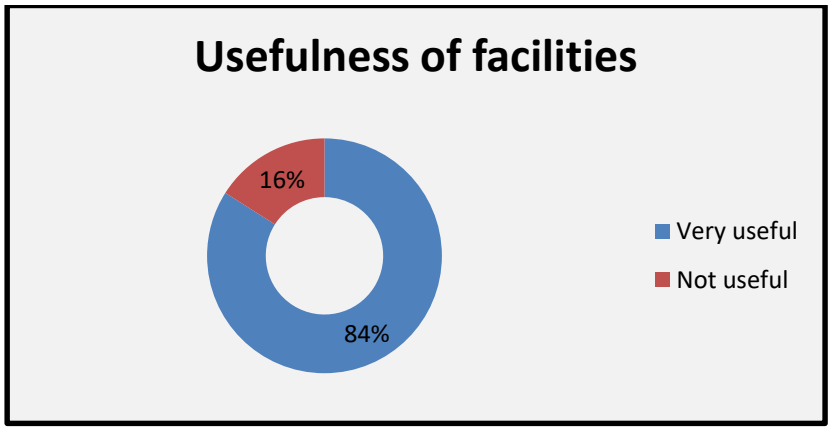


Figure 6: Usefulness of the facilities in VI unit.

Table 7 above revealed that 84% of the respondents agree that VI facilities are very useful in their learning process while 20% says it is not useful.

7.6 Increase in level of confidence by Readers of VI unit facilities

Table 8: Level of confidence

Level of confidence	No of Readers	%
Yes	23	92
No	2	8
Total	25	100

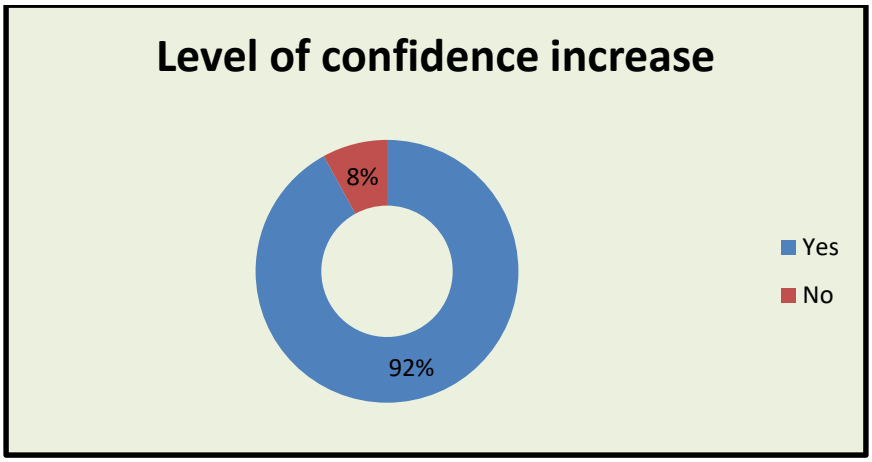


Figure 7: Level of confidence increase in readers.

In table 8 above, about 92% of the total respondents are of the view that their level of confidence has increase by using the VI unit facilities while only 8% are of the view that there was no increase in the confidence level.

7.7 Adequacy of facilities in VI unit

***Table 9*: Adequacy of facilities**

Adequacy	No of Readers	%
Adequate	13	52
Inadequate	12	48
Total	25	100

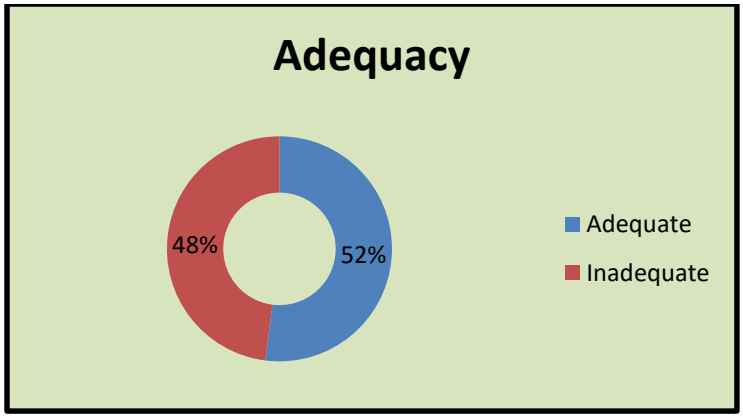


Figure 8: Adequacy of facilities.

Table 9 above shows that 52% of the respondents are opined that the facilities in VI unit are adequate while 20% says they are not adequate.

7.8 Increase in level of understanding by Readers of VI unit

Table 10: Level of understanding

Level of understanding	No of Readers	%
Yes	20	80
No	5	20
Total	24	100

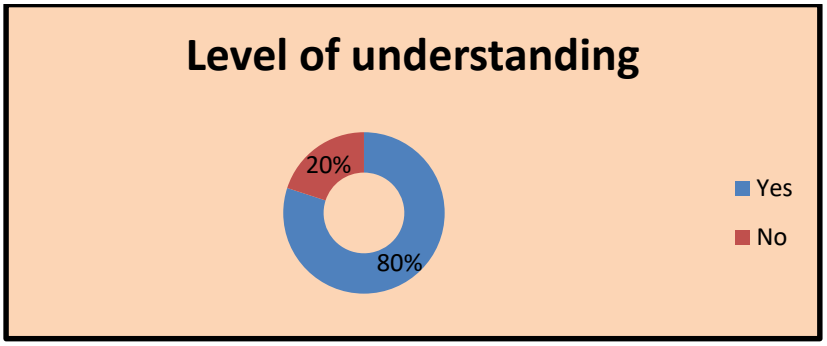


Figure 9: Assistance by library staff.

Table 10 above revealed that 80% of the total respondents agreed that their level of understanding have increased with the use of facilities in the public library while 20% says none has increased.

7.9 Satisfaction with the quality level of available facilities in VI unit

Table 11: Satisfaction with facilities

Facilities satisfaction	No of Readers	%
Satisfied	19	76
Not satisfied	6	24
Total	24	100

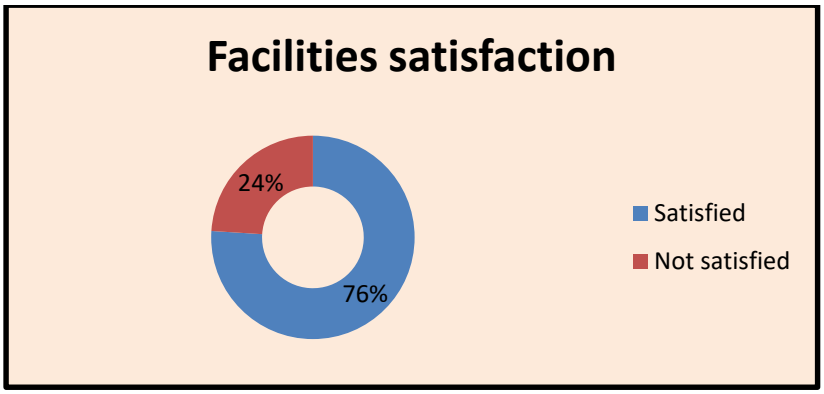


Figure 10: Satisfaction with the facilities.

In table 11 above, 80% of the respondents are satisfied with the facilities available in VI unit of the public library while 20% says they are not satisfied.

8. SUMMARY OF MAJOR FINDINGS

After systematic data collection and analysis, the following are the major findings of the study:

1. Majority of the respondents are between the age bracket of 30 years and above
2. Close to half of the respondents visit the public library occasionally
3. The study reveals that majority of the respondents are satisfied with the facilities available in the VI unit of the public library
4. Majority of the respondents say they learn how to use the VI facilities from the public library staff
5. Most of the respondents agreed that VI unit of the public library is very useful to their learning process.
6. The study shows that a lot of the respondents visit the public library for the purpose of improving their knowledge
7. Most of the respondents agreed that their level of confidence have increase with use of VI unit facilities.
8. A greater part of the respondents are of the view that their level of understanding has increased with the use of facilities offered by the public library.
9. Finally, majority of the respondents says that reading materials are inadequate in the public library.

9. RECOMMENDATIOS

The study, after proper investigations and analysis of the views of the respondents, offers the following suggestions:

1. That more facilities should be provided so that Readers can maximize the use of the public library.
2. Effort should be made to encourage the Readers to visit the public library more often by providing additional services in the library.
3. Younger Readers should also be encouraged to regularly visit the public library.

10. CONCLUSION

The public library is often one of the first places a person goes when he or she is in need of information in a community, especially during learning process. Therefore, the library should be a welcoming place for all Readers, especially the blind and Visually Impaired community members. Strong effort should be made by the government to improve the collection of reading materials as well as reading facilities for the VI so that they can be encouraged to use government public library Kota the more for their information needs.

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