

**THE ROLE OF LIBRARIANS IN MEETING THE
INFORMATION NEEDS OF VISUALLY AND HEARING
IMPAIRED STUDENTS AT THE UNIVERSITY OF NAIROBI
LIBRARY, KENYA.**

MONDA, LINET KERUBO

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DECLARATION

This research study is my original work and has not been submitted for certification in any other university.

Signature Date

MONDA LINET KERUBO

Registration Number C54/84494/2016

This project paper is submitted for examination with our approval as the university supervisors.

Signature

Date

Dr. George Kingori

Department of Library and Information Science, University of Nairobi

Signature Date

Dr. Dorothy Njiraine

Department of Library and Information Science, University of Nairobi

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DEDICATION

This project is dedicated to my late father Evans Monda Maroko for he valued education as the key to good life.

LIST OF ABBREVIATIONS AND ACRONYMS

- AT: Assistive Technology.
- HIS: Hearing Impaired Students.
- ISB: Information Seeking Behaviour.
- JAWS: Job Access With Speech.
- KSL: Kenyan Sign Language.
- NVDA: NonVisual Desktop Access.
- TTY: Teletypewriter.
- UN: United Nations.
- UoN: University of Nairobi.
- VIS: Visually Impaired Students.

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ABSTRACT

This study explores the role played by librarians in meeting the information needs of visually impaired students (VIS) and hearing impaired students (HIS) at the University of Nairobi (UoN) library. The study is anchored in achieving the following objectives: to establish the types of information resources searched by visually and hearing impaired students at the UoN libraries; to examine methods used by the visually and hearing impaired students to access information resources at the UoN libraries; to establish the role of the librarians in meeting the information needs of the visually and hearing impaired students and propose strategies for effective satisfaction of information needs of VIS and HIS at the UoN libraries. The sample population comprised of 19 visual impaired students, 7 hearing impaired students, 9 UoN library staff, the Deputy Vice Chancellor (DVC) Academic Affairs and 1 Dean of students' staff. The research employed both qualitative and quantitative research techniques which collected data by use of questionnaires. Purposive sampling technique was used to connect with the respondents. Data collected was presented by use of a combination of tables, charts and graphs. The study found out that the major information sources that were consulted are textbooks, journals, and electronic media; the UoN library has inadequate assistive technology facilities; the librarians offering user services have insufficient knowledge of assistive technology usage; lack of a separate room for students with impairment; visually and hearing impaired students are not aware of the library services and the way to access them. The researcher recommended need for institutional local links and development of regional hub and consortia for staff training, item purchase and software sharing. There is need for seeking help from both local and international agencies that can provide hardware and software to facilitate accessibility. The researcher also recommended for creation of favorable environment for students with disability to discuss about their problems openly and share experiences.

CHAPTER ONE

INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 Introduction

This chapter covers the following: background of the study, statement of the problem, aim of the study, objectives, research questions, justification, assumption, scope, limitations and delimitations, definition of concepts and key terms used in the study.

1.2 Background of the Study

Wu, He, & Luo (2012:20) define information needs as the inadequacy of appropriate information that users will consider in improving their current position. These needs could include but not limited to physiological, physical, political, social-cultural, economic and general. Library users have requirements that librarians meet in the library. However, visually and hearing impaired students have particular requirements that need to be met when accessing information that will satisfy their information needs.

Visually impaired students are those who have been assessed and determined by the ophthalmologist to be having a serious visual loss after correction or no vision. While a hearing impairment student is one who has lost part or all the ability to hear. **Shumaker, et al (2016.:237)** and Singh & Rani (2013:95) posited that the effective use of the library and its resources requires that basic skills should be imparted to both able and disabled students. It is necessary for the librarians to know and understand information needs of its users and make available all the requirements necessary for effective and efficient services.

The United Nations Organization (UN) recognizes this need when it states that, “To enable persons with disabilities to live independently and participate fully in all aspects of life, various stake holders shall take appropriate measures to ensure persons with disabilities have access, on an equal basis with others, to the physical environment, to transportation, to information and communication, including information and communication technologies and systems, and to other facilities and services open or provided to the public, both in urban and rural areas” (World Health Organization, 2015:259).

1.3 University of Nairobi

The University of Nairobi (UoN) is based in Nairobi the capital city of Kenya as one of the largest Universities in Kenya. It started as a Royal Technical College in the year 1956 with special relation with the University of London. It offered degrees in faculties of Arts, Sciences and Engineering. Since then the University of Nairobi has developed to be the largest Kenyan University with many faculties of international, regional and national standards. UoN as a world class university has developed a modern library and information services that meets the information needs of its stakeholders.

The vision of the University of Nairobi is to be a world-class university committed to scholarly excellence. It is driven by the mission of providing quality university education and training and to explicify the aspiration of the Kenyan generation and the entire world all the way through creation, integration, preservation, transmission and exploitation of knowledge. University of Nairobi, as a public academic institution has continually enrolled students with disability. UoN currently have a population of 70 students with various kinds of impairment. In addition, the University of Nairobi has developed the Disability Mainstreaming Policy and it has sensitized the staff on the policy (UoN, 2013:6). Each department at the University of Nairobi constitutes the Disability Mainstreaming Committee which is charged with the responsibility of implementing the policy at all level. The policy recommends the provision for specific services for the diverse types of students' disabilities.

The DVC Academic Affairs together with the DVC Research Production and Extension have ensured that the UoN has put in place all necessary requirements to achieve its core values. The University of Nairobi has established 14 libraries in their respective colleges. There is more than one hundred library staff distributed in the 14 libraries to manage: print resources more than 700,000; digital repository resources over 85,000; Electronic journals, over 100,000 subscribed full-text titles and 63,000 free journals; Electronic books, over 78,000 subscribed and full text titles, and over 1,200,000 free E-books. The distribution is to ensure that university users can quickly access information resources acquired in their respective colleges. Through the creation and establishment of the libraries that are equipped with skilled personnel, the University of Nairobi librarians have a noble task of ensuring that the visually and

hearing impaired students access and use the library just like their able students. It was therefore necessary to establish the role of the librarian in meeting the information needs of the visually and hearing impaired students.

1.4 Statement of the Problem

According to **Fürst & Vogelauer (2012:6-7)** students with hearing impairment are expected to use the library information resources just the same way as their hearing counterparts. Information found in the library is very important for academic excellence that requires the visually and hearing impaired students to compete equally with their peers for academic excellence. Hence students with visual and hearing impairment are expected to access the library and have maximum utilization of the library information resources.

The University of Nairobi library system consists of 14 branches in the various university colleges which houses both print and non-print resources. The fully automated digital library has incorporated Open Access resources, an Institutional Repository into its physical collection. “It is therefore important to ensure that such electronic information resources are accessible to all categories of users including students with disabilities” (Kiambati, 2015:9).The University of Nairobi library has put in place a number of mechanisms which include: JAWS/NVDA software on designated computers, waiver of fines, documents and course work resources scanning, KSL staff training and extension of book loaning period to ensure effective access and use of both print and non-print information materials.

Over the years, studies that have been done to support the study on information needs of the VIS and HIS. They include research done by Ekwelem (2013) on improving access and services to physically impaired students, Rayini (2017) on library and information services for the visually impaired persons and Kiambati (2015) who focused on challenges faced by the visually impaired students in accessing the library resources. However, the studies have not considered the role of the librarians in meeting the information needs of VIS and HIS. As a result, the researcher decided to investigate on the study entitled the role of the librarians in meeting the information needs of VIS and HIS at the University of Nairobi libraries in Kenya.

The researcher's motivation of doing this research was influenced by a research conducted by Kiambati (2015), who stated that research on visually impairment had not been adequately addressed in Kenya. In addition, there is the communication gap experienced by visually and hearing impaired students when they seek information at the University of Nairobi library.

1.5 Aim of the Study

The aim of this study was to investigate the role of librarians in meeting the information needs of visually and hearing impaired students at the University of Nairobi Library.

1.6 Objectives

The objectives of the study were to:

- i) Establish the types of information resources reached by the visually and hearing impaired students at the University of Nairobi libraries.
- ii) Examine methods used by the visually and hearing impaired students to access information resources at the University of Nairobi libraries.
- iii) Establish the role of the librarians in meeting the information needs of the visually and hearing impaired students.
- iv) Propose strategies for effective satisfaction of information needs of VIS and HIS at the University of Nairobi libraries.

1.7 Research Questions

- i) What are the types information resources searched for by the visually and hearing impaired students at the University of Nairobi libraries?
- ii) Which methods do the visually and hearing impaired students use to access information resources at the University of Nairobi libraries?
- iii) What are the roles of librarians in meeting the information needs of the visually and hearing impaired students?

- iv) What are the proposed strategies for effective satisfaction of information needs of the VIS and HIS at the University of Nairobi libraries?

1.8 Significance of the Study

The study is anticipated to contribute to the creation of knowledge about visually and hearing impaired information needs in academic libraries in Kenya. Practically, the study may be used by the University of Nairobi Library Disability Mainstreaming committee as a point of reference for their policy formulation and furthering research from the findings highlighted.

This study may enable the University of Nairobi to attract some kind of grants through funded research projects from organizations that would want to improve services rendered to visually and hearing impaired students since it is one of those disabilities that affect students' performance. The Commission of University Education may use the recommendations of the study to review standards and requirements that academic institutions should meet in achieving their accreditation. Furthermore, other researchers may use this study findings and recommendations as a basis for their research development.

1.9 Scope of the Study

The scope of the study covered 14 University of Nairobi branch libraries. The researcher considered the visually and hearing impaired students, library staff offering user services, the DVC Academic and a staff from the Dean of students' office. The study was conducted within a time-period of fourteen weeks. The study documented the role of librarians in the meeting of the information needs of visually and hearing impaired students of UoN.

1.10 Assumptions of the Study

This study has an assumption that:

1. The University of Nairobi visually and hearing impaired students' information needs are met by the library.
2. The University of Nairobi librarians are able to meet the information needs of the visually and hearing impaired students.

1.11 Limitation of the Study

The limitation experienced in the study was the accessibility to the respondents who were off campus but still in session and were included in the sample size. The researcher overcame this constraint by sending Google forms via email to all respondents which they accessed, filled and sent back. The other limitation faced was the suspicion and uncooperative respondents that suspected the research to have been funded and the fear for victimization. This constraint was overcome by the researcher explaining the purpose of the study to the respondents was purely academic and shown the evidence of the University Transmittal letter and assurance of confidentiality that convinced them to participate in the research.

1.12 Definition of Concepts

1. Assistive Technology (AT)

These are tools and machines to be used by VIS and HIS at the University of Nairobi libraries. They include; magnifying glasses for low visual people, text phones for the hearing impaired, among others.

2. Hearing Impaired Students (HIS)

These are University of Nairobi students enrolled for a certain course that have difficulty in their sensory nerves which affects hearing either permanent or fluctuating interfering with students' interaction with the surrounding environment and badly affects their educational performance, (Shumaker et al, 2016:237).

3. Hybrid Library

These are libraries that have both conventional print collections such as books, magazines and journals and non-conventional collections such as audio books, e-journals and e-books which can be provided in the on line services and in the digital collections which the University of Nairobi libraries are classified as a hybrid library, (Verma, & Verma 2014)).

4. Information Needs

This is the inadequacy of appropriate information that a VIS and HIS at the University of Nairobi libraries will consider in improving their current position. These needs

could include but not limited to physiological, physical, political, social-cultural, economic and general (Wu, He & Luo, 2012:47).

5. Information Seeking Behaviour (ISB)

This is the process of searching of specific information that is already known to the VIS and HIS at University of Nairobi libraries as important to meet their information needs. It includes information searching and gathering from different sources as they compile to satisfy their informational needs. (Amutha & Asudha, 2015: 56).

6. Job Access with Speech (JAWS)

It is the most popular screen reader, developed for VIS at the University of Nairobi libraries whose vision loss prevents them from seeing screen content or navigating with a mouse. It provides speech and Braille output for the most popular computer applications on one's computer, (Kiambati, 2015:48)

7. Librarian

This is a professional worker in the University of Nairobi libraries that provide help to VIS and HIS visiting the library to access to information materials. He/she should supervise the utilization of library resources, (Salman 2005:58)

8. Public Academic Institutions

These are academic organization established, funded and managed by the public authorities to impart skills and knowledge to the members of that nation. (EOCD, 2013). **Available in the reference list.**

9. Sign Language

A system of making signs for letters, words, and group of words using fingered signs and body gestures. Kenyan Sign Language is used for instruction and communication in Kenya both for social and educational purposes. These instructions and communication facilitate information literacy training and direction to the HIS at the University of Nairobi libraries.

10. Text Telephone (TTY)

These are devices used to make calls to the librarian for references services, or inquire about any other general information. TTY should be made available to the University of Nairobi students with hearing impairment while in the libraries, (**International Federation of Library Associations. Professional Board. Medium Term Programme, 2000:15**) it was abbreviated IFLA and is available in the reference list.

11. Visually Impaired Students (VIS)

A decreased ability to see to a degree that causes problems not fixable by usual means by the University of Nairobi VIS students that visit the library for information resources.

1.13 Chapter Summary

This chapter introduced the background of the study, pronounced the statement of the problem and highlighted the aim and specific objectives of the study. The study spelt out the research questions of the study and stated the significance of the study. The scope of the study, limitations and delimitations of the study and the definition of the concepts that was used in this study was also discussed.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a review of theories and empirical studies related to the study. It specifically focused on type of information resources searched, accessing information resources, the role of librarian in meeting information needs of visually and hearing impaired students and challenges facing VIS and HIS during meeting of their information needs by the librarians. This chapter further provided an overview of the Kuhlthau information searching process (1991) model that the study is based on as quoted by (Case 2012:139-149). This chapter also incorporated a conceptual framework that showed the variables that the study is built on.

Literature review is the process of assessing the similarity existing within a body of knowledge showing what has been documented in other information resources and to what linkage the current study has to it. Soar (2013:56) states that “many students with visual and hearing impairment rarely seek library staff help in the use of the library resources raising a big concern that such student’s research, information, educational needs are not adequately met.” One of the contributing factors to struggle in performance of visually and hearing impaired students is difficult in navigating internet search engines and deficiencies in critical reading skills (Smith, 2013:6). However, students with visual and hearing impairment require special devices that are needed for access and use the information resources.

Libraries are organizations that are established to offer services without discrimination to its users both able and disabled. In the digital era, this should be effectively applied for the disadvantaged, (Higgins, 2013:48). Students with disability are made aware of the technology for use through training, (Kumar & Sanaman, 2013:29). The development of assistive technologies has provided great opportunities for people with disabilities to transform their lives in a productive, efficient and result oriented way. Kiambati, (2015:37) recorded that most of VIS at the fourth year level of study in a University have adequately used the library and therefore are knowledgeable.

Sight and Communication is the primary issue involved with the provision of services to students with both visual and hearing impairment which over and over again is in need of extra endeavor, knowledge, endurance, and where necessary technological aids, (Fürst & Vogelauer 2012:6). Each individual degree of communication with the students with visual and hearing impairment differs on the degree of hearing loss and the time of his/her life at which the student experienced it (UoN, 2013:27).

However, people who are born blind or lose their sight in their childhood most of the time have tough times reading and most often they do not use the library (Kiambati, 2015:15). This means that in most cases the library is not aware of this group of special needs users. Hence, it is important to accept the fact that a number of students that are visually and hearing impaired have information needs and that they are not met. It is therefore the duty of the library to ensure that students with such impairment are aware of the AT, services and collections provided.

2.1.1 Types of Information Resources Searched by Visually and Hearing Impaired Students.

Wang & Yu (2017:23) states that the information needs of students with visual impairment include and not limited to: healthiness, personal interest and affective comfort, environmental scanning, work, course information, social interaction, government, career planning, self-advancement, and children's education, literature and arts, leisure, policy and procedure, and other living information.

Coetzee (2016:39-41) opines that students visit the library to satisfy a number of information needs. They include and not limited to, Personal information needs. These include information of personal nature. Due to the visual and hearing impairment, VIS and HIS rely on people to find the right information for survival. Information is found and communicated to them through their email addresses. He further stated that, another information needs is the Academic/educational needs. They are information needed to pursue a career and to achieve other academic requirements. Atabor (2015:51) records that information concerned with education needs are treated as very important. Academic needs are achieved through the use of AT facilities provided either by the Library management or by the individual library user. Some of the information resources needed to achieve this need include: journals,

textbooks, electronic media, reference work, dissertations and theses, Audio visual, information on the internet, reports, and many other materials in the library.

Atabor (2015:51-52) documented that in addition to academic and personal information needs, other information needs of library users includes: recreational information need, health information needs, religion information needs, religion information needs, civic information needs and social cultural information needs. Recreational needs include relaxation information for recreational purposes. VIS and HIS recreational information needs can be searched for from newspapers, Audio visual sources, information on the internet and also subscribed in various sites to be communicated through emails.

Health information needs involves information about health matters. They can be obtained from health reports, audio visuals, government publications, newspapers, monographs, emails and information on the internet. However Atabor (2015: 52) states that many libraries have not made the VIS and HIS aware that this information needs can be attained in the library.

According to Atabor (2015:52) religious information needs are information needs pertaining to knowledge of God and Spiritual matters. He further records that majority of his respondents were religious and that is why they searched for religious information. This can be achieved by searching information materials like: Audio visual, religious reports, information on the internet, emails, monographs and newspapers.

Atabor (2015: 52) states that, Civic information needs are information about Human Rights and Civic information. These can be obtained by searching information from government publication, textbooks, journals and information on the internet. He further said that social cultural information needs are information on people cultures and their social activities. VIS and HIS rarely search for this information from the library as much as they can be found from newspapers, textbooks, dissertation and thesis, journals, reports, information on the internet and audio visual sources.

Moore (2000:37-39) opines that, visually impaired students seek information on answers to questions due to the access problem. Due to the challenge in search of answers to the questions they have, they only ask if they are sure of it being provided

in an accessible format. Dermody (2011:69) stated that VIS access information resources with easy because of the latest audio visual expertise that is well-matched with AT the VIS rely on to access information. In as much as Sanaman (2014:78) states that Web 2.0 and Virtual Learning does not consider it's matching with the available AT. **Moore** (2000:37-39) states that, visually impaired students argue that Information alone is not enough. It also states that visual impaired students want information explained to them to determine the available options for them to take. They also want assistance and support of some kind to make a decision.

2.1.2 Methods of Accessing of Information Resources and Services

Information seeking behavior occurs in the socioeconomic circumstances which include current knowledge uncertainty reduction process of a person in decision making (Bawden, & Robinson, 2016:4). Thus, information is always sought with a specific goal to be achieved. It involves the process of gathering, retrieving, organizing, interpreting and utilizing information for several reasons. In this, relevant literature relating to the study will be identified from abstracts, references and citations, scanning through relevant related journals and reviews to depict what other researchers have done on the same topic.

Visually and hearing impaired people by birth or acquired always have challenges with reading and so rarely use the library (Moore, 2000:8). Thus the two entities rarely know each other. However, the library has a duty to ensure that this group of users is catered for and their collection and services are always accessible and fully marketed to visually and hearing impaired students (**Subramaniam et al**, 2013:6). In addition, Atabor (2015:52) records that there is inadequate information materials accessible to the students with disability. Kiambati (2015:68) recorded that the low application of the applicable approaches is linked to the low skills level of library staff serving the VIS on the AT and individualized training. Never the less, Dermody (2011:158) indicated that the use of group method is advantageous to able library users but disadvantageous to disabled library users.

Subramaniam et al, (2013:6) states that library users with special needs have specific preferred formats of collection that boosts physical and intellectual access and use of information resources. These preferred formats include audio-books, e-books, physical print books, Braille, graphical novels, large print, streaming videos and other

digital media that can be accessed and used in and out of the library. He goes ahead to denote that the information material selection and acquisition process does not factor selecting materials reflecting persons with disability. (Moore,, 2000:9) states that for any effective services to be offered to visually and hearing impaired students, additional efforts, patience, knowledge and technological aids should be available for effective communication. This will depend on the degree of visual and hearing loss.

Moore, (2000:15) argues that a Text Telephone (TTY) should be made available to the students with hearing impairment just like it is made available for the hearing students. This is used to make calls to the library for references services or inquire about any other general information. He further states that accessible internet should be effective for use by visually and hearing impaired students. The Audio tracks should be open-captioned as audio files to be also made available as downloadable transcript files and ensuring provision of audio and visual feedback (Subramaniam et al, 2013:7). To ensure comfortable and easy communication with students with hearing impairment, the library should acquire and use the available technology for communication (Moore,, 2000:14). He further states that the use of email is known to be the most useful communication channel between people with Hearing impairment and hearing people.

The use of assistive listening systems has been known to enhance auditory information (Moore,, 2000:16). The use of assisted real-time captioning and computer-assisted note taking has enabled students with hearing impairment be able to see a running text of information as it is being shared. The library should avail oral interpreters and sign language during library service deliveries this is to include during library orientation, bibliographic instructions and information literacy. Dermody, (2011:157) indicated that improved Information literacy training for VIS with AT improves library use. He further stated that it is a significant component in meeting information needs and individual learning by University students.

Moore, (2000:17) states that, for emergency and announcements, the library should install both audio and visible systems that can alert visual and hearing impaired students in case of fire alarms, security alarms and public address. The library should incorporate to its collection development policy, the information materials that will be of interest to this special group of users. This should be maintained in a separate

location but integrated into the total collection. The library should be in the fore front to offer information collected and maintained in the library. The library should consider collection about programs for visually and hearing impaired students, referral agencies and educational options.

Coetzee (2016:21) records that different nature of impairment requires different type of AT facilities. He further states that the VIS take slightly more time to study however they have more ability to understanding of concepts and its implementation to practical than the sighted library users. Ekwelem (2015:38) records that the internet plays a vital role in accessing information material by VIS. He further said that there is need for alternative sources of power for continuous supply of power. Coetzee (2016:51) records that independence use of library resources by the VIS at the Stellenbosch university library is associated with availability of online resources only because it can be accessed in multiple formats. He went ahead to state that Stellenbosch university library has computers with AT for VIS positioned near the entrance of the library and away from other library users. Coetzee (2016:28) opines that there is need for improved hands on information literacy training for VIS by the varied AT. He further states that AT is so critical in the academic environment for effective information access, retrieval and use.

2.1.3 Role of Librarians

Verma (2015:91) states that librarians play crucial role in library processes. Those who are highly skilled in research are equipped with vast knowledge of the depth of information resources in various subject areas. Therefore, they become a reference point in facilitating access to ubiquitous information. Verma (2015:92) concludes by denoting that this is done through finding, analyzing, synthesizing, and packaging the needed information. Massis (2014:92) states that information professionals play a versatile role in meeting the different expectations and information needs of library users. Massis (2014:92) goes ahead and states that a librarian links between the end-user and the library retrieval system in support of database selection, creation, telecommunication connections, and appraise the importance of the information retrieved.

Harris & Oppenheim (2003:243) studied on the United Kingdom and recorded that provision of library services for VIS were influenced by the available information

resources in the library, the previous experience in handling the visually impaired students and the attitude of the library staff offering user services. According to Coetzee (2016:20) funds should be set aside for resources, physical adjustment of the library equipment and for library staff training. Rayini (2017:28) states that a senior member of staff should be designated and be held responsible in the planning, implementation, operation and monitoring services given to students including the visually and hearing impaired students in the library. He went ahead to recommend that basic training should be given to all staff on disability awareness and practical skills through an in-service programme.

Casey (2010) opines that the present librarian executes priceless services to the library users by ensuring quick and easy admittance to information. It matters less to the library user that the librarian is involved with selection, acquisition, processing, storing, managing and distributing of the library materials. Relevant information that is quick and easily available to support teaching and learning, and research is what really matters. Kamila (2013: 54) recommends that, librarian's training is essential in providing effective services. He continues to say that training of library staff will boost the staff morale, makes them feel relevant and reassures them of their ability to work. Shumaker et al (2016:54) recommends that hands on practice during training programme is significant for better understanding of skills imparted. They went ahead to record that library professionals are obligated to expand skills in organizing and arranging the information and make available the equivalent to the needy users both able and disabled.

Coetzee (2016:22) records that VIS depend on the assistance of the librarian in accessing, retrieving and using the library resources. Ekwelem (2015:35) states that there is need for librarians to be equipped with modern technology skills to understand and exploit ICT infrastructure and emerging technologies for effective service delivery to the library users. He further recommended for a priority to be given for better training of the 21st librarian through workshops for better communication and services offered. Coetzee (2016:52) opines that VIS positive experience in the library would encourage a frequent use of the library while a negative experience will lead to a non-usage of the library. **Adekunle, Omoba, & Tella** (2007:8) states that there is need to employ library staff specifically meant to read to the VIS.

Adekunle (2007:159) reports that attitude is a learned emotionally toned character to react in a steady way favorable or unfavorable towards a person, thing or idea. Generally, attitude may be defined as the total of a man's tendency and feelings, prejudices or bias, predetermined notions, thoughts, uncertainties and convictions about any specific subject. A person's attitude prepares him to respond to a given incentive in one way rather than in another. Therefore, the library staffs are important component in the library achievement of its objectives. This is seen by the role they play in the organizing and carrying out of the library processes by the training acquired facilitated by the information technology available and their attitude towards library users and library work.

According to Stebelman et al (1999:122) on the role of Administrators in library services, they opine that, the Administrators determine the quantity and quality of the library services be achieved other than the students themselves. They further urged that the administrators are involved in the determination of the Library budget, approval of the acquisition of the print resources, library management systems and defining the library status and plunder. They concluded that, the librarians should lobby for more money from the Administrators to be spent in hiring needed staff, for strengthening collection development, improve of physical facilities and for the subscription of electronic resources to meet the information needs of library users.

2.1.4 Challenges Faced when Meeting Information Needs of VIS and HIS.

Moore, (2000:12) states that, the library is expected to serve all users equally thus visually and hearing impaired students should receive nothing less. For such professional attention to be made available, the size of the library, special services available, number of staff trained to offer such specialized services etc. should be put into consideration. The library staff should understand users' special information needs, not limiting to the deaf culture, community needs, specialized collection development, assistive listening devices, captioning of video programmes, specialized alerting devises, technological communication aids, reading levels and use of Braille. The library staff offering user services can be trained with other local groups serving people with hearing impaired or some staff can be sending to receive formal training and assigned with the responsibility of training the rest of the library staff.

Moore, (2000:13) recommends that having an established independent office or department that would take care of the provision of such specialized services to students with visual and hearing impairment would be advantageous to both the students and the organization. It will serve as a conduit for network of other libraries that provide services to students with visual and hearing impairment and communicate to them about any modern technology and latest techniques. The department would also be able to share materials and services to both the staff and the students themselves.

Moore, (2000:14) recommends that for effective communication with students with visual and hearing impairment, library staff should receive Kenyan Sign Language (KSL) training and in addition to that one library staff that is responsible with provision of user services should be fluent and be knowledgeable of the factors affecting visually and hearing impaired students together and be fluent in sign language. However, other library staff should have basic knowledge about them.

Subramaniam et al, (2013:8) states that library staff should undergo pre-service training or in-service professional development for the skills required to communicate and effectively offer customized services to students with disability. This training will facilitate a welcoming environment to students with disability for better academic performance. Dermody (2011:15) indicates that the library staff that offer users services play a crucial role to minimize database searching barriers. Subramaniam et al (2013:8) denotes that lack of specific skills training within the library and information studies curriculum in Sign language and brail reading has a negative impact on how the staff offer the user services to the students with disability since they take it as a bother to learn the different aspects of multimodal approaches required for them to effectively serve students with disability effectively.

According to **Subramaniam et al** (2013:5) acquisitions librarians are seen to have a bias towards selection/acquisition of information materials meant for students with disability and even availing assistive technology know how in the librarians' duty as a technology specialist. He further states that the librarians' coursework lacks the dedication to prepare for the emerging trends in the challenges facing students with disabilities.

Coetzee (2016:22) opines that separate rooms like carrels are experienced as quite, convenient, comfortable for discussion with those who help them, usage of AT facilities, safe and conducive for personal studies is recommended as much as study at reports that Stellenbosch University library lacks a dedicated room for promoting a sense of safety and belonging to the VIS just as Maslow's hierarchy of needs states. Adekunle, Omoba, & Tella, (2007:8) records that the VIS are in a poor position to use AT facilities because they are not trained in reading and writing using the Braille. He further stated that VIS use normal printed information materials than the large prints and Braille books because there is lack of information material in appropriate format. Coetzee (2016:49) states that the VIS at Stellenbosch university library rarely use the OPAC due to the lack of awareness, information literacy training on the access, retrieval and usability of information resources. Atabor (2015:53) states that inadequate and unskilled library staffs are listed as paramount hindrances experienced in the library.

2.2 Models of Information Seeking Behaviour

Esew et al (2014:12) defined Model as a basic framework representing variables that offers possibilities for explaining relationship of concepts and ideas for successful execution of concepts to produce desired outcome. Various models of ISB have been developed by different authors. Listed below are models of ISB that have been documented.

2.2.1 Wilsons Model of Information Seeking Behaviour

Case (2012:139-149) states that Wilson (1981, 1994, 1997, 1999a) models identify 12 components which start from information user to information satisfaction or dissatisfaction. It identifies user information needs as a focus point that leads the user into a cluster of activities to be achieved through information exchange/ transfer between information systems, information resources and human resources during information use and seeking behavior.

2.2.2 Bystrom & Jarvelin Model of Information Seeking

Case (2012:139-149) states that Bystrom & Jarvelin (1995) model of information seeking discusses about the way in which information users operate to finish the information retrieval task. Bystrom & Jarvelin (1995: 135) model opines that a task

completion depends on the degree to which the mental ability is to finish the complex task. The mental ability is manipulated by the personal factors and situational factors which information users are involved in to analyze the information needs to be satisfied.

2.2.3 Kuhlthau (1991) Model

Case (2012:139-149) opines that **Kuhlthau (1991) referred to the model by that reference.** model developed the information seeking behavior model known as “Information Search Process”. The model focuses on how a user feelings, thoughts and actions grow as the user becomes aware of a gap in their knowledge. These stages include initiation, selection, exploration, formulation, collection presentation and assessment.

In the Kuhlthau information seeking behavior model, the user who comes in the library feeling uncertain and vague seeks information that is relevant to his/her information needs. Through the selection of the available resources, the library user becomes optimistic and explores through the collection. The library user therefore, finds clarity of his/her information needs and gains a sense of direction and confidence in the collection which he/she then presents in his/her desired format (Kuhlthau, 2005:1).The vice versa is true where a library user goes through the same process and comes out disappointed. All through the Kuhlthau information seeking behavior model, the librarian becomes a point of focus that ensures all the stages are well achieved by the library user as they physically search the information resources in their impaired state meeting their information needs. Therefore, the researcher will apply the Kuhlthau model in this study (Kuhlthau, 2005:1).

2.3 Conceptual Frame Work

A conceptual framework is an analytical tool with several variations and context which provides knowledge of facts that are seen to be harder to comprehend making them rather softer to comprehend. Conceptual framework has both dependent variables and independent variables that are manipulated by intervening variables to provide outcome desired in the study. Mugenda & Mugenda (2008:7) states that an independent variable is manipulated to determine its influence on another variable. Independent variable is linked to dependent variable by an intervening variable.

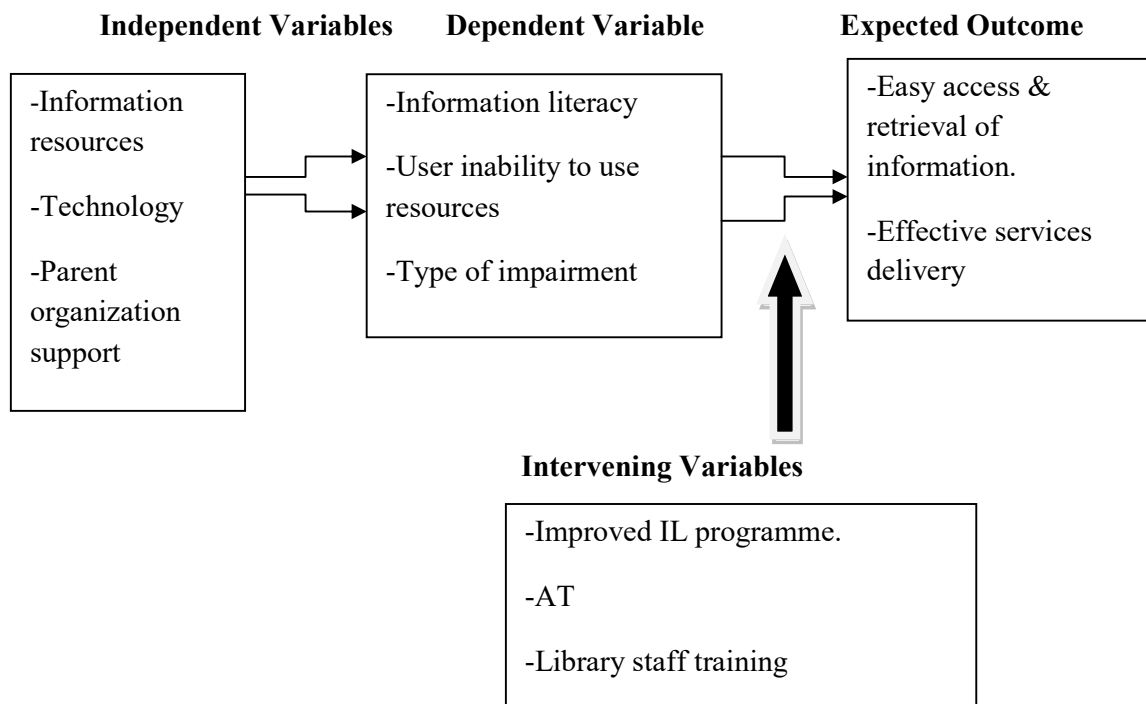
The researcher will consider the following variables in the study. Independent variables could include: information resources, technology and Parent organization support. Dependent variable could include: information literacy, user inability to use resources and type of impairment. Intervening variables could include: improved information literacy programme, AT and library staff training while Expected outcome could include: easy access and retrieval of information and effective service delivery.

This study explores major aspects that affect the information needs of students with visual and hearing impairment. Availability of assistive technology and proper infrastructures and resources provide a better environment for easy access and retrieval of information. Students' impairment determines how their information needs are achieved while skilled librarians and sound policy framework provide an elevated level of service delivery.

The conceptual framework is generated on the concept that more than one factor interrelates and affect one another. Thus, effective utilization of information resources by visually and hearing impaired students cannot be achieved without availability of assistive technology, sound infrastructure and resources, skilled librarians, easy accessibility of resources and proper implementation of disability mainstreaming library policy. Thus, effective service delivery to students with visual and hearing impairment in the academic libraries.

In conclusion the conceptual framework diagram shows the relationship existing in meeting the information needs of the visually and hearing impaired students through the availability of assistive technology, awareness of information, proper infrastructure and resources, trained librarians, sound policy framework and the accessibility of information resources.

Figure 2.1 conceptual framework



Source: Researcher 2018

2.4 Chapter Summary

This chapter reviewed related literature on the type of information resources searched by visually and hearing impaired students at University of Nairobi libraries. The study reviewed the methods of access to information resources and services used by the VIS and HIS. The role of the librarian in meeting the information needs of visually and hearing impaired students at University of Nairobi libraries and the challenges faced when meeting information needs of the visually and hearing impaired students at University of Nairobi libraries were also reviewed. The chapter included the Kuhlthau information searching process model and the conceptual framework showing the relationship between variables of the study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research methodology adopted for the present study. It represents the research design, case study, target population, sampling techniques, sampling size, research instruments, validity of research instruments, pilot study, reliability of research instruments, administration of research tools, data analysis and ethical considerations.

3.2 Research Design

Chinnathambi (2013:22) defines research design as an agreement of approaches that can be used for collection and analysis of data in producing solutions to the research problem, sources and knowledge associated to the issues at hand, expected cost budget and the time duration. The design facilitated a platform where the researcher collected information anchored to the objectives of the study.

Creswell (2013:86) states that the quantitative design is used in examining the theories through keen examination on the relationship among variables that are presented in closed-ended questions where numbers are generated which are then analyzed by statistical procedures. The study employed both qualitative and quantitative research design. In the qualitative design, the role of the librarian in meeting the information needs of students with visual and hearing impairment was explored and understood by the researcher who made interpretation of the data collected by use of words from the closed-ended questions.

The design helped the researcher in translating how the variables relate with one another to obtain information on the present status of the situation. The design used questionnaires with both closed ended and open-ended questions in answering how, what and where the librarians' role is in meeting the information needs of VIS and HIS.

Table 3.1 Type of Research Design to be Used.

OBJECTIVES	RESEARCH DESIGN	METHODS OF ADMINISTRATION	TOOLS USED
Type of information resources searched.	Quantitative/ Qualitative	Questionnaire	Closed ended, open ended
Access to information resources.	Quantitative/ Qualitative	Questionnaire	Closed ended, open ended
Role of librarians.	Qualitative/ Quantitative	Questionnaire	Closed ended, open ended.

Source: Researcher 2018

3.3 Target Population

The population of the study consisted of all the VIS and HIS undergraduate students in the University of Nairobi, the library staff offering user services in the libraries, the DVC Academic Affairs and staff from the Dean of students' office. These included libraries in the six colleges at the University of Nairobi.

3.4 Sampling Technique

Kumar (2012:177) states that “sampling is the practice of selecting units (e.g. people, organizations) from a population targeted so that by monitoring the sample, a fair generalized conclusion can be made as true to the population by the sample chosen.” Therefore, a research sample is the explicit segment of the population that is to be studied since it is practically complicated to study the entire population (Mugenda & Mugenda 2008:97). The researcher used purposive sampling technique to select on the library staff that offer user services on the colleges where all the undergraduate VIS and HIS are based while the University of Nairobi Administrators selected by purposive sampling to only those who are involved with establishment of the library

acquisition policy for the information resources utilized by this group of users and the Administrator that is involved in policy making.

3.4.1 Sampling Size

The sample size was as large as possible for it to be valid Kumar (2012:177).It is therefore, all University of Nairobi undergraduate students with visual and hearing impairment, DVC academics Office, Dean of students’ staff and the librarians offering user services formed the sample of the study. Kumar (2012:190) States that Snowballing sampling technique is frequently applied in such kind of study. This is because “It is used mostly in hidden population from the researcher to access but grow as the snow ball rolls to connect all those with mutual association create a relationship as information is shared and collected. Therefore, the researcher involved all students with visual and hearing impairment all known to her and those not.

Purposive sampling techniques was used to select the 1 staff from the Dean of students’ office who is in close contact with VIS and HIS, the DVC Academic Affairs who is in charge of policy making and the 9 library staff who offer services to this special group of users, all 19 visually impaired students and 7 hearing impaired students. According to the University of Nairobi structure, only 1 administrator is assigned the duty of linking the impaired students with the UoN management and other departments.

Table 3.2 Sample Size

Colleges	Respondents				Total
	Visually impaired	Hearing impaired	Library staff	Administration	
CHSS	9	1	3	2	12
CAE	2	2	1	-	5
CEES	2	2	1	-	5
CHS	1	-	1	-	2
CBPS	3	2	2	-	7
CAVS	2	-	1	-	3
TOTAL	19	7	9	2	37

Source: Researcher 2018

3.5 Research Instruments

Oman (2013:59) defines data collection methods as the process through which information needed to answer the research problems are collected by the researcher from the respondents. This is done through the various data collection tools that suit the type of research undertaken. The research instrument used in this study is the questionnaire.

3.5.1 Questionnaires

Abawi (2013:3) defines questionnaires as primary sources of data collection tools consisting of both closed-ended and open-ended questions for the target of collecting data from respondents. Questionnaires are designed to collect data of the specific objective of the study (Soar, & Arthur, 2013:76). Some of the advantages of the questionnaires that the researcher will benefit include but not limited to: easier to administer since each question is followed by alternative answer, they are economical to use in terms of money and time and the researcher will have easier time to analyze data collected since they are in an immediate useable form (**Oman, 2013:56**).

The questionnaire comprised of four sections. These included sections A: General Information, Section B: type of information needs, section C: methods used to access information, section D: role of librarian and section E: will capture the challenges and possible solutions. The researcher used closed ended questions in the biographical information, type of visual and hearing impairment, type of information needs, ease of access of library resources, assistive technology and information literacy to both the staff and students while the open-ended questions were employed to the challenges faced by staff and students in meeting the information needs of visually and hearing impaired needs and recommendations suggested by both the students and staff.

3.6 Pilot Study

The researcher pre-tested the research instruments on the visually and hearing impaired students and library staff of Mount Kenya University that are not part of the study. The researcher distributed the questionnaires to 2 visually impaired students, 2 hearing impaired students and 2 library staff who were purposively selected. The pilot study enabled the researcher to rephrase and revise the layout of the research instruments before administering the actual data collection process.

3.7 Validity of Research Instruments

Zohrabi (2013:258) states that Validity is the concept of trustworthiness, dependability and utility that is placed to data collected by the different stake holders. This is to assess whether the study is true, believable and can evaluate that which it is supposed to evaluate. The validity was done by conducting a pilot test for simplification and direction of the questions.

3.8 Reliability of Research Instruments

According to Zohrabi (2013:259) reliability is the aspect that deals with the dependability, consistency and the replicability of the data gathered from the respondents. He goes ahead to state that the study should have both internal and external reliability where the similar findings as the original study will be produced in case of a re-analysis of the same finding. The researcher used test re-test method to pretest the reliability of the instruments by subjecting the same research items to the pilot group drawn from Mount Kenya University library. The pilot study facilitated the well structured questions and made the questionnaire to be more achievable and measureable.

3.9 Administration of Research Tools

Questionnaires were used to collect data from VIS and HIS, staff from the DVC academic office, dean of students' office and the librarians offering user services in the libraries. The researcher sent the questionnaires in person through Google Forms after she collected their email address through physical contacts or mobile texting and calling to the respondents and constantly reminded them for responses.

3.10 Data Analysis

The data that collected was subjected to both quantitative and qualitative analysis (Kumar, 2014:226). In the quantitative method, analysis was done by descriptive statistics i.e. Excel and Google forms summary that were used to generate frequencies and percentages. In qualitative data, the data collected by the open-ended questions in the questionnaire were sorted out, classified and categorized as per the objectives, themes and later presented in textual mode, while quantitative data were presented in tables, charts and graphs as observed by Kumar (2012:227).

3.11 Ethical Considerations

The validity and reliability of all data collection instruments of this study were done before data was collected so that useful information was generated. The researcher learnt the basic Kenyan Sign Language before embarking to data collection exercise. Permission and clearance were sought from concerned relevant authorities. All information from previous authors was properly cited to avoid plagiarism. In addition, informed consent from the respondent will be sought before questionnaires are issued out and even before the interview is carried out. Confidentiality and anonymity of respondent was respected as the purpose of the study was well known to the respondents. Lastly, the integrity of the study was upheld as no manipulation of the results was done.

3.12 Chapter Summary

This chapter discussed and provided a general overview of the research methodology used to accomplish the study objectives. The chapter covered research methodology, research design, case study, target population, sampling technique, sampling size, and the research instruments. The validity of research instruments, pilot study, reliability of research instruments, administration of research tools, data analysis and ethical considerations were also discussed.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND DISCUSSIONS

4.1 Introduction

This chapter analyses, interprets and discusses the data collected from the research study. The chapter analyses the findings in tables and figures which are then presented in charts, diagrams, themes and graphs. The findings relate to the study objectives. They include: demographic details, information needs, accessibility of information resources, assistive technology, role of the librarian and challenges and solutions faced by both the visually and hearing impaired students and the librarians during the meeting of the information needs of visually and hearing impaired students. The responses collected from the questionnaires administered, have been analyzed using Google forms and simple excel sheets. Finally, the researcher provided the summary of this chapter.

4.2 Response Rate of Respondents.

The study targeted 19 visually impaired students, 7 hearing impaired students, 9 library staff offering user services and 2 University of Nairobi administrators. The response rate is represented in table 4.1

Table 4.1: Response Rate of Respondents

Group of respondents		Distributed	Returned	Percentage %
Visually Impaired Students	19	13	94.74	
Hearing Impaired Students	7	5	71.43	
Library staff	9	9	100	
UoN Administrators	2	2	100	
TOTAL	37	34	91.89	

A total of 37 questionnaires were issued out, while 34 were dully filled and returned to the researcher and 3 were not returned. This constitutes a 91.89% response rate for the questionnaires were dully filled and returned. Rubin and Babbie (2016:191)

proposed that a response rate of at least 50% is good enough for research. Therefore this response rate can be deemed as excellent.

4.3 Responses on Demographic Information.

Demographic data of the respondents was inquired by the study. Granting that it was not part of the purpose of the study, the parts of the data was anticipated to describe demographic variables of the sample and to measure for any impact on the study findings. The demographics included details like: name of the department, course undertaken, age, gender, year of study/experience, level of education by the library staff and University of Nairobi administrators, type of impairment. Demographic data was important to give light to the responses obtained in the study which assisted in differentiating the category of users as per the details researched.

4.3.1 Responses on Age of the Respondents

4.3.1.1 Responses on Age of the Visually and Hearing Impaired Students.

The study sought to find out the age of the VIS and HIS. The researcher established that most of the VIS and HIS were aged between 21-25 years 9 (50 %), 26-30 years 4 (22 %), 31- 35 years 3 (16 %) and above 35 were 2 (12%).The findings were as indicated in Figure 4.1.

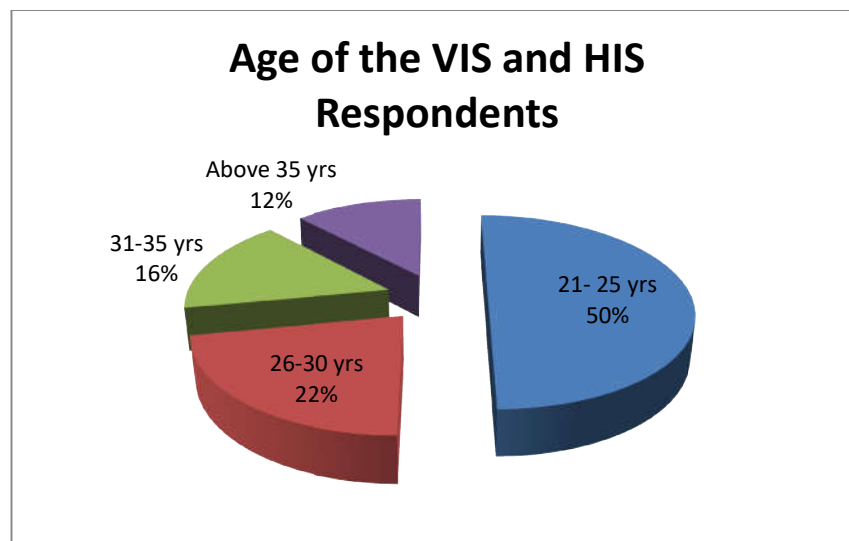


Figure 4.1 Age of the VIS and HIS.

The study indicates that despite of the students' impairment the respondents are of the same age as the able students. This is explained by the enrolments into the universities where virtually all first years who are absorbed from high school fall under the same age bracket. Kiambati (2015:36) further confirms that age has a contribution to the library preparedness of the young students information needs.

4.3.1.2 Responses on Age of the Library Staff and UoN Administrators.

The study sought to establish the age of the librarian offering user services and the University of Nairobi Administrators. The study showed that the majority of library staff that offer user services age between 31-40 years 4(36.36%). Other respondents age vary from 20-30years 1(9.09%), 41-50 years 2(18.18%) and 51 and above 1(9.09%), while 3 (27.27%) did not fill their ages. This information is represented in Figure 4.2.

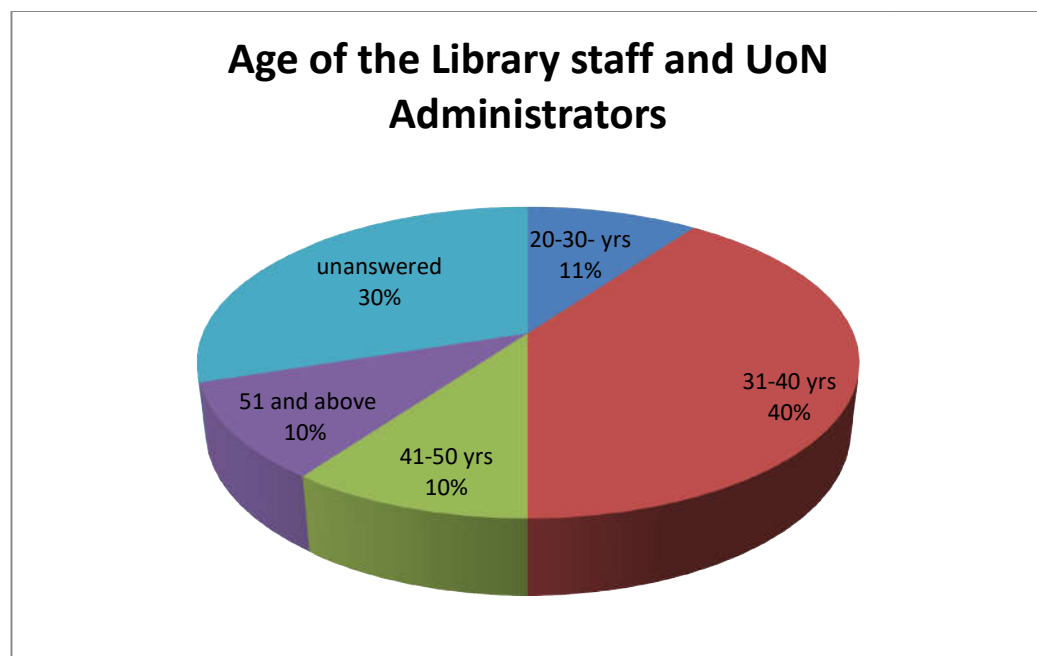


Figure 4.2 Age of the Library Staff Offering users Services and UoN Administrators.

This depicts that the library staff have a relatively young generation serving at the service points hence, the opportunity to facilitate training especially to the young librarians as a way of enhancing specialized services (Moore, 2000:12). This is the appropriate age brackets which the University of Nairobi administrators would

interact with the group of the students with ease as they represent them well in the policy making forums.

4.3.2 Responses on Gender of the VIS, HIS, Library Staff and UoN Administrators

The researcher sought to find out the gender of the VIS, HIS, Library staff offering user services and the University of Nairobi Administrators. It was found out that, majority of 14(78%) of the respondents were male while 4(22%) of the respondents were female.

On the gender of the Library staff and the University of Nairobi administrators, the researcher found out that the female gender represented 6(54.54%) of the respondents while the male represented 5(45.45%) of the respondents. The information is presented on Table 4.2.

Table 4.2 Gender Responses of the VIS, HIS, Library Staff and UoN Administrators

GENDER					
TYPE OF RESPONDENT	MALE		FEMALE		TOTAL
	F	%	F	%	
1 VIS and HIS	14	78%	4	22%	18(100%)
2 Library staff &UoN Administrator	5	45.45%	6	54.54%	11(100%)

This translates that, there's gender imbalance of students with both VIS and HIS. Ekwelem 2013:24) records that there is a large number of male students with disability at the Enugu State University of Technology. These findings are similar to that of a research presented in a March, 2008 report by the Kenya National survey for persons with disabilities as cited in (Kiambati, 2015:35) whose findings indicated that there was a higher proportion of males than females at all levels of education.

This illustrates that the gap between the female and the male library staff offering user services and the University of Nairobi Administrators was scarcely close and no preference is found.

4.3.3 Responses on Year of Study of VIS and HIS.

The study sought to find out the year of study of VIS and HIS. This depicts 10(55%) of the respondents while others were in their third year 4(22%), second year 2(11.50%) and fifth year 2(11.50%) and none in first year 0(0%) respectively. The findings were as indicated in Figure 4.3

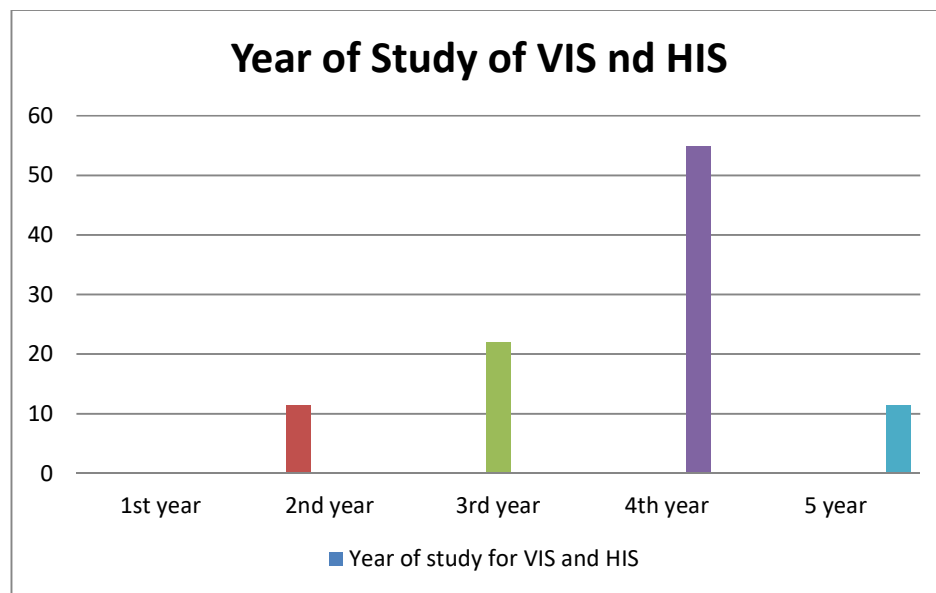


Figure 4.3: Year of Study of VIS and HIS.

The study explains that most of the VIS and HIS were in their fourth year. Kiambati (2015:37) also found that most of the respondents of that level of study have accessed and used the library thus knowledgeable study.

4.3.3 Responses on Years of Experience of Library Staff and UoN Administration.

The study also sought to find out on the years of experience of the library staff offering user services and University of Nairobi Administrators. Majority of 5(45.45%) of the respondents had an experience between 1-10 years. The remaining had worked for 11-20 years 3(27.27%), 21-30 years 1(9.09%), and 31 and above

0(0%) and 2(18.18%) did not answer the question regarding years of experience respectively. The findings are illustrated on Figure 4.4.

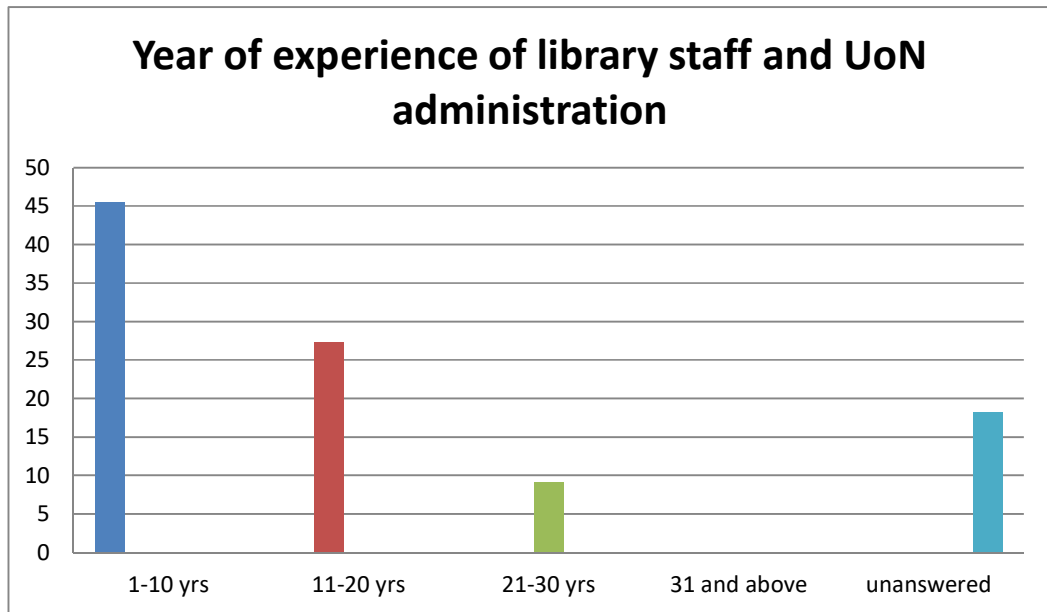


Figure 4.4 Years of Experience of Library Staff and UoN Administration

The findings confirm with Ekwelem (2015:24) findings which recorded that there is need for librarians to be equipped with modern technology skills to understand and exploit ICT infrastructure and emerging technologies for effective service delivery to the library users.

4.3.4 Responses on Departments

The study also wanted to determine the courses undertaken by the undergraduate VIS and HIS at the University of Nairobi. The findings illustrate that the respondents are undertaking computer science, Bachelors of Science in chemistry, Bachelors of economics, Bachelors of Science in agribusiness management, International studies, bachelors of medicine and surgery, mechanical engineering and Architecture of design, Bachelor of political Science, Journalism, Sociology, Bachelor of commerce and Bachelors of Arts in education. The study illustrates that majority of VIS and HIS study science oriented courses that explains that they are intelligent persons despite of their impairment this concurs with the study done by Coetzee (2016:63) which recorded that the VIS take slightly more time to study however they have more ability

to understanding of concepts and its implementation to practical than the sighted library users.

4.3.5 Responses on Nature of Visual and Hearing Impairment

4.3.5.1 Responses on Nature of Visual Impairment

At this section, the study sought to establish the nature of visually impairment of the VIS. A larger number of VIS respondents 5(38.5%) were suffering from total blindness significantly response to the question (question 5 see appendix IV). While other respondents suffered from low vision 4(30.8%), partial sighted 4(30.8%) and none of the respondent suffered from legal blindness. Table 4.3 displays the findings.

Table 4.3 Nature of Visually Impairment of the VIS.

Nature of impairment	Frequency	Percentage%
Total blindness	5	38.5%
Legal blindness	0	0%
Low vision	4	30.8%
Partial sighted	4	30.8%
Total	13	100%

This finding concurs with the research quoted by (Kiambati 2015:38) citing from World Health Organization in global data on visual impairments, 2010 which results showed the approximated figure of world’s people with visual impairment to be 285 million, 39 million blind and 246 million having low vision (“GLOBAL DATA ON,” 2010).

4.3.5.2 Responses on Nature of Hearing Impairment

The study also sought to establish the nature of hearing impairment of the HIS. Majority of 3(60%) of the hearing impaired suffer from Sensory Neural hearing loss, 1(20%) suffered from conductive hearing loss and 1(20%) suffered from mixed hearing loss respectively. The findings are displayed on Table 4.4.

Table 4.4 Nature of Hearing Impairment of the HIS.

Nature of impairment	Frequency	Percentage%
Conductive hearing loss	1	20%
Sensor neural hearing loss	3	60%
Mixed hearing loss	1	20%
Auditory Processing Disorder	0	0%
Total	5	100%

The findings confirm the research done by Coetzee (2016:21) which recorded that different nature of impairment requires different type of AT facilities.

4.3.6 Responses on the Level of Education of Library Staff and UoN Administration.

In line with the level of education of personnel, the study sought to find out the level of education of library staff offering user services and the UoN Administrators. Majority of the library staff respondents were masters holders representing 5(45.45%), 4(36.36%) had degree qualifications, 1(9.09%) had a diploma and 1(14.3%) had a certificate. The result is shown in figure 4.5.

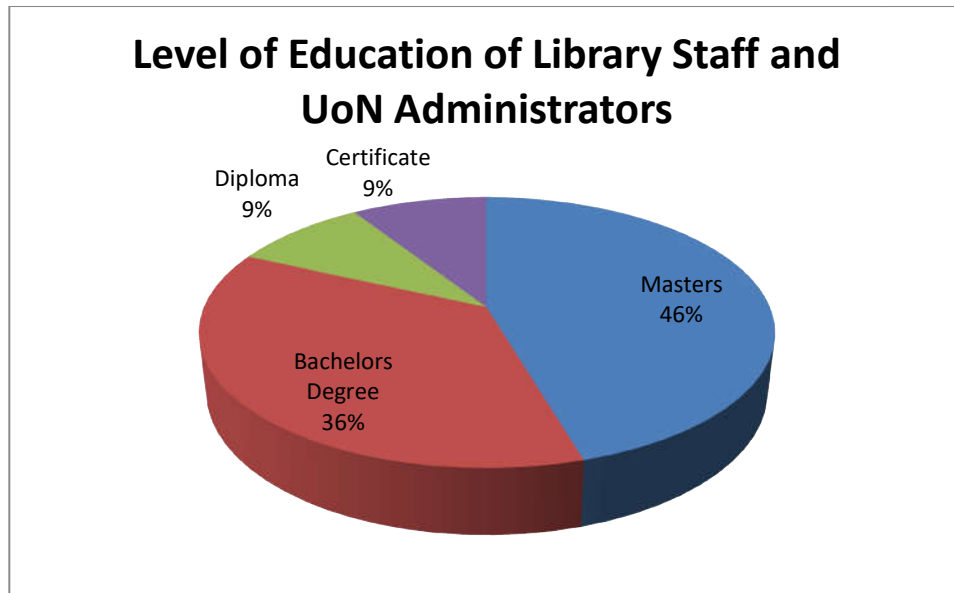


Figure 4.5. Level of Education of Library Staff Offering Users Services of UoN Administration.

This illustrates why most of them were knowledgeable about services rendered to the visually and hearing impaired students since they had undergone professional training. Ekwelem (2015:26) corresponds with the findings by documenting that there is need for librarians to be equipped with modern technology skills to understand and exploit ICT infrastructure and emerging technologies for effective service delivery to the library users.

4.3.7 Responses on Type of Information Sources Searched for by VIS and HIS in the Library.

The study sought to establish the type of information sources searched for in the library by the VIS and HIS. The results illustrate that most of the responses of the VIS and HIS searched for journals 10(55.6%), textbooks 12(66.7%), electronic media 10(55.6%) and references work 11(61.1%), while minimal responses sought for Audio visual 5(27.8%) Reports 4(22.2%), information on the internet 7(38.9%), newspapers 6(33.3%), dissertation and thesis 4(22.2%), emails 5(27.8%), government publications 3(16.7%), and monographs 2(33.3%). Figure 4.6 illustrates the findings.

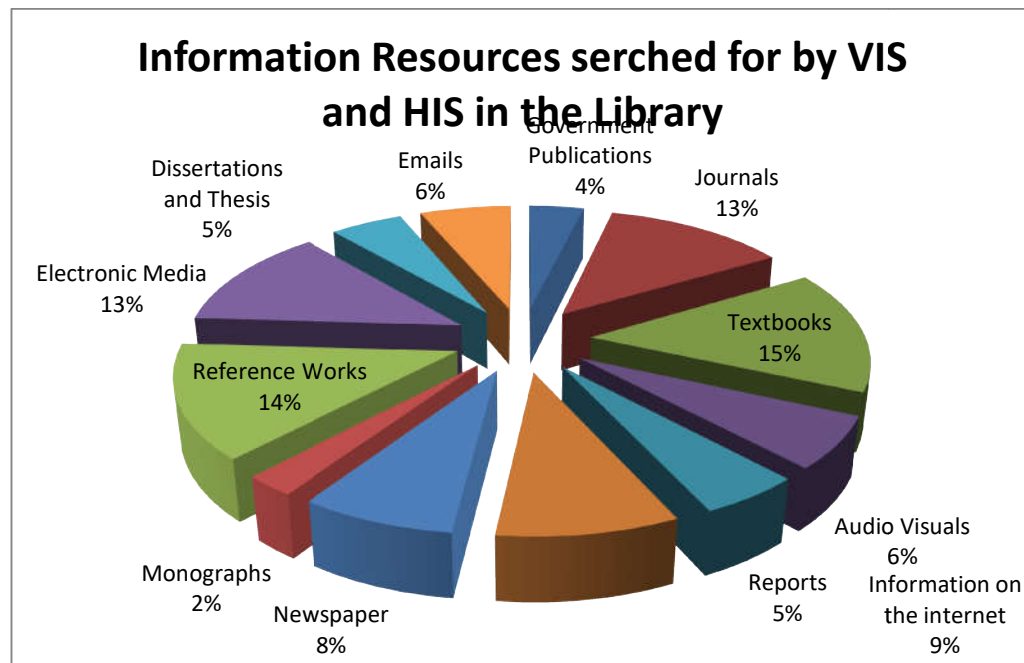


Figure 4.6 Type of Information Sources Searched for by VIS and HIS in the Library.

The results explain that majority of the VIS and HIS that are in their 4th year and above search for educational sources in the library. VIS listed textbook scanning service, course books and statistical reports as other resources searched for in the library. Atabor (2015:47) argues that information related to education needs is considered as very imperative. In addition, Wang & Yu (2017:23) recorded that Information needs of the VIS can be met by searching of the information resources such as journals, textbooks, electronic media, reference work, dissertation and thesis, Audio visual, information on the internet, reports, and many other materials in the library. In addition, the findings is in agreement with Fakoya (2015: 226) who posit that, to improve students' performance, University libraries should ensure that this information materials are available and are both current and relevant in both print and soft copies. This can be concluded that VIS and HIS educational needs, reference and research needs etc. are satisfied with most of the information materials in the library.

4.4 Responses on Accessibility of Information Resources by VIS and HIS Without Assistance.

The study sought to find out how able the VIS and HIS are accessing library resources without any assistance. The researcher established that 14(78%) which is the majority of VIS and HIS could access the library resources without any assistance this could be attributed to many years the respondents had in the UoN while 4(22%) of the respondents are assisted to access the library resources. The results are revealed on Figure 4.7.

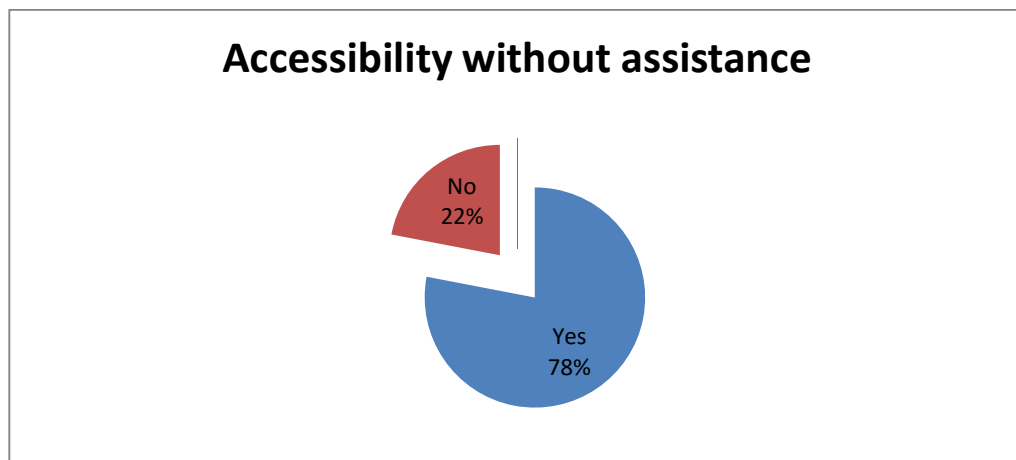


Figure 4.7 Accessibility of Information Resources by VIS and HIS Without Assistance

In contrast, Coetzee (2016:20) reported that, there is need for improved hands on information literacy training for VIS and HIS by the varied AT for better access of library materials. Soar (2013:56) added that majority of VIS and HIS rarely sought help from the library staff unless they are aware of the services available.

4.5 Responses on Time Taken to Retrieve a Single Library Resource.

The study sought to find out the duration of time the VIS and HIS take to retrieve a single library resource. The finding provides evidence that majority of 9(50%) of the responses took 10 minutes, while 20, 15 and 5 minutes took 3(16.7%) each. Figure 4.8 displays the findings.

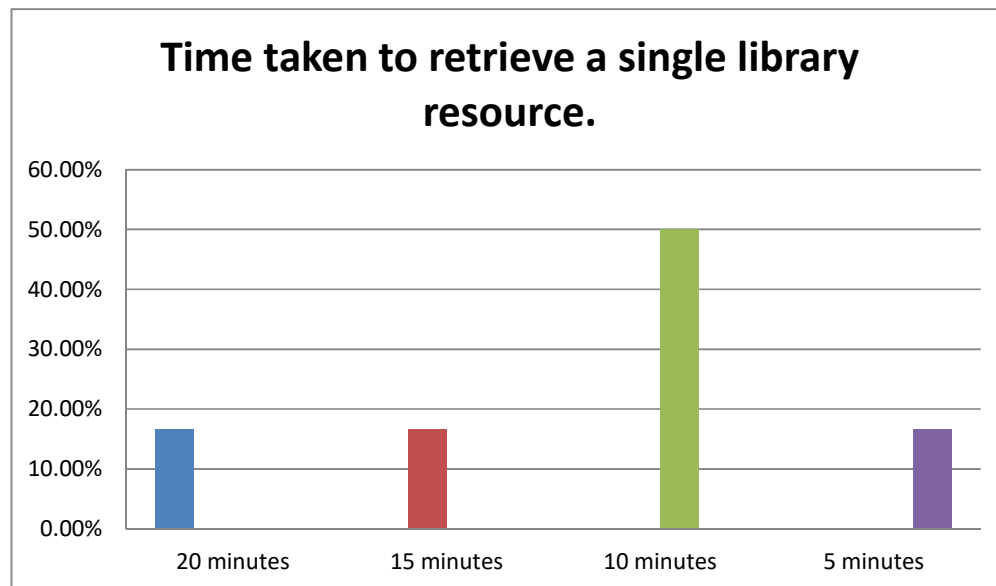


Figure 4.8: Time Taken to Retrieve a Single Library Resource.

Majority of the VIS and HIS took 10 minutes which translates to long hours for searching a single book. (Kiambati, 2015:41) recorded that this can be attributed to the challenges experienced when accessing retrieval and use information resources. This is similar to the findings by Dermody (2011:155) as cited in (Kiambati 2015:41) who pointed towards VIS information seeking behaviour that requires more time to access and use information materials.

4.6 Responses on the Use of the Library Resource by Self.

The study sought to establish how able the VIS and HIS were in using the Library resources. The findings illustrated that 12(66.67%) of the respondents were able to use the library resources by themselves while 6(33.33%) of the respondents were not able to use the library resources by themselves. The findings are illustrated on Figure 4.9.

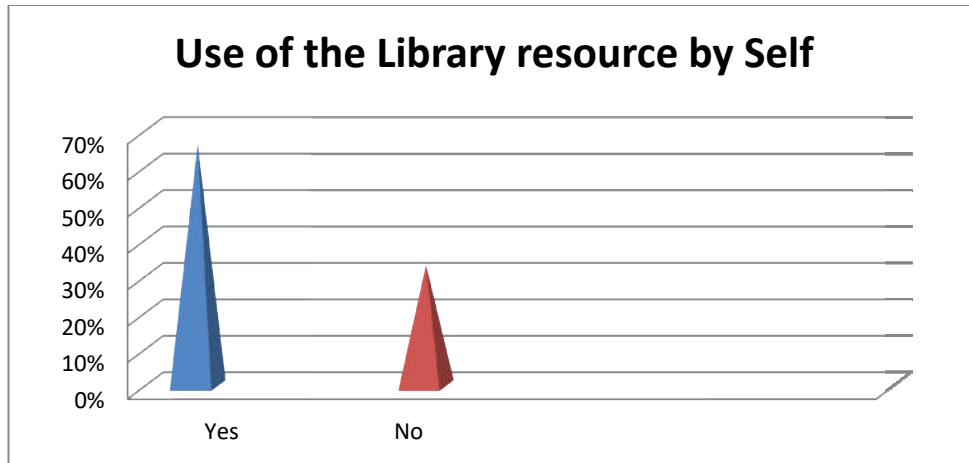


Figure4. 9: The Use of the Library Resource by Self.

Majority of the respondents indicated that they were able to use the library resources which is similar with Dermody (2011:155) who recorded that VIS comfortably access information resources with easy because of the new audio visual technology that is compatible with AT the VIS depend on to learn. However Sanaman (2014:78) indicated that Web 2.0 and the Virtual Learning does not put into concern of its compatibility with the AT available in the libraries.

4.7 Response on the Rating of the Library Services

The VIS and HIS were asked to evaluate the available library services by agreeing on the extent of their effectiveness. The results were illustrated by Figure 4.8.



Figure 4.8: Library Services Ratings

More respondents of 7(38.9%) indicated that the computers in the resource room are connected. 7(38.9%) of the respondents agreed that the internet connectivity of the computers is good while the same percentage strongly disagreed to it. 6(33.3%) of the respondents were uncertain that the computers in the resource center have AT. 5(27.8%) of the respondents were uncertain and disagreed to the fact that there are enough computers with AT in the library. 5(27.8%) of the respondents disagreed on the sentence that they are trained on how to use the AT in the library. 7(38.9%) of the respondents disagreed that it is very difficult for them to use electronic resources. 6(33.3%) of the respondents strongly agreed that the library staff in the section are knowledgeable in assisting them to access E-resources. And 6(33.3%) were uncertain if the staff were enough. Kiambati, (2015:49) indicated that the low number of computers could be linked to the small space dedicated for electronic resources. In similar account, Dermody (2011:153) indicated that the poor internet connectivity could be attributed to power surge and technological connection. Kumar & Sanaman (2013:145) agrees with the informant that ICT have a big impact in VIS and HIS lives since it enables them be independent and increase their confidence in their day to day working. He further records that internet is their preferred medium of access to information within VIS and HIS library users.

4.8 Responses on Information Literacy Training

Regarding attending to information literacy training on awareness and access of library resources, slightly above half of 10(55.55%) responded Yes while 8(44.44%) responded No. those who did not attend the Information Literacy Training explained that they were not aware of the training, they were busy elsewhere and other responded that they did not have AT to facilitate the training. Figure 4.9 presents the findings.

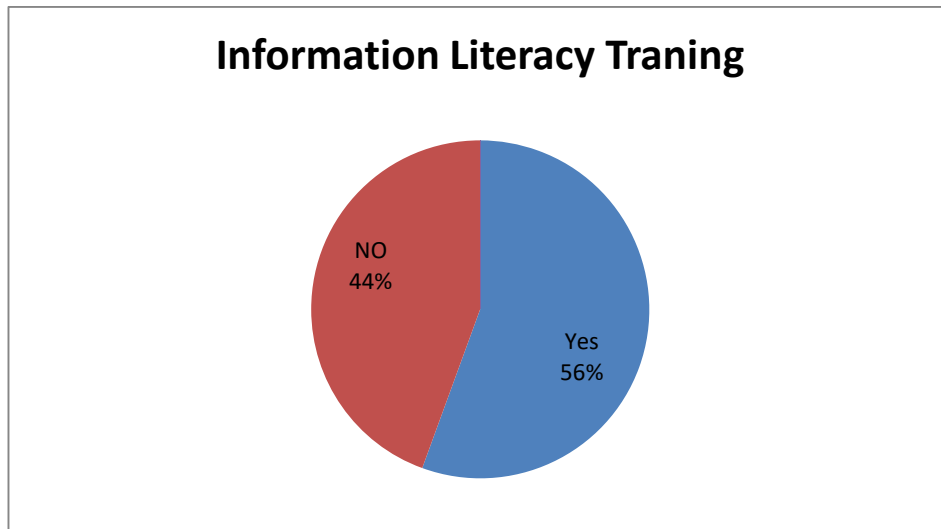


Figure 4.9: Information Literacy Training

This is in line with the findings recorded by (Dermody, 2011:157) that indicated that there is need for improved Information literacy training for VIS with AT for better library use which is a significant component in promoting problem solving and individual learning by University students.

4.9 Responses on Methods Used for Information Literacy Training

The study, through the response of VIS and HIS sought to find out the methods used for Information Literacy training among them. The study established that majority of 10(55.55%) respondents said the group method was used. Other respondents indicated that 5(27.78%) used the Projectors, 4(22.22%) used individualized training and 4(22.22%) used AT in their training. Figure 4.10 illustrated the findings.

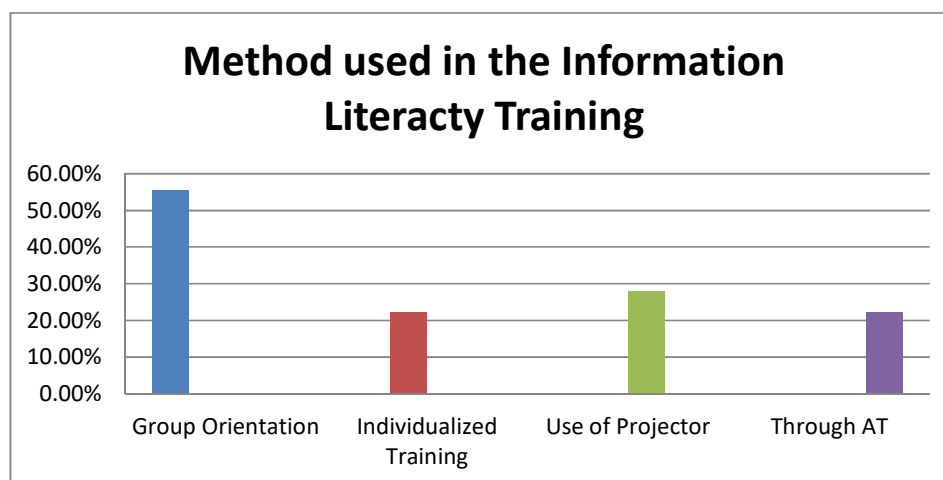


Figure 4.10: Methods Used for Information Literacy Training

This is contrary to Kiambati (2015:68) who found out that use of projector was mainly used. He however recorded that the low usage of the required method is associated with the low knowledge degree of library staff offering training by the AT and individualized training. These results are similar to those reported by Dermody (2011:158) who indicated that, the use of group method is faster and economical to able students but disadvantageous to disabled students.

The study also presented responses by the library staff on how Information Literacy Training to VIS and HIS students is normally conducted. The respondents revealed that individualized training was the most used method when conducting Information Literacy to the VIS and HIS representing 4(44.4%), followed by the use of projector representing 3(33.3%) while Group orientation and Using AT had 1(11.1%) responses each. This translates on how the Library staffs offering User services are not prepared in serving the VIS and HIS. Table 4.8 presented the findings.

Table 4.5 Methods used when conducting Information Literacy Training.

No.	Responses	Frequency	Percentage%
1.	Group orientation	1	11.1%
2.	Individualized training	4	44.4%
3.	Use of projector	3	33.3%
4.	Using AT	1	11.1%
Total		9	100%

4.10 Responses on Knowledge on AT in the Library

The study sought to know how knowledgeable the VIS and HIS are on AT in the library. Slightly above half of the respondents representing 10(55.5%) of the respondents said they are knowledgeable about the AT in the library. While 8(44.4%) said they are not knowledgeable of the AT in the library. The findings were as shown in Figure 4.11.

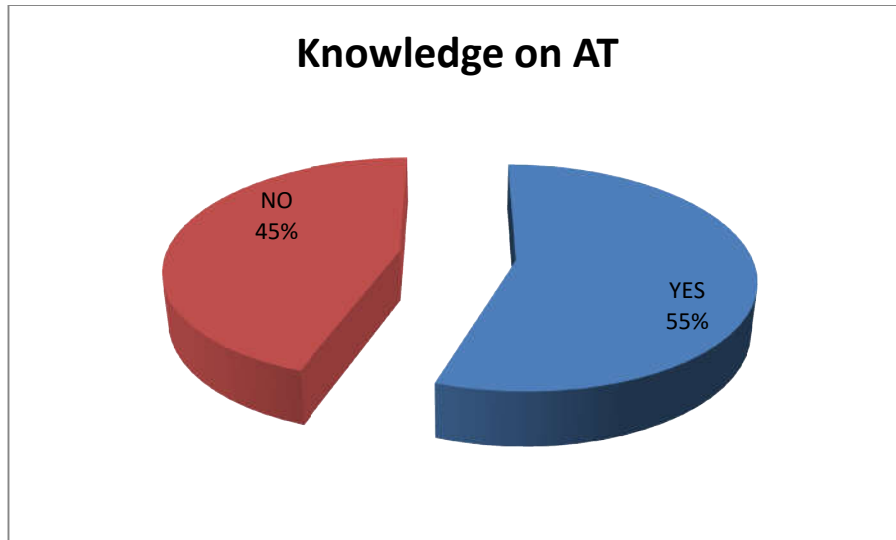


Figure 4.11: Knowledge on AT in the Library.

The results in this study are similar to the one done by Kiambati (2015:59) and Subramaniam et al (2013: 6) that indicates that awareness level of AT among VIS is sufficiently high and therefore a good indication that VIS and HIS within the University are conversant with AT through the numerous researches done and always accessible and marketed AT that is done to the VIS and HIS respectively.

4.11 Responses on Skills on AT

The study went ahead to rate the VIS and HIS on their skills on AT. The study found out that 6(33.33%) of the respondents said good, 4(22.22%) said very good, 3(16.67%) said poor, 2(11.11%) said very poor and 3(16.67%) left the question unanswered. Kiambati (2015:15) has pointed out that library users with Visual impairment do not use the library because of the tough times they have reading. That statement might explain the 16.67%, 11.11% and 16.67% who have poor, very poor,

and unanswered responses respectively. Table 4.5 gives the illustration of the findings.

Table 4.6: Skills on AT

No.	Responses	Frequency	Percentage
1.	Very Good	4	22.22%
2.	Good	6	33.33%
3.	Poor	3	16.67%
4.	Very Poor	2	11.11%
5.	Unanswered	3	16.67%
	Total	15	100%

Research findings by Kiambati (2015:60) also pointed towards majority of the VIS having skills on AT which they received in their primary or secondary background or even trained by the parents before joining the University, hence the 33.33%, 22.22% who said they had good and very good skill on AT respectively.

4.12 Responses on the Type of AT Used in the Library

4.12.1 Responses on the Type of AT Used by the VIS in the Library

In line with VIS, the study sought to identify which type of AT they have used in the library. The study showed that 7(53.85%) which is the majority of the respondents said they have used Jaws for the Windows and Large print respectively. While other respondents of 2(15.38%) said they used Braille books. The results are shown on Figure 4.12.

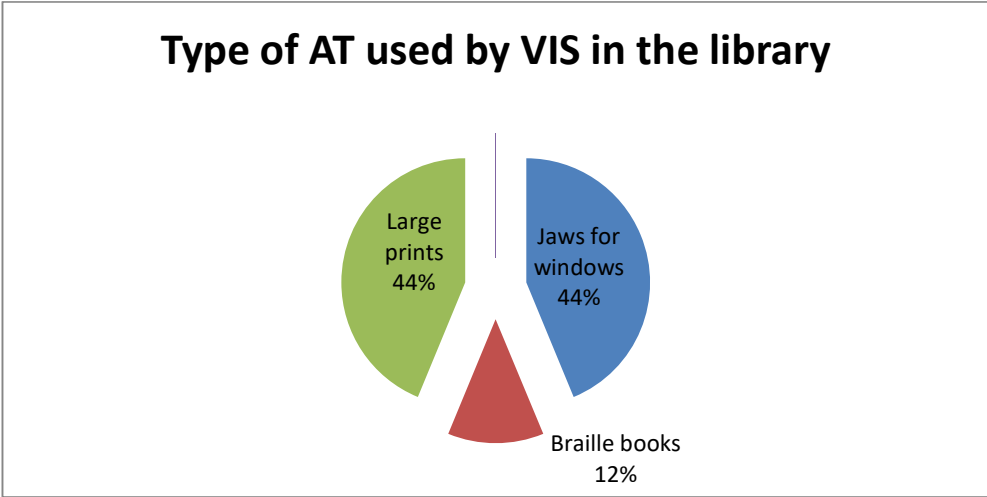


Figure 4.12: Type of AT Used by the VIS in the Library

This shows what AT has been made available in the library for the users’ convenience but they would appreciate using additional AT available in the market to boost their substantial and scholarly access and utilization of library materials, (Subramaniam et al, 2013:6).

4.12.2 Responses on the Type of AT Used by the HIS in the Library.

The study sought to know the type of AT in the library that the HIS used to access information resources. The study established that, 4(80%) of the HIS respondents used Hearing Aids while 1(20%) of the HIS respondents used the Cochlear implants. (Figure 4.13 illustrates the findings.

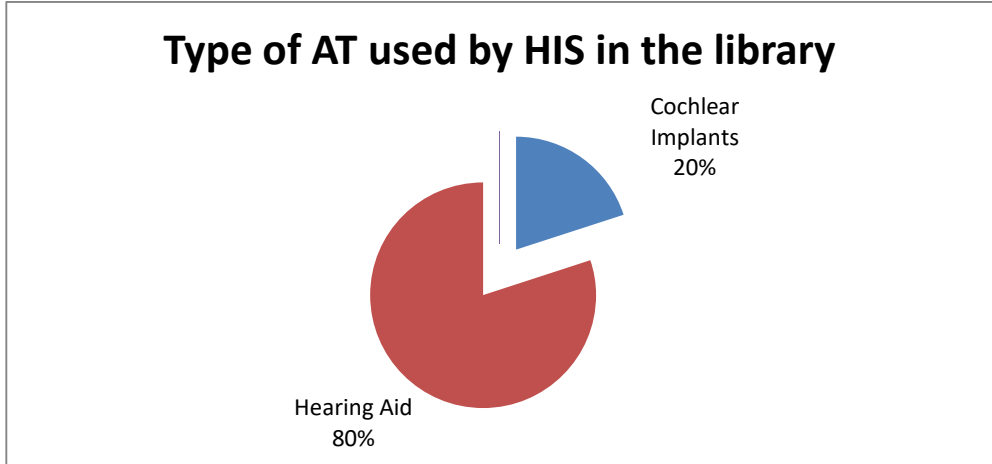


Figure 4.13: Type of AT Used by the HIS in the Library

Coetzee (2016:21) confirms that different nature of impairment requires different type of AT facilities. This confirms that the type of AT used is dependent to the type of hearing impairment. A study by Agboke (2015:12) has shown that adequate Captions resources should be made available in the library for effective learning and research by the Universities for HIS. Golub (2010) cited by Agboke (2015:12) further asserted that Audio materials should be translated into print format to make them into accessible to the HIS.

4.13 Responses on the Role of the Librarian.

The study sought to establish the role of the librarian in meeting the information needs of the VIS and HIS. The data collected revealed that the majority of the respondents said 10(55.6%) said that librarians find information materials for the users, train on the retrieval tools and organize and arrange information materials, 9(50%) of the respondents said that librarians offer reference services and offer quick and easy access to information and 3(16.7%)said that librarians repackage information resources. Figure 4.14 displays the findings.

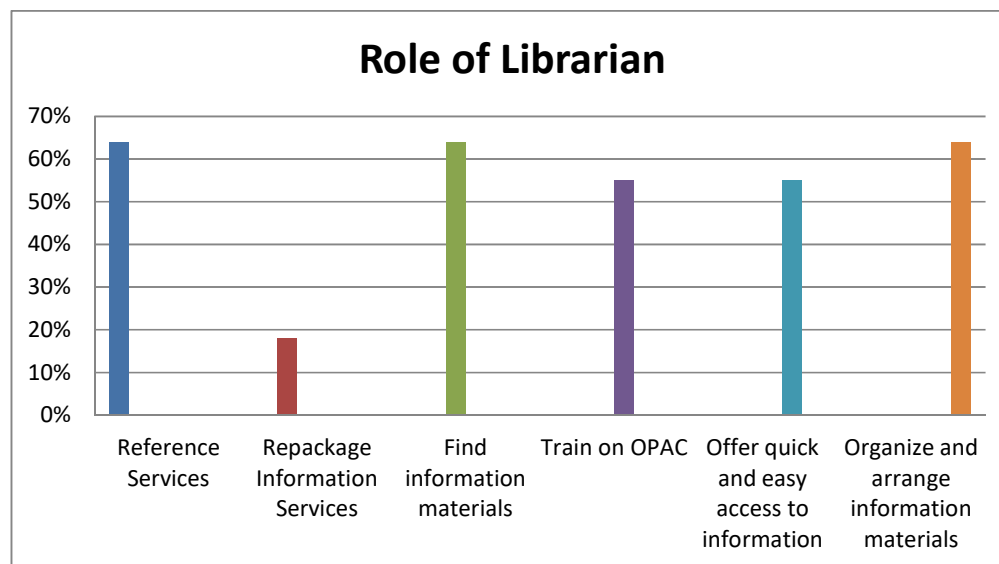


Figure 4.14: Role of the Librarian.

The findings correspond to Verma (2015:92) findings when he reported that in the course of discovering, investigating, amalgamating and repackaging the looked-for information the library staff direct the library users to applicable information that meet their information needs. In addition, Ekwelem (2015:35) documented that

library staff should be prepared with present machinery skills to understand and make use of ICT infrastructure and emerging technologies for effective service delivery to the library users.

4.14 Responses on the Knowledge of Staff on the Use of AT

In response to the question of how knowledgeable the library staff are when offering services to VIS and HIS, 12(70.59%) respondents revealed that the library staff have average knowledge on how to serve VIS and HIS, 2(11.76%) respondents said the library staff have little and very little knowledge on how to serve VIS and HIS, and none of the respondents said librarian have high knowledge. Figure 4.15 presents the findings.

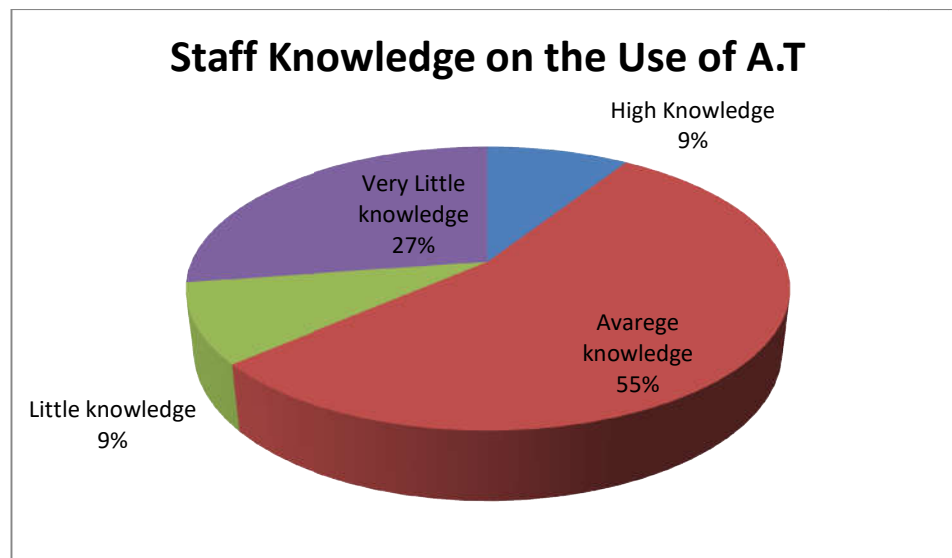


Figure 4.15: Knowledge of Staff on the Use of Assistive Technology

Shumaker et al (2016:54) argued that using AT when training VIS and HIS provide better understanding of concepts taught. In addition Kamila (2013:54) recommended for expansion of relevant skills for effective services to the able and disabled library users since it will boost the morale of the library staff. Considering ‘knowledgeable’ as the yardstick, the library staffs have insufficient knowledge on the assistive technology facilities. Moore, (2000:12) adds that the library staff offering user services can be trained with other local groups serving people with hearing impaired

or some staff can be sending to receive formal training and assigned with the responsibility of training the rest of the library staff.

4.15 Responses on Library Staff Training on Special Skills

The study sought to find out if the library staffs had received any special skills training. The respondents said that 7(78.9%) have not been trained and 2(22.2%) have received training. The respondents went ahead and revealed that the few that had been trained were trained on Kenyan Sign Language and Customer care for People with Disability. Table 4.6 illustrates the findings.

Table 4.7 Library Staff Training on Special Skills

No.	Responses	Frequency	Percentages
1.	YES	2	22.2%
2.	NO	7	77.8%
	Total	9	100%

This could be accredited to lack of staff support through training on assistive technology as recorded by (Kiambati, 2015: 69). A study by (Harris and Oppenheim 2003:246) has shown that, library staff training has a greater impact on improving locating and accessing various library resources by VIS and HIS. He further recoded that, there is need for specific training for particular library staff. He therefore recommended for training of library staff offering user services on VIS awareness training and develop practical skills to help VIS. Subramaniam et al (2013:8) found out that deficiency in Sign language and Braille reading skills training in the library and information studies curriculum has a depressing force on their services to the students with disability since it bothers them to learn the different aspects of multimodal approaches obligatory to effectively serve students with disability. In addition Atabor (2015:53) found out that insufficient and untrained librarians are leading barriers faced in the library.

4.16 Responses on Customized Orientation Program

In line with the orientation program done to the library users, the respondents were asked to reveal whether the orientation program was customized. 8(88.9%) of the respondents said No and 1(11.1%) of the respondents said YES. This explains how

the VIS and HIS were not considered during Orientation Programs. Figure 4.16 presented the responses.

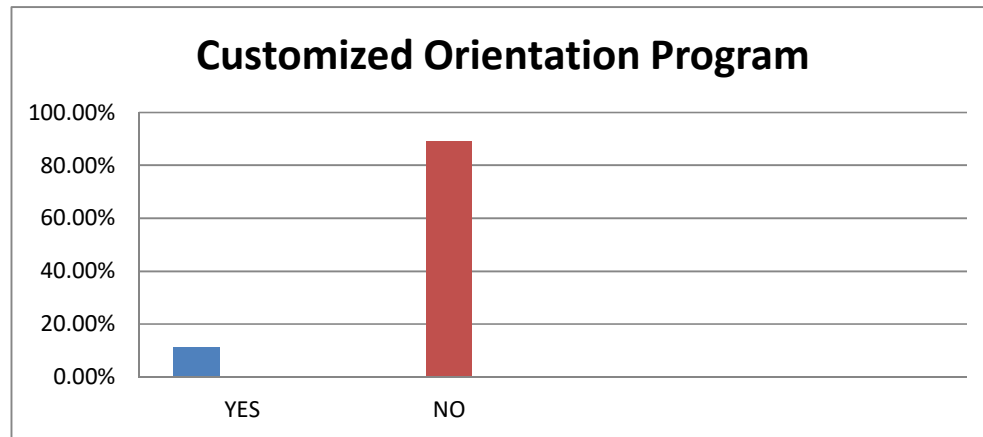


Figure 4.16: Customized Orientation Program

Those who responded YES said the services that were customized were services that are offered to individual user's way after orientation. They included, OPAC, E-resources referencing and citation. Comparable with Harris and Oppenheim (2003:246) who reported that guidance and inductions programmes should be done to VIS for maximum utilization of library services, the library does not consider VIS and HIS in their orientation programme. They further recorded that, the library should advertise its services to all library users and ensures that all students know of the availability of all kind of assistance they can get. Moore, (2000:9) states that for any valuable services to be presented to VIS and HIS, additional efforts, patience, customized, and technological aids should be made available for successful information needs met. This is dependent on the extent of impairment. Samson (2011:24). Agrees with the informants that, it is important to market, promote and publicize available library services in appropriate formats to the VIS. This is because many libraries keep their AT in a separate place.

4.17 Responses on Assistance given to VIS and HIS.

The study sought to determine on the frequency of assistance given to the VIS and HIS. Majority of the respondents at 5(55.6%) said rarely, 2(22.2%) said often, and 1(11.1%) said very often and sometimes. This is an indication that the library staff

offering user services rarely assisted VIS and HIS probably due to lack of the knowledge required. Table 4.8 illustrates the findings.

Table 4.8 Assistance Given to VIS and HIS

No.	Response	Frequency	Percentage%
1.	Very Often	1	11.1%
2.	Often	2	22.2%
3.	Sometimes	1	11.1%
4.	Rarely	5	55.6%
Total		9	100%

Studies done by Harris & Oppenheim (2003:243) in the United Kingdom confirmed that delivery of library services for VIS were inclined to the preceding incident in handling the VIS and the approach of the library staff offering user services. This may also bring out issues that are related to attitude among the library staff when assisting VIS and HIS. This study contradicts the findings of Agboke (2015:12) which stated that library staff should provide Captions resources in the library for persons who are deaf or hard to hear.

4.18 Response on Knowledge on AT

The study sought to find out how knowledgeable library staff are on AT. Slightly above half of the respondents of 5(55.6%) agreed that they have the knowledge on AT and 4(44.4%) said they don't have the knowledge of AT in the library. Figure 4.17 presents the findings.

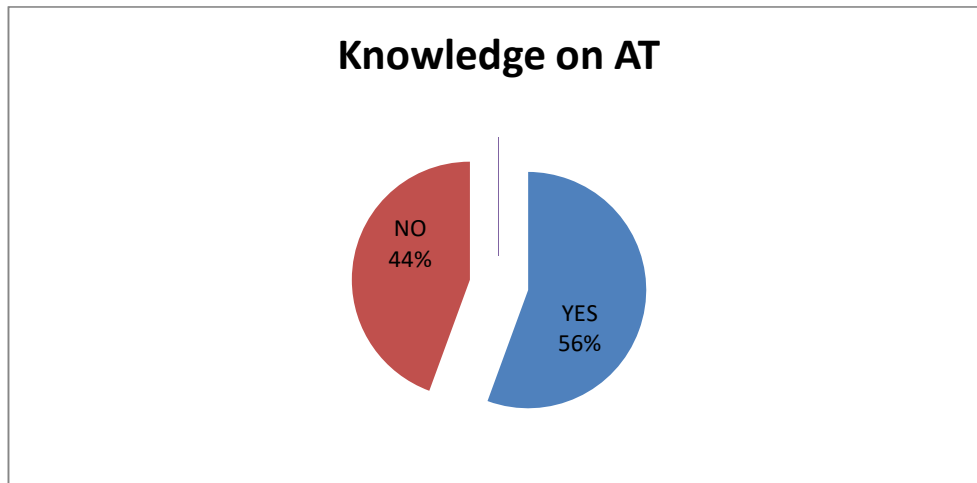


Figure 4.17: Knowledge on AT

In as much as majority of the library staff are trained, it is important to have all of them trained and possessing similar AT skills. Moore, (2000:12) proposes that the library staff offering user services should be trained with other local groups serving people with hearing impaired or some staff be sent to receive formal training and thereafter be assigned with the responsibility of training the rest of the library staff. In addition, the findings is in agreement with Agboke (2015:12) who suggest that, the library staff should be trained on the use of Captions resources so as to offer effective services to HIS.

4.18 Responses on the Rate on the Skills on AT.

The study further sought to establish the extent of the skills on AT. Those who were knowledgeable about AT rated their skills as follows. Majority of the respondents which took 5(55.56%) said their skills are good, 1(11.11%) said their skills are poor, the same no of respondents said very poor at 1(11.11%) while 2(22.2%) did not answer back. Figure 4.18 showed the findings. Table 4.8 presented the results.

Table 4.9: Rate on the Skills on AT.

No.	Response	Frequency	Percentage%
1.	Very Good	0	0%
2.	Good	5	55.6%
3.	Poor	1	11.1%
4.	Very Poor	1	11.1%
5.	Unanswered	2	22.2%
Total		9	100%

In line with AT the study sought to find out if the Library staff offering user services have received any formal or informal training. The study found out that slightly above half of the staff 5(55.6%) have not received any formal or informal training, while the remaining 4(44.5%) of the respondents said they have received formal or informal training. Those who received some training said that they were trained on NVDA and JAWS for the windows and Mandarin software for the VIS.

4.19 Responses on Formal or Informal Training.

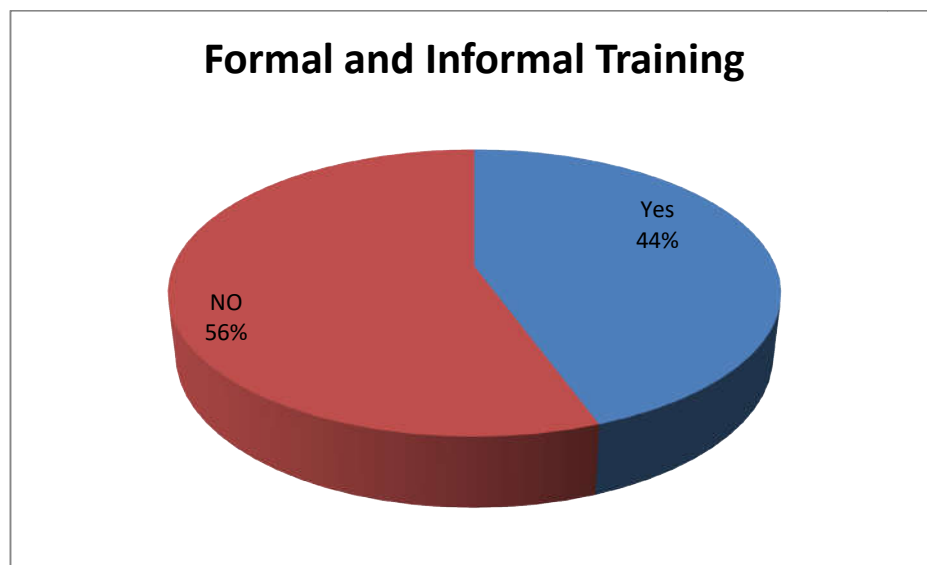


Figure 4.18: Formal or Informal Training

4.20 Responses on Offering Information Literacy Training with AT.

In line with offering Information Literacy training, the study sought to establish if the librarians trained the VIS and HIS through the use of AT. The study found out that 5(55.6%) of the respondents said No and 4(44.4%) of the same respondents said Yes. Figure 4.18 illustrates the results.

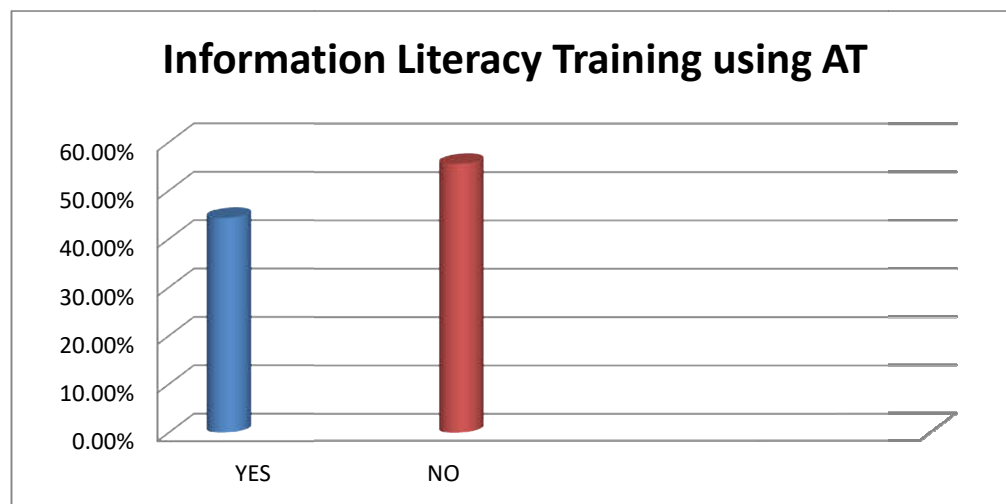


Figure 4.18: Offering Information Literacy Training with AT.

This translates to more than half the respondents not using AT while conducting Information Literacy Training. This is contrary to what Moore, (2000:16) proposed on the availing and use of AT in offering library services that include library orientation, bibliographic instructions and information literacy. In addition, it also controverts Coetzee (2016:28) recommendation on the need for enhanced hands-on information literacy training for VIS and HIS by the diverse AT and his emphasis on the crucial role AT plays in the educational environment for effective information access, retrieval and use.

4.21 Responses on the Role of the Librarian

The study sought to identify the role played by the librarian in meeting the information needs of the VIS and HIS. The responses showed that offering reference services and training on retrieval tools (OPAC) was the highest at 7(77.7%) respondents, this was followed by offering quick and easy access to information and organizing and arranging information materials at 6(66.7%) respondents, then finding

information materials at 4(44.4%) and lastly repackaging of information resources at 1(11.1%) responses. Figure 4.19 illustrates the findings.

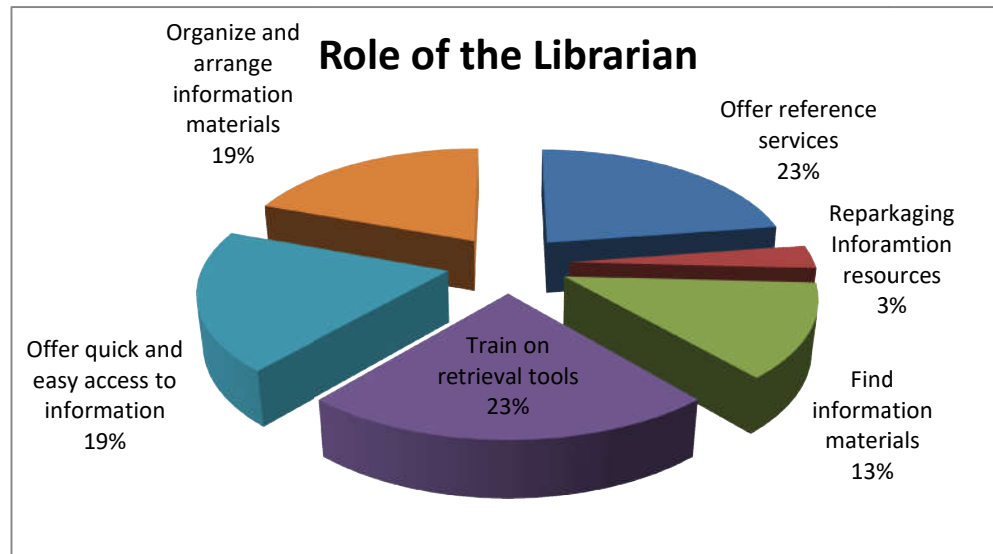


Figure 4.19 Role of the Librarian

The findings are corresponding to Verma (2015:92) findings when he reported that through searching, scrutinizing, reproducing and repackaging the needed information the librarians direct the library users to relevant information that meet information needs of these library users. The findings are consistent with the view of Fakoya (2015:226) that librarians are expected to offer efficient library services to the library users.

4.22 Responses on Comfort-ability when Offering Library Services

In line with the services offered to VIS and HIS, the study sought to find out how comfortable the librarians are when serving the VIS and HIS. The respondents revealed that, most of them were not comfortable serving the VIS and HIS. At the same time others said they were comfortable serving the VIS and HIS. As the results from the study have indicated, most of the staffs are not comfortable serving at the VIS and HIS service points due to aspects such as training and attitude. This is contrary to what Kamila (2013: 54) recommends that, training of library staff will boost the staff morale, makes them feel relevant and reassures them of their ability to work.

4.23 Responses on the Challenges

The respondents were asked to list the challenges that they face in meeting of their information needs. They listed a number of the obstacles as below:

- Small font size used in spine marking of books on the shelves and the shelves labeling.
- Shelves in the library are far away from the reading area making it a challenge picking books
- The library staffs have inadequate knowledge and skills in Assistive Technology thus limiting their capacity to offer services.
- The library lacks Braille text books.
- Insufficient number of computers with installed Assistive Technology facilities.
- Absence of a designated room for visually and hearing impaired students in the library.
- The visually and hearing impaired students have inadequate information on library services and how to access them.

4.24 Responses on Provision of Library Information to the VIS and HIS.

The study sought to determine the role of UoN Administrators as policy makers in the provision of library information to the VIS and HIS. The study revealed that half of 1(50%) of the Respondents are never involved in the book selection of the VIS and HIS information needs. The study also sought to establish how prepared the libraries are to serve the VIS and HIS. Half of 1(50%) of the respondents revealed that the library has a Disability Mainstreaming Policy that guides the services rendered to the students with disability, the library has a budget allocation for the special group requirements and the library has trained some of its staff on Kenyan Sign Language. This is contrary to Stebelman et al (1999:122) that recorded that, the Administrators should be involved in collection development and subscription of electronic resources because they determine the library budget. It is therefore concluded that the library is below average in its preparation to provide services to the VIS and HIS. The UoN Administrators suggested that there is need of involving them in book selection since

they are the link between the University management the library management and the VIS and HIS.

4.3 Chapter Summary

This chapter analyzed, presented and interpreted the findings collected through a questionnaire administered by the Google Forms to VIS, HIS, Library staff offering user services and UoN Administrators at UoN libraries. The research findings were divided into sub-topics of the questionnaires. The researcher used text, tables, pie charts and graphs to provide a clear and detailed presentation and interpretation of the findings.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter highlights a summary of the key findings of the analyzed data. This chapter also draws conclusion and makes recommendations on the study. The aim the study was to investigate the role of librarians in meeting the information needs of visually and hearing impaired students at the University of Nairobi Library.

The objectives of the study were to:

- i) Establish the types of information needs of the visually and hearing impaired students at the UoN libraries.
- ii) Examine methods used by the visually and hearing impaired students to access information resources at the UoN libraries.
- iii) Establish the role of the librarians in meeting the information needs of the visually and hearing impaired students.
- iv) Propose strategies for effective satisfaction of information needs of VIS and HIS at the UoN libraries.

5.2 Summary of the Findings

5.2.1 Type of Information Needs

The first objective of the study was establish the types of information needs of the visually and hearing impaired students at the UoN libraries. The findings revealed that the VIS and HIS who visited the library majorly searched for (55.6%)journals, (66.7%)textbooks,(55.6%)electronic media, and (61.1%) to meet their educational needs while the other personal information needs, recreational information needs, health information needs, religion needs, civic information needs and social cultural information needs that are mostly met by the other information resources were rarely searched for, meaning the VIS and HIS visit the library to purposely meet their educational needs. It was also established that half (50%) of the VIS and HIS spent 10 minutes to retrieve a single library material, this means that the information literacy training is poorly done and this is a true reflection of a failed orientation program

done to the VIS and HIS. However Kiambati (2015:41) confirms that VIS take long hours for searching a single book due to their sight challenge experienced.

Further findings revealed that more than half (78%) of the VIS and HIS indicated that they rarely sought librarian's assistance in accessing library resources while (22%) of VIS and HIS required the librarian assistance in accessing library resources. The study therefore revealed that those who searched by themselves were able to do so after the librarian had facilitated their access through extending the due date, retrieving and scanning the sources to an accessible format, enabled the talking computers and by locating and retrieving a library resource from the shelves. The (22%) respondents who revealed that they could not search library books by themselves cannot be ignored either since they are also library users or therefore it can be deduced this percentage should be given hands on training on the Information literacy by the AT to improve on their search of library resources (Coetzee, 2016:20). Most of the VIS and His had attended information literacy training on the awareness and access of resources in the library which was majorly done by group orientation and those who did not attend indicated that they were not aware of the training, lack of AT hindered the information literacy training and some indicated that they did not have any interest in the information literacy training.

5.2.2 Methods Used to Access Information Resources

The second objective the study also sought was to examine the methods used by the VIS and HIS to access the information resources at UoN Library. The results showed that majority of (53.85%) of the VIS commonly used Jaws of the windows and large prints respectively and (15.38%) used Braille books while 80% of the HIS used their personal Hearing Aids and 20% Cochlear Implants to assist them in communication and access of library resources. This confirms with Coetzee 2016:21) when he recorded that the AT facilities used is dependent to the type of impairment. It was revealed that the AT facilities available were inadequate and the internet connectivity that VIS and HIS commonly used as recorded by Ekwelem (2015:38) to access and use library resources was unreliable. It was also revealed that, varieties of applicable AT facilities were lacking at the UoN libraries. As for Note takers, Audio books Zoom texts with Audio and large prints applicable for the VIS to use and Smart phone Apps, Webcam, TTY, FM system and Audio Induction loop that are so relevant for

use by HIS were lacking in the UoN library. This confirms the discussions of Moore, (2013:14) that for better comfort and effective communication with students with hearing impairment, the library should avail and utilize the variety of technology. It can be inferred from the findings that there is need to avail variety of AT facilities in the library that are adequate for VIS and HIS use.

5.2.3 Role of the Librarian in Meeting the Information Needs

The third objective was to establish the role of the librarian in meeting the information needs of the VIS and HIS. Results from the study showed that the library staff would (55.6%) find information materials for the users, train the VIS and HIS on the retrieval tools (OPAC) majorly through group orientation and individualized training, and organize and arrange information materials in the library for faster retrieval, (50%) offer reference services and offer quick and easy access to information resources in the library and (16.7%) repackaged information resources in that order to VIS and HIS. However it was revealed that the library staff at the UoN libraries do not offer customized services to the VIS and HIS because they lacked special skills to serve the visually and hearing impaired students. The discussion of Verma (2015:92) confirms that once the library staff have found, analyzed and repackaged the searched for information she should be in a position to avail the information in an applicable format to meet the information needs of all kinds of library users. Meaning the library staff that is not able to present the information searched for in the most applicable format to VIS and HIS requires AT formal or informal training and workshops on special skills. It was revealed that most (70.59%) of the VIS and HIS had an opinion that as much as the librarian play their roles well, they have little knowledge on the use of AT in serving the VIS and HIS while (11.76%) had little and very little knowledge on AT use while serving VIS and HIS respectively. Shumaker et al (2016:54) confirmed that better understanding of concepts is taught to VIS when training is done using AT. Kamila (2013:54) recommended to library staff that there is need for expansion of appropriate techniques for effective services to VIS and HIS which in the end boosts the self-confidence of the library staff.

5.2.4 Challenges Facing VIS and HIS

Finally the study investigated on the challenges that Vis and HIS faced in the library while meeting their information needs. The following was established:

- i) Most of the computers in the library lacked AT, power backups and were slow in connecting to the networks.
- ii) Majority of the shelves are far away from the reading area hindering accessibility of books and the spine labels of the books were done in small font size making them invisible.
- iii) Absence of large print media, Braille textbooks, and screen readers in the library that would be used to access information.
- iv) Absence of a separate room in the library for the students with disability kept the VIS and HIS off the library.
- v) There is need to sensitize the library staff on the information needs of the VIS and HIS.
- vi) Majority of the library staff indicated that they are not able, they are uncomfortable and lacked confidence to offer services to the VIS and HIS effectively through AT due to lack of the training on sign language and Braille usage.
- vii) More than half of the library staff revealed that the library management lacks a set up budget for the special needs requirements.

5.2.5 Role of UoN Administrators in Offering Effective Library Services

A study by Fakoya (2015: 227) suggests that the library management and the University management should collaborate to ensure that VIS and HIS obtain enough library services and support to facilitate improved academic performance, and future development. He further states that the University Administration should invest more in library resources, hardware, AT, software and human ware to meet the needs of VIS, HIS and other impaired students which in return will free them from depending to other students for academics and survival. **National Centre on Accessible Information Technology in Education. (2013)** cited in (Agboke 2015:11) points out that in the same manner that normal students have information needs that should be effectively disseminated to them, the library should avail print resources together with translated audio-visual materials and AT such as Captions material respectively.

5.3 Conclusion

Drawing from the judgments and deliberations completed in the study, this study made the subsequent conclusions:

First, the VIS and HIS identified educational need as their main reason in the library, as much as they also have social and personal information needs, civic information needs, recreational information needs, religion information needs, health information needs, and social cultural information needs just as the able students. The study has revealed user preferences and maximum utilization of various information sources and assisted in detection of redundant information source. The study has also facilitated the inclusion of other information needs that the library management has been neglecting as important to VIS and HIS. This conclusion was made in realization that the VIS and HIS visited the library despite of the challenges they met.

From the methods of access of information resources by the VIS and HIS, it was clear that the level of utilization of AT available in the library was low. The VIS and HIS were able to use just a handful of AT facilities when a big variety of AT facilities can be made available from the market. Many of the VIS and HIS would not use the library because they were unaware of the available services that could meet their information needs. Further, only Jaws for the Widows and would be used by the VIS while HIS would only use Hearing Aids and Cochlear while the rest were barely used. The library staff was put into light that they need to learn on how to use the available AT during orientation program and use it hands on during information literacy training.

Difficulty in the use of information resources in the library due to lack of sufficient knowledge of AT, librarian attitude, poor library environmental position was listed as the major reason behind the poor utilization of information resources that would meet the information needs of VIS and HIS. Customized VIS and HIS orientation program and information literacy training is an effective technique that can bring improvement to the under-utilization of library information resources. Although the library staff offer this service to the VIS and HIS without the required AT skills and AT facilities, the training offered was inefficient and therefore need for improvement.

The role of the librarian in meeting the information needs was a challenging concept. The study concluded that, the librarian knew their role in serving library users. However, the library staffs were not skilled enough in using the AT, in communication and serving the VIS and HIS. Those library staffs that tried to serve the VIS and HIS were uncomfortable, lacked confidence and were unskilled in

serving VIS and HIS. It is therefore paramount that the library staff and the VIS and HIS be trained on how to use the AT which is a vital tool in the access, retrieval and use of the library resources.

Finally, the study concluded that the librarian's role was faced with a number of challenges where students with VIS and HIS experienced when accessing and using the library. The main challenges included inadequate budget allocation for special services, library staff offering user services lack special skills to serve VIS and HIS, inadequate and poorly maintained computers with AT, unfriendly and staff with negative attitude who are unwilling to serve VIS and HIS.

5.4 Recommendations

Taking into account of the study findings and conclusions on the role of the librarian in meeting the information needs of the visually and hearing impaired students, the following recommendations were made to improve the services offered to VIS and HIS by the library staff.

5.4.1 Policy Recommendations

5.4.1.1 Type of Information Needs of the VIS and HIS

1. The study recommends that the library should contact both national and international Agencies to facilitate purchase of hardware and software used in accessing library resources by VIS and HIS.
2. The study recommends that the library management should encourage VIS and HIS to use the available resources in the library like Scanning of documents, JAWS/NVDA software, and both visual and audio visual resources.

5.4.1.2 The Methods of Access

1. This study recommends for improvement on the methods of access through Information literacy programmes of the VIS and HIS.
2. The study also recommends for reasonable budget allocation for the purchase of more AT, and more information resources of the relevant access format.
3. The study recommends for installation of the announcement and emergency audio and visual systems that can alert impaired students in the event of fire and security.

4. The study also recommends for a separate room assigned for impaired students. The room should be equipped with Braille books, screen readers, scanners, JAWS/NVDA computer screens, head-phone and preferred formats of information resources.

5.4.1.3 Training for Librarians

The study recommends that the **library management should ensure training through workshops, seminars and induction forums on special skills** like sign language, reading Braille books, public relations and communication skills.

5.4.1.4 Role of the Administrators

1. The study recommends that the library administrators should provide a detailed list of AT available in the library.
2. The study recommends that the administrator should lobby for the formation of local links and develop regional hub and consortia where training, items, software and equipment can be trained, tested, purchased and shared.
3. The study recommends for inclusion of Administrators in the determining of the quantity and quality of library services.

5.4.1.5 Best practices

The researcher recommends for institutional preparedness on the best practices of meeting information needs of students with disability so that upcoming institutions of higher learning can refer to.

5.1.4.6 Partnership and Collaboration

The study recommends need for partnership and collaboration amongst public university and other relevant and willing Non-Governmental Organizations on the best way to meet the information needs of the visually and hearing impaired students.

5.4.2 Further Research

The researcher recommends the following areas for further research.

1. It is vital to research in the area of how prepared is the 21st librarian in offering user services to the visually and hearing impaired students in this dynamic world of complex technology.

2. The researcher recommends for an elaborative study done to determine the visually and hearing impaired students user need assessment for better preparedness of both the library management and the librarian.

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APPENDICES

APPENDIX I: INTRODUCTION LETTER

Monda Linet

Po Box 30197-00100

Nairobi – Kenya.

Dear Respondent,

RE: INTRODUCTION LETTER

I am a postgraduate student undertaking a Masters of Library and information Science at the University of Nairobi. I am carrying out research on the **ROLE OF LIBRARIANS IN MEETING THE INFORMATION NEEDS OF VISUALLY AND HEARING IMPAIRED STUDENTS, AT THE UNIVERSITY OF NAIROBI LIBRARIES, KENYA.**

The objectives of the research were to: establish the types of information needs of the visually and hearing impaired students at the UoN libraries; examine methods used by the visually and hearing impaired students to access information resources at the UoN libraries; establish the role of the librarians in meeting the information needs of the visually and hearing impaired students; and propose strategies for effective satisfaction of information needs of VIS and HIS at the University of Nairobi.

The purpose of this letter therefore is to request the management to allow me to collect data which will be used for academic purposes only. The data collected will be treated with maximum confidentiality.

Thank you.

Yours sincerely,

Monda Linet.

Registration Number C54/844494/2016

APPENDIX II: TRANSMITAL LETTER



UNIVERSITY OF NAIROBI

FACULTY OF ARTS

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE

Telephone: +254 20 318262, Ext. 28095
Telegram: Varsity
Fax: +254 20 2245566
dnjiraine@uonbi.ac.ke

P.O. Box 30197- 00100 GPO
Nairobi, Kenya.

Our Ref: UON/CHSS/FOA/DLIS/303

14th June 2018

To whom it may concern

Dear Sir/Madam,

RE: Linet Monda C54/84944/2016

The above named is a bonafide student at the University of Nairobi undertaking a Master of Library and Information Science (MLIS), at the Department of Library and Information Science.

She has successfully completed her course work and has been cleared by the Department to collect data for her research project "*The role of Librarians in meeting the Information Needs of Visually and hearing impaired students: A case study of University of Nairobi Library. (Kenya)*" which is a requirement for the award of the degree.

Your support towards accomplishing the research study will highly be appreciated.

Yours faithfully,

A handwritten signature in blue ink, appearing to be 'Dorothy Njiraine'.

Dr. Dorothy Njiraine
Ag. Chairperson
Department of Library & Information Science (DLIS)



APPENDIX III: QUESTIONNAIRE FOR STUDENTS WITH HEARING IMPAIRMENT

Section A: General Information

Please tick appropriately.

1. Age:
- a. Below 20 yrs.
 - b. 21yrs- 25 yrs.
 - c. 26 yrs.- 30yrs
 - d. 31yrs- 35yrs
 - e. Above 35yrs

2. Gender: Male Female

3. Year of study:
- a) year 1
 - b) Year 2
 - c) Year 3
 - d) Year 4
 - e) Year 5

4. Please indicate below the area of study being undertaken

.....

5. Indicate the nature of your hearing impairment:

- a) Conductive hearing loss
- b) Sensor neural hearing loss
- c) mixed hearing loss
- d) Auditory Processing Disorder

Section B: Information Needs,

6. a) What type of information resources do you search for in the library?

- | | | | |
|--------------------------------|--------------------------|---------------------------|--------------------------|
| 1. Government publication | <input type="checkbox"/> | 8. Newspapers | <input type="checkbox"/> |
| 2. Journals | <input type="checkbox"/> | 9. Monographs | <input type="checkbox"/> |
| 3. Textbooks | <input type="checkbox"/> | 10. Reference works | <input type="checkbox"/> |
| 4. Audio Visual | <input type="checkbox"/> | 11. Electronic Media | <input type="checkbox"/> |
| 5. Reports | <input type="checkbox"/> | 12. Dissertation & Thesis | <input type="checkbox"/> |
| 6. Information on the internet | <input type="checkbox"/> | | |
| 7. Email | <input type="checkbox"/> | | |

6. b) Please indicate any other information needs not included in the list above

.....
.....

Section C: Accessibility of Information Resources

7. Are you able to access library resources without any assistance?

Yes No

8. How long do you take to retrieve a single library resource?

- | | |
|---------------|--------------------------|
| a) 20 minutes | <input type="checkbox"/> |
| b) 15 minutes | <input type="checkbox"/> |
| c) 10 minutes | <input type="checkbox"/> |
| d) 5 minutes | <input type="checkbox"/> |

9.a) Are you able to use the library resources by yourself?

Yes No

9.b) If No to 9a, does the librarian assist you to use the resources? Please state how?

.....

10. In a scale of 1-5, where 1 is 'strongly agree' 2 is 'agree', 3 is 'uncertain' 4 is 'disagree' and 5 is 'strongly disagree', please indicate by a tick the extent to which you agree to the following statements.

Please tick appropriately

Item	statements	strongly agree	agree	uncertain	disagree	strongly disagree
a	All computers in the resource room are equipped with internet connectivity.					
b	The internet connectivity is always good in the resource room					
c	All computers in the section have assistive software to assist me					
d	There are enough computers and other assistive technologies for hearing impaired students in the library.					
e	You have been trained on how to use the assistive technology in the library?					
f	It is very difficult for me to use e-resources					
g	The staff members in the section are knowledgeable to assist me to access e-resources					
h	Staff members in resource room are enough to assist all students with hearing disability					

11 a) Have you ever attended any information literacy training on the awareness and access of resources in the library?

Yes

No

11, b) If no to 11 a) what was the reason?

.....
.....
.....

11,c) If yes to 11a, which among the following methods were used for delivery?

- a) Group orientation
- b) One on one /individualized training
- c) Use of projector
- d) Through the use of assistive technology

12a). Do you have any knowledge on assistive technology in the library?

Yes No

12.b) If yes to 12 a, how can you rate your skills on assistive technology?

- a) Very good
- b) Good
- c) Poor
- d) Very poor

12.C) Which type of assistive technology in the library have you ever used?

- a) Cochlear implants
- b) Hearing aid
- c) Smart phone apps
- d) Webcam/video chat
- e) TTY (Text Telephone)
- f) Fm system
- g) Audio induction loop

Section D: Role of Librarian

12 a) what role does the librarian play in meeting the information needs of the hearing impaired students? Please tick appropriately.

- a. Offer reference services.
- b. Repackage information resources.
- c. Find information materials.
- d. Train on the retrieval tools. (OPAC)
- e. Offer quick and easy access to information.
- f. Organize and arrange information materials.

12 b) In your opinion, how knowledgeable are the staffs currently serving the hearing impaired students?

- a) Very high knowledge on assistive technology
- b) High knowledge on assistive technology
- c) Average knowledge
- d) Little knowledge
- e) Very little knowledge

Section E: Challenges and Solutions.

12. What challenges do you experience in accessing information resources in the library?

.....
.....
.....

13. What do you think can be done to facilitate effective services to the hearing impaired students in the library?

.....
.....
.....

APPENDIX VI: QUESTIONNAIRE FOR STUDENTS WITH VISUAL IMPAIRMENT.

Section A: General Information

Please tick appropriately.

1. Age:

- a. Below 20 yrs.
- b. 21yrs- 25 yrs.
- c. 26 yrs.- 30yrs
- d. 31yrs- 35yrs
- e. Above 35yrs

2. Gender: Male Female

3. Year of study:

- a) Year 1
- b) Year 2
- c) Year 3
- d) Year 4
- e) Year 5

4. Please indicate below the area of study being undertaken

.....

5. Indicate the nature of your visual impairment:

- a) Total blindness
- b) Legal blindness
- c) Low vision
- d) Partial sighted

Section B: information Needs.

6. a) What type of information resources do you search for in the library?

1. Government publication
2. Journals
3. Textbooks
4. Audio Visual
5. Reports
6. Information on the internet
7. Email

8. Newspapers
9. Monographs
10. Reference works
11. Electronic Media
12. Dissertation & Thesis

6. b) Please indicate any other information needs not included in the list above

.....

.....

Section C: Accessibility

7. Are you able to access library resources without any assistance?

Yes No

8. How long do you take to retrieve a single library resource?

a) 20 minutes

b) 15 minutes

c) 10 minutes

d) 5 minutes

9 a) Are you able to use the library resources by yourself?

Yes No

9 b) If No to 9 a, does the librarian assist you to use the resources? Please state how?

.....

.....

10. In a scale of 1-5, where 1 is 'strongly agree' 2 is 'agree', 3 is 'uncertain' 4 is 'disagree' and 5 is 'strongly disagree', please indicate by a tick the extent to which you agree to the following statements.

Please tick appropriately

Item	statements	strongly agree	agree	uncertain	disagree	strongly disagree
a	All computers in the resource room are equipped with internet connectivity.					
b	The internet connectivity is always good in the resource room					
c	All computers in the section have assistive software to assist me					
d	There are enough computers and other assistive technologies for hearing impaired students in the library.					
e	You have been trained on how to use the assistive technology in the library?					
f	It is very difficult for me to use e-resources					
g	The staff members in the section are knowledgeable to assist me to access e-resources					
h	Staff members in resource room are enough to assist all students with hearing disability					

11 a) Have you ever attended any information literacy training on the awareness and access of resources in the library?

Yes No

11, b) If no to 11 a, what was the reason?

.....

11,c) If yes to 11 a, which among the following methods were used for delivery?

- a) Group orientation
- b) One on one /individualized training
- c) Use of projector
- d) Through the use of assistive technology

12.a). Do you have any knowledge on assistive technology in the library?

Yes No

12.b) If yes to 12 a, how can you rate your skills on assistive technology?

- a) Very good
- b) Good
- c) Poor
- d) Very poor

12.C) Which type of assistive technology in the library have you ever used?

- a) Jaws for windows
- b) Braille books
- c) Dolphin Pen/ Note takers
- d) Screen readers
- e) Audio books
- f) Zoom texts with Audio
- g) Large prints

Section D: Role of Librarian

13 a) What role does the librarian play in meeting the information needs of the visually impaired students? Please tick appropriately.

- a) Offer reference services.
- b) Repackage information resources.
- c) Find information materials.
- d) Train on the retrieval tools. (OPAC)
- e) Offer quick and easy access to information.
- f) Organize and arrange information materials.

13 b) In your opinion, how knowledgeable are the staffs currently serving the visually impaired?

- a) Very high knowledge on assistive technology
- b) High knowledge on assistive technology
- c) Average knowledge
- d) Little knowledge
- e) Very little knowledge

Section E: Challenges and Solutions.

14. What challenges do you experience in accessing information resources in the library?

.....

.....

.....

15. What do you think can be done to facilitate effective services to the visually impaired students in the library?

.....

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.....

APPENDIX VII: QUESTIONNAIRE FOR LIBRARY STAFF OFFERING USER SERVICES

Section A: Biographical Information

1. A) Please indicate the name of your campus/department?

.....

1. B) What is the name of your library?

.....

2. What is your highest level of education

PHD Master's Degree Diploma Certificate

3. Gender: Male Female

4. Age :

Category

a) 20 -30

b) 31-40

c) 41-50

d) 51and above

5. Number of years working in the University?

a) 1 -10

b) 11-20

c) 21-30

d) 31and above

Section B: Provision of Information Services to Visually and Hearing Impaired

Students

6a).Have you received any training on special needs?

Yes No

6 b) If yes in 6 (a), please indicate the kind of training offered?

.....
.....
.....

7.a).Does the library conduct customized orientation programme to the visual and hearing impaired students?

Yes No

7 b) If yes, please indicate the content of the orientation.

.....
.....

8. How often do you assist visual and hearing impaired students?

a) Very often
b) Often
c) Sometimes
d) Rarely

Section C: Assistive Technology and Information Literacy

9. a), Do you have any knowledge on assistive technology?

Yes No

9 b), If yes to (9a), how can you rate your skills on assistive technology?

a) Very good
b) Good
c) Poor
d) Very poor

10. Have you received any formal or informal training on the use of assistive technology?

Yes No

11. Which type of assistive technology is available in the library?

(Please list any that you know)

.....
.....
.....

12a). Have you ever conducted any information literacy training on the awareness and use of resources in the library by use of the assistive technology?

Yes

No

12 b) If yes to 12 a, which among the following methods were used for delivery:

- a) Group orientation
- b) One on one /individualized training
- c) Use of projector
- d) Using assistive technology

12 c) If No to 12 b, what was the reason?

.....

.....

.....

Section D: Role of Librarian

13. What role does the librarian play in meeting the information needs of the visually and hearing impaired students? Please tick appropriately.

- a. Offer reference services.
- b. Repackage information resources.
- c. Find information materials.
- d. Train on the retrieval tools (OPAC).
- e. Offer quick and easy access to information.
- f. Organize and arrange information materials.

14. How comfortable are you while providing services to students with visual and hearing impairment through Assistive Technology?

.....

.....

.....

SECTION E: Challenges and Solutions

15. What challenges do you experience in offering user services to visual and hearing impaired students?

.....
.....
.....

16. What do you think can be done to improve the services provided to visual and hearing impairments in the library?

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.....
.....

APPENDIX VIII: QUESTIONNAIRE FOR UoN ADMINISTRATORS.

Section A: Biographical Information

1a) Please indicate the name of your department?

.....

2. What is your highest level of education

PHD Master's Degree Diploma Certificate

3. Sex: Male Female

4. Age category:

a) 20 -30
b) 31-40
c) 41-50
d) 51 and above

5. Number of years working in the University?

a) 1 -10
b) 11-20
c) 21-30
d) 31-40
e) 41 and above

Section B: Provision of Information about Library Services to Visually and Hearing Impaired Students

6). How are the libraries prepared to serve visual and hearing impaired students?

.....
.....
.....

7 a). Are you involved in the library selection and acquisition of library information materials for the visual and hearing impaired students?

YesNo

7 b) If yes please indicate your role in book selection?

.....
.....
.....

8. What challenges does the administration experience in assisting visually and hearing impaired students in accessing and using the library resources?

.....
.....
.....
.....

9. What do you think can be done to improve the services provided to the visually and hearing impaired students?

.....
.....

APPENDIX IX: WORK PLAN

ACTIVITIES/WORK	WEEKS													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Selecting research topic, proposal writing and submission to board of postgraduate studies	■	■	■	■										
Preparation for data collection process					■	■								
Data analysis							■							
Writing of project								■	■					
Submission of draft thesis for review										■				
Submission of corrected draft project.											■			
Submission of final thesis to board of postgraduate studies.												■		
Presentation on conferences and seminars									■	■				
Preparing papers for journal publication									■	■	■			
Thesis defense												■	■	■
Corrections and final submission of project												■	■	■

APPENDIX X: BUDGET PLAN

NO	ITEMS	SPECIFICATIONS	QUANTITY	COST IN KSHS @	TOTAL AMOUNT KSHS
1	Printing papers -Printing proposal drafts -Printing questionnaires -Printing interview schedules -Printing final copies	A4, high quality	5 reams	350.00	1750.00
2.	Stationary -Writing pad -pens	A, 4 high quality	2 pads 5 pens	100.00 20.00	200.00 100.00
3.	Proposal preparation		7 copies	500	3500.00
4.	Research assistant		5	500	2,500.00
5.	Data analyst		1	5,000	5000
6.	Equipments -Flash disk -Modem -Airtime -Internet bundles		1	3,000 2,500 5,000 5,000	3,000 2,500 5,000 5,000
7.	Binding of the final copies of thesis	Cloth binding	7 copies	450	3,150
8.	Editing				5,000
9.	Contingencies				5,000
GRAND TOTAL					41,700